local CREATORS' Market

Local Creators' Market

Six Places, Six Crafts, Myriad Delights

Supporting Traditional Crafts

Local Creators' Market is a two-year project launched in FY2017 by Japan's Ministry of Economy, Trade and Industry (METI) to support traditional industries in their branding efforts. Its aim has been to strengthen ties between the localities where craft traditions are upheld, the creators who live there carrying on those skills and know-how, and potential markets for them beyond Japan.

The six FY2018 municipalities introduced here were selected in a careful screening of applicants. Each locale is notable for the high level of artistry and creativity carried out within a traditional sphere, as well as the potential of its products to appeal to a wider audience.

To find out more, visit **local-creators-market.com.**

Six Places, Six Crafts

Mishima Basketry
Mishima, Fukushima
Mishima Town
Amikumi-zaiku Association of Oku-Aizu, Mishima
Traditional Amikumi-zaiku Guild, Oku-Aizu
Mishima-machi Living Crafts Center
Megumi Iguchi

Gunma Silk
Annaka and Midori, Gunma
Gunma Prefecture
Miyama Zenshoku Ltd.
Usui Raw Silk Company

Seto Ceramic Ware
Seto, Aichi
Seto City
Aichi Pref. Pottery Industry Cooperation
Aito Co., Ltd.
Chikudoen
Hantoen
Imaruyo Co., Ltd.
Kofutoen
Sanpoen
Singama
Sojuen Inc.
Tsubakigama

Kishu Lacquerware
Kainan, Wakayama
Wakayama Prefecture
Kainan City
Kishu Lacquerware Traditional Industry Association
Katsuhiko Hayashi
Kumiko Tanioka

Sekishu Washi Paper
Hamada, Shimane
Hamada City
Kawahira
Nishita Washi Kobo
Seki-Ou Shokokai
Sekishu Washi Kubota

Kurashiki Canvas
Kurashiki, Okayama
Kurashiki City
Baistone Co., Ltd.
Marushin Industry Co., Ltd.
Takeyari Co., Ltd.

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This page: Red and white cotton strands are wound onto drums prior to loading onto the loom at Marushin Industry Co., Ltd., a manufacturer of Kurashiki canvas.

Opposite page: Detail from a lacquered *makie* piece by Kishu artisan Katsuhiko Hayashi, featuring mother-of-pearl inlay and raised lacquer work.

Cover: Motoshige Aoki of Mishima, a maker of *amikumi-zaiku* basketry, wears a cape he fashioned himself. Made of tightly woven *hiroro* sedge, it repels rain and keeps him warm.

Back cover: So Kubota at work sheeting washi paper at Sekishu Washi Kubota. Hanging from the ceiling is a large talisman ring known as a *chi no wa*. Common to the region, it is believed to protect against misfortune.


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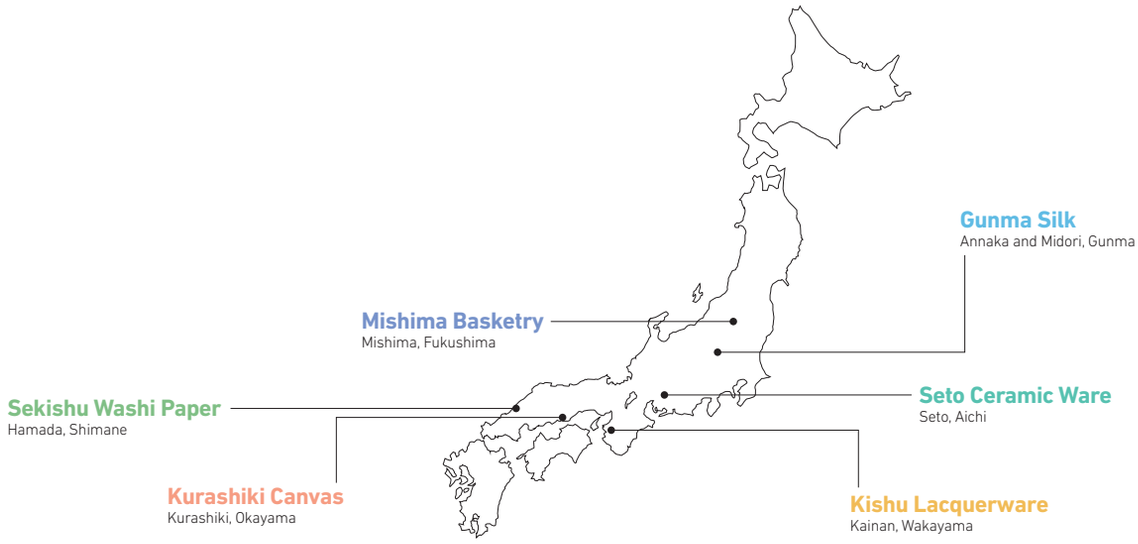

Kishu Lacquerware

Kainan, Wakayama

The moist, silky look of *urushi* lacquer is deceiving: this all-natural coating is durable enough to outlast us all. Two artisans carry on the Kishu heritage of using raw sap in innovative ways.

Numerous colored base layers were polished down to yield the shimmering effect of iridescent clouds in this work by certified traditional artisan Kumiko Tanioka, the first woman in Kishu to earn the title.

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Sekishu Washi Paper

Hamada, Shimane

Crafted by hand from the fiber of trees grown by the artisans themselves, these resilient, textured papers are easy on the environment in ways worth knowing about.

These samples of *momigami* crumpled paper by Nishita Washi Kobo show just a few of the different expressions that can be achieved with this sturdy, versatile paper that resists tearing.

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Kurashiki Canvas

Kurashiki, Okayama

From ship sails to street fashions, Japan's 100 percent natural high-quality canvas turns up in more places than you'd imagine. And it's surprisingly soft and silky to the touch.

The No. 2 canvas woven on vintage Belgian looms by Takeyari Co., Ltd. is the densest weave of all. Bags made of it enjoy cult status, and it can only be produced here.

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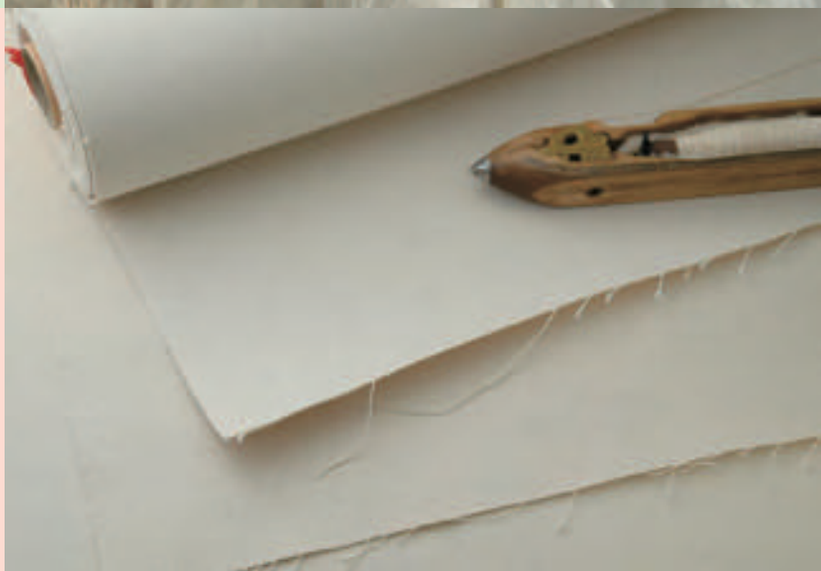


Mishima Basketry

Brand Highlights

- The area's long history of woven handicraft: basketry for fishing and agricultural use has been traced to the prehistoric Jomon period
- A colorful calendar of festive rites and rituals honoring the old ways
- A community of artisans in tune with seasonal cycles, living off the land and crafting works of all-natural materials

The town of Mishima in western Fukushima prefecture lies in an area known as Oku-Aizu, where the old mountain-village traditions of the Tohoku region still hold sway. The Tadami River runs in a rushing torrent through these highlands; in winter the area receives heavy snowfall of up to 2 meters.

Amikumi-zaiku, or plaited basketry, is the local craft. About 10 percent of the town's 1,600 residents weave baskets, sieves, cushions, and other items, turning locally sourced plant materials into functional designs of simple, uncontrived beauty.

Each autumn these weavers fan out into the hills to gather their materials: *yamabudo* crimson glory vine, *matatabi* silver vine, and *hiroro* sedge. They cure and dry these gifts of nature and then devote the snowbound winter months to their weaving.

In the local dialect these basket weavers are called *kojin*—"makers of things." Few Mishima residents engage in *amikumi-zaiku* as their livelihood; many turn to it as a post-retirement pastime. They report happily on how they become absorbed in the work. Following the whims of their creative muse is a satisfying way to pass the long winter months, they say.

Mishima's *kojin* use their works in their own homes, give them away as gifts, and display them at the living crafts center in town, where they are also sold.

The craft tradition of basketry is nearly as old as these Oku-Aizu hills. Beautifully plaited fragments of *amikumi-zaiku* that are believed to date back 2,400 years have been unearthed in Mishima. From the outside, the slower pace of life, in step with the cycle of the seasons, makes retirement here look attractive indeed.

Symbolic rites to honor mountain deities and various ceremonies related to farming are still faithfully observed by Mishima's citizens. As with many rural communities in Japan, depopulation is a pressing concern. Residents of Mishima welcome young people with a desire to relocate and help carry on its traditions.

At two places in town the Tadami Railway crosses the river on a picturesque bridge. Visitors and photography buffs come from near and far to capture these Instagrammable scenes.

Opposite page: Tomeko Funaki lives in the Magata area and works with *hiroro* sedge to make beautiful items like this backpack by her own hand. Her baggy *sappakama* trousers are traditional farming wear. Made of cotton, they are comfortable and easy to move around in.
Top left: The Tadami Line crosses the Tadami River.
Top right: Baskets crafted of *matatabi* silver vine by Seiichi Wakabayashi, a *kojin* from Asamata.
Above left: Statues of Jizo Bosatsu, guardian deity of travelers and children.
Above right: An Oku-Aizu mountain hamlet in the Kawai district presents a scene of rustic beauty.

Bungo Igarashi
A leading light of Mishima basketry, this late master of *amikumi-zaiku* made of *matatabi* silver vine was one of the first in Mishima to be certified as a traditional artisan.* His teachings have had a profound influence on those who knew and studied under him.

Hiroshi Kodaira
Kodaira turned to *amikumi-zaiku* when illness ended his former job as a carpenter. He works mainly with *matatabi* silver vine. "I don't mind whether my pieces sell or not," he asserts. "I'm happy to give them away or use them myself."

Masaei Meguro
Meguro took up *amikumi-zaiku* after retirement; he is now a certified traditional artisan with 20 years of experience. He learned *matatabi* weaving styles from Bunko Igarashi. His rice baskets sell out fast at regularly held craft fairs.

Junkichi Komatsu
As a young boy Komatsu watched his father weave items from straw; he didn't take up basketry himself until after turning 60. A former certified traditional artisan, today he receives a steady stream of orders for his *matatabi* baskets.

Mitsuyoshi Igarashi
A recipient of many prestigious awards and accolades for his work with *yamabudo* crimson glory vine, Igarashi insists that beauty in shape and appearance alone is not enough. "A truly well-made piece," he says, "must exude warmth."

Motoshige Aoki
Aoki grew up watching his mother make farm tools. He began weaving baskets in earnest at the end of a long teaching career. A certified traditional artisan, he enjoys the full cycle of working with *yamabudo* vines, from gathering the material to shaping it.

Toichi Kanke
Kanke says his former job at the Mishima-machi Living Crafts Center opened his eyes to the appeal of basketry. This all-around expert on mountain living works with *yamabudo* vines and enjoys applying traditional techniques to meet contemporary needs.

Tomeko Funaki
Funaki, a certified traditional artisan, learned to plait *hiroro* sedge from her mother-in-law. In their farmhouse the year was split by field work and indoor crafts. Always one to try out some new design idea, she says, "Making things is fun. I love it."

Mishima residents who gather and process natural materials for their handmade *amikumi-zaiku* works consider themselves neither craftspeople nor artists. They prefer to be thought of as *kojin*, makers of things. The Kojin Matsuri is an annual crafts fair that's been held in Mishima each June since 1987. More than 150 exhibitors gather from all over Japan to sell their wares, which range from basketry to pottery and even glassware, at an outdoor location. A destination in its own right, the event now draws some 20,000 people. The individuals introduced on these pages are just a few of the talented *kojin* who call Mishima home.

Amikumi-zaiku: A living craft

The Japanese government named the *amikumi-zaiku* basketry of Mishima a Traditional Craft Product in 2003. But the movement that led to this recognition began two decades earlier, in 1981. Amid concerns about depopulation, then mayor Nagao Sato identified *monozukuri*—the art of making things—as a way to both preserve the old mountain ways and stimulate the local economy.

Subsequent projects to boost interest in *monozukuri*, including the 1987 launch of the Kojin Matsuri crafts fair, inspired more and more Mishima residents to take up basketry, a swell of interest that eventually prompted the government designation.

It would be misleading to suggest that *amikumi-zaiku* has since developed into a full-fledged local industry. On the contrary, for the residents of Mishima the point has rather to do with deepening one's enjoyment of life. What better revitalization scheme could there be than the very joy of living itself? At the end of the day, it's this attitude that will do the most to keep the old ways intact. The fact that 10 percent of its population are *kojin* is one of the most valuable assets this spirited mountain community has.

Visit Mishima and you will see handmade basketry everywhere. Neither decorative pieces of art nor casual souvenirs, they are living works of natural beauty, used and appreciated daily.

From top left: *Matatabi* silver vine baskets used for washing rice, a popular choice of visitors (Hiroshi Kodaira); flat *hiroro* sedge cushions (Tomeko Funaki); *yamabudo* crimson glory vine baskets (Motoshige Aoki); *matatabi* basket (Junkichi Komatsu); *yamabudo* clutch purse (Mitsuyoshi Igarashi).
Opposite page: A *hiroro* sedge shoulder bag (Setsuko Kubota) rests atop a *yamabudo* basket (Taijiro Itabashi), a delightful contrast in colors. Plaiting the naturally curvy and twisted *yamabudo* vines into a desired shape without leaving any gaps in the weave demands years of practice.

*National certification as a traditional artisan is bestowed upon those who endeavor to preserve a traditional craft native to their area. Holders of this title are devoted to the study of the craft's techniques and skills, and play an active role in transmitting the vocation to the next generation.

Women of Mishima model *amikumi-zaiku* bags and baskets. Most of the residents shown here are *kojin*, although the pieces they hold may not have been made by their own hand. *Yamabudo* baskets and *hiroro* bags are as natural a part of the landscape here as the fields and trees that are their source.

In the olden days *amikumi-zaiku* was a winter activity performed when the rural settlements were snowbound. People used those long months to fashion the household tools and other implements they needed for farming and working outdoors—thus the emphasis on functionality. The woman at bottom right is holding two *matatabi* silver vine baskets made with a *yotsume* cross pattern, a basic weave that's strong and durable and well suited for the handling and storage of produce. The photo above that one, at far right, shows a *yamabudo* rucksack made 100 years ago for use in the mountains. Its well-conceived cord design, handy size, and simple beauty are clearly evident.

On an autumn day in mid-November, students of the Seikatsu Kogei Academy head out to gather *matatabi* silver vine, which grows profusely on sunny hillsides beside streams. They take only what they need, leaving two buds on each first-year-growth branch for the following season. The academy was launched in 2017 by Mishima as a way to help the younger generations become familiar with mountain ways. Its students live in Mishima for one year, learning *amikumi-zaiku* techniques and practicing farming. Those who wish to stay on after completing the program may sign on as apprentices for an additional two years.

Amikumi-zaiku time slip

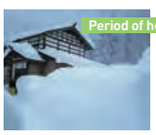
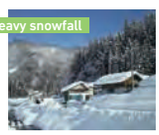
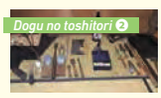
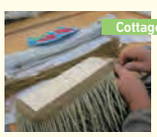
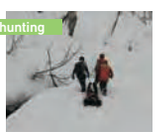
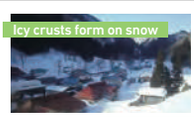
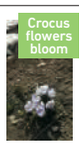
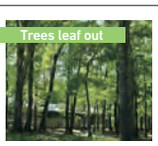
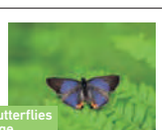
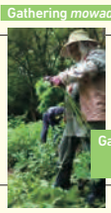
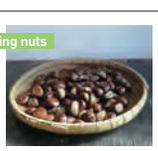
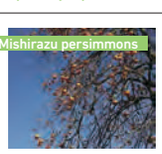
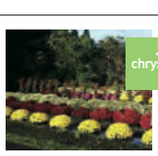
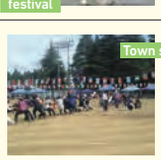
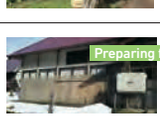
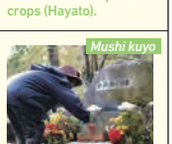
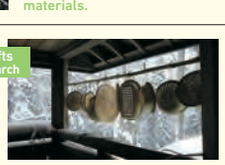
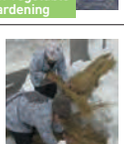
The three base materials used in *amikumi-zaiku* are the bark of *yamabudo* crimson glory vines, the woody part of *matatabi* silver vine, and *hiroro* sedge. *Akaso*, a species of the nettle family, and *mowada*, the inner bark of the basswood tree, are used to provide accents in *hiroro* works. Sturdy *yamabudo* is hard-wearing, while supple *matatabi* repels water. *Hiroro* is lightweight yet strong. Mishima's *kojin* gather these materials in the nearby mountains themselves and process them as required.

Fragments of *amikumi-zaiku* like the one shown below have been discovered at the Arayashiki archeological site in Mishima; they are now held by the Fukushima Museum. This one, woven of bamboo, is believed to have been made in the late days of the Jomon period—nearly two and a half millennia ago. The bamboo was meticulously split into extremely fine strips of uniform width, then interlaced in a chevron twill to yield a distinctive zigzag design. Nothing at all to do with function or enhanced durability, this was purely an aesthetic choice by an obviously skilled weaver.

Connections between Jomon-era weaving and the Mishima *amikumi-zaiku* lineage are still the subject of scholarly research. But what is clear is that more than two millennia ago, people who lived and breathed on this same ground were expressing their artistic talents through basketry. Mishima is that kind of place.

Each winter Mishima hosts a *monozukuri* seminar attended by non-residents and citizens alike. Participants learn *amikumi-zaiku* weaving techniques and make their own basketry. The women shown here are making cords of *hiroro* sedge by twisting the raw material. At bottom right is the finished product, beautifully rendered by traditional artisan Tomeko Funaki.

A Year in Mishima

	Nature	Basketry	Daily Life	Ceremonies
Jan.	 Period of heavy snowfall 	 Cottage crafts December–March 	 Freeze-drying of daikon  *Otekake* ❶ New Year's offering	 *Dogu no toshitori* ❷ *Dango sashi* ❸ *Sainokami* (p. 13)  *Hatsu taue* ❹  *Torioi* ❺
Feb.	 ◀▲ Snow cover reaches about 2 meters. Everyone pitches in with shoveling, especially for the elderly.	 Cottage crafts 	 Bear hunting Making horse-chestnut rice cake 	 Snow and fire festival *Mamemaki* ❻  *Hyakumanben* ❼
Mar.	 Icy crusts form on snow Crocus flowers bloom  Snow begins to melt	National *amikumi-zaiku* exhibition 	 Sun-drying of daikon  Splitting wood for next winter	 *Nehan dango*  *Hina nagashi*
Apr.	 Dogtooth violets and cherry trees bloom Swallows return  Gifu butterflies emerge	▼ Bark is cut from basswood trees and soaked in water. After six weeks it is washed in the river to remove the outer layer. The inner bark, called *mowada*, is then used for basketry. 	 Mountain stream fishing April–September  Foraging of edible wild plants April–May	▲ Temple rites mark the death anniversary of the historical Buddha. *Nehan* dumplings are distributed among worshippers (Otani). ▲ *Hina* dolls are made of paper and floated down the Tadami River along with prayers for the healthy growth of young daughters.
May	 Trees leaf out  River mist (Hayato) May–June	Collecting walnut husks ▼ The outer layer of *yamabudo* vines can be stripped off easily for a very short window of just two weeks in mid-May. 	Planting seedlings  Pickling Takada plums  Gathering fiddlehead ferns  Gathering bamboo shoots	 ◀ Festival to celebrate the goddess of childbirth and children (Nishikata). Kishibojin festival
Jun.	 Chestnut trees flower  Paulownia trees bloom	Kojin Matsuri  Gathering *mowada* Gathering *yamabudo* vines	 Planting rice  *Sanaburi* ❾ *Sasamaki* ❽	 Start of Mt. Shizukura climbing season ◀ Stands of 400-year-old beeches and 500-year-old horse-chestnut trees cover the slopes of this sacred mountain.
Jul.	 Hollyhocks bloom  Silverline butterflies emerge June–July	 Gathering *akaso* nettles June–July 	▶ Gathering mugwort and fish-leaf plants. Their nutritional value is highest in mid-July.  Gathering wild plants	 *Mushi okuri*
Aug.	 Sunflowers bloom ▼ Juicy Mishirazu persimmons, an Aizu specialty, ripen.	 Washing *mowada*	Collecting nuts Planting buckwheat seeds  	▲ Children carrying paper lanterns wend their way through the village of Oishida, shouting to frighten away crop-eating insects. At last they burn their lanterns and tiny cages with insects inside.
Sep.	▼ Thousands of small chrysanthemums bloom on one *zarugiku* plant. Viewings are held at Nairi Kikuen (Nairi).  Mishirazu persimmons	◀ The blades of *hiroro* sedge are gathered for weaving. Gathering *hiroro*	 Foraging of wild mushrooms September–October Jugoya ❿ 	 Summer festival  Thanksgiving rite for mountain deities
Oct.	 *Zarugiku* chrysanthemums (Nairi)  Autumn foliage	Aizu *amikumi-zaiku* craft exhibition 	 Harvesting rice Cutting trees at the new moon  Harvesting buckwheat	 Town sports day ▼ Prayers are offered for the repose of insects exterminated to protect crops (Hayato).
Nov.	 First frost October–November  Snow begins to fall November–December	 Gathering *matatabi* ◀ *Matatabi* silver vine can be harvested for more than one month—the longest-lasting supply of all *amikumi-zaiku* materials.	 Preparing for snow New buckwheat Opening day of hunting season End of vegetable gardening 	 Mishima cultural festival  *Mushi kuyo*
Dec.	Tadami River winterscapes ◀ On crisp clear mornings after the first snowfall, the landscape sparkles with swirled patterns of frost. Snow starts to accumulate	Cottage crafts December–March 	 Making pickles Shoveling snow  *Setchu natto* ⓫	 *Daihannyae* ⓬  *Shimenawa* ⓭

❶ Guests who visit at the New Year "eat" a special offering of food by making a sign of thanks with their right hand. ❷ A ritual is performed to give thanks to farm tools and other implements. ❸ Dogwood branches are decorated with colorful balls of steamed rice flour to wish for a good harvest. ❹ Rice straw is "planted" in a bed of husks on the snow, symbolizing the first planting and expressing wishes for a bountiful year. ❺ Children walk through the village singing songs to protect the fields and rice paddies from birds. ❻ On the first day of spring, roasted soybeans are scattered to ward off evil spirits and bring good luck. ❼ Residents guard others from misfortune by moving from house to house with a giant string of prayer beads while chanting the Nembutsu, a Buddhist devotional prayer. ❽ Fragrant *sasamaki* rice wraps steamed in bamboo grass are enjoyed. ❾ After the rice paddies are planted, people celebrate and give thanks with a *sanaburi* picnic. ❿ Plump round dumplings are served, and silver grass displayed, at moon-viewing parties. ⓫ *Natto* is prepared by wrapping boiled soybeans in straw and burying the bundles in snow to promote slow fermentation. ⓬ The complete Heart Sutra is recited. ⓭ A *shimenawa* rope marking the bounds of a sacred place is made and presented to Takao Jinja, the local shrine.

Top: An offering of thanks is made before felling the tree to be used for the *sainokami* effigy.
Above: The tree is wrapped in straw and stood upright in the snow.
Right: Residents carry pine torches lit with divine fire from the local shrine to the *sainokami* site.
Left: The bonfire begins at 7 PM. A close to the New Year celebrations, it lights the way for the new year ahead as onlookers pray for good health and abundant harvests.

Mountain living

Throughout Japan, any number of deities, from mountain kami to those who protect the fields, are venerated in rites and rituals that have carried on over the centuries, observed in a variety of ways from one community or household to the next. The old mountain ways remain especially strong in the Oku-Aizu region. Mishima in particular is unusual for the sheer number of ceremonies that are observed throughout the calendar year.

The biggest annual event for residents here is *sainokami*, a ritual recognized by the national government as an Important Intangible Folk Cultural Property. It is observed in a few locations during *koshogatsu* ("little New Year"), a short span of days around mid-January. A tree cut from the forest is wrapped in straw, set upright in the snow, and topped with paper decorations. After sundown it is set on fire while those gathered around it pray for sound health and bumper crops in the coming year. Many visitors come to Mishima to see this event.

Like an archetypal image of a not-so-distant past, the rhythms of daily life in Mishima unfold in concert with nature, in step with the cycling seasons from month to month throughout the year. Those with an interest in "getting back to the land" and living more simply would do well to start their explorations here.

Local foods of Nishikata

Mori no Kosha Katakuri, a poetic name evoking spring in the woods, is a hotel that operates in an abandoned school. Women of the Nishikata district show their hospitality here with foods they have made themselves, using vegetables from their own fields. The photo at bottom right shows a tray of celebratory foods eaten at the New Year. It includes *ohira*, a dish of simmered vegetables, tofu, and kombu seaweed; and *kozuyu*, a hearty soup made with scallop stock. In the photo at top left are a jelly made from *egogusa*, a type of seaweed; dried and simmered cod; and herring cooked with Japanese *sansho* pepper.

Sericin, a protein secreted by silkworms that has proven benefits in skincare, is typically removed when silk filaments are harvested and refined. In Gunma, however, a range of attractive products, such as these silk-mesh washcloths, are made with the sericin left on the threads. Effective in promoting skin elasticity and hydration, sericin has many cosmetic and medical applications and is hailed for its anti-wrinkle and antiaging properties. In Japan, products made with it are popular among people with sensitive skin. Throughout the process, from raising silkworms to silk reeling and manufacture, Gunma silk products are gentle on the environment.

Gunma Silk

Annaka and Midori, Gunma

Brand Highlights

- **Washcloths and soaps made with sericin, highly effective in skincare**
- **Environmental commitment: no formalin used in silk reeling**
- **Support of local sericulture farms through original product development**

Cocoons flow over a light table in the inspection area at Usui Raw Silk Company in Annaka, Gunma. Each one is visually inspected. The quality of the cocoon is affected by the health of the silkworm, which in turn is influenced by the climate. The hotter the summer, for example, the smaller the cocoons. Those whose pupae have expired, or cocoons that may cause problems in reeling, such as double ones formed by two or more silkworms, are removed by hand.

Japan's top silk producer, Gunma is home to the "Tomioka Silk Mill and Related Sites" recognized by UNESCO on its World Heritage list. Despite these achievements, sericulture farms and silk mills in the prefecture have declined drastically in number, pressured by the lower prices of synthetic fibers and raw silk threads made abroad. Yet when it comes to quality, Gunma silk has clear advantages over such competition.

Sericin, a natural protein secreted by the *Bombyx mori* silkworm larva to coat the outer layer of the silk filament, is not removed in the production of Gunma silk. This valuable polymer is rich in serine, an amino acid with a similar composition to human skin. Its biocompatibility makes serine well suited for cosmetic and medicinal applications. An effective antioxidant, it has excellent moisture release, water absorption, anti-wrinkling, and antibacterial properties, and can be used for UV protection as well as wound healing. Silk products made in Gunma are especially popular among people with allergic or sensitive skin.

All steps in production, from growing the mulberries on which the *Bombyx mori* larvae feed to raising them, breeding new varieties, and harvesting and reeling their silk, are performed entirely in Gunma. The small carbon footprint and sustainability of Gunma silk are additional competitive advantages.

In Japan alone more than one million tons of clothing are disposed of each year. As worldwide concern about oceanic microfiber pollution grows, fashion brands must engage in responsible procurement at all stages of production. Gunma silk is gentle not only on the skin, but on the environment as well. It is just the kind of industry we need to preserve and pass on to future generations.

Moisturizing bath infusions by Shimoyama Housei Co., Ltd. make clever use of the *kibiso* layer of filaments produced by the larvae to form the outer surface of the cocoon. Because these are thicker and stiffer than the inner layers of the cocoon, they are not suitable for silk textile production and are typically discarded—a shame as they are especially rich in sericin. Shimoyama Housei retrieves the filaments and dyes them with turmeric, a proven antibacterial and anti-inflammatory agent that helps improve circulation. The bright yellow all-natural strands are then packaged in sachets that can be used in the bath for up to one month.

Handmade plant-derived soap bars by Kiryu Silk Soap Factory contain natural olive oil, palm oil, coconut oil, and sericin and absolutely no petroleum-based or synthetic surfactants. They are cold-process cured over time without added water or heat to preserve the full cosmetic efficacy of their active ingredients. They are gentle on the skin and leave it feeling moisturized.

Gentle skincare items made with sericin, a silk by-product

The filament of a silkworm's cocoon is made of two types of protein: fibroin, the structural center accounting for 70 to 80 percent, and sericin, the adhesive binder that coats the latter with sticky layers to aid in the cocoon's formation. In the textile industry sericin is typically removed during raw-silk production and discharged into the water system as waste. In Gunma, however, methods have been devised to retrieve this valuable all-natural polymer for optimal use of its many properties listed below.

1. Moisturizing

Serine, which accounts for some 20 to 30 percent of the sericin protein, is the most abundant amino acid in the protective chemical coat produced by the outer layer of our skin. A natural humectant, it facilitates water absorption and enhances elasticity, making it effective in both hair conditioning and anti-wrinkle treatments.

2. Protective Coating

Sericin creates a thin film on the surface of skin and hair, reducing moisture evaporation and preventing drying.

Original silkworm varieties developed in Gunma

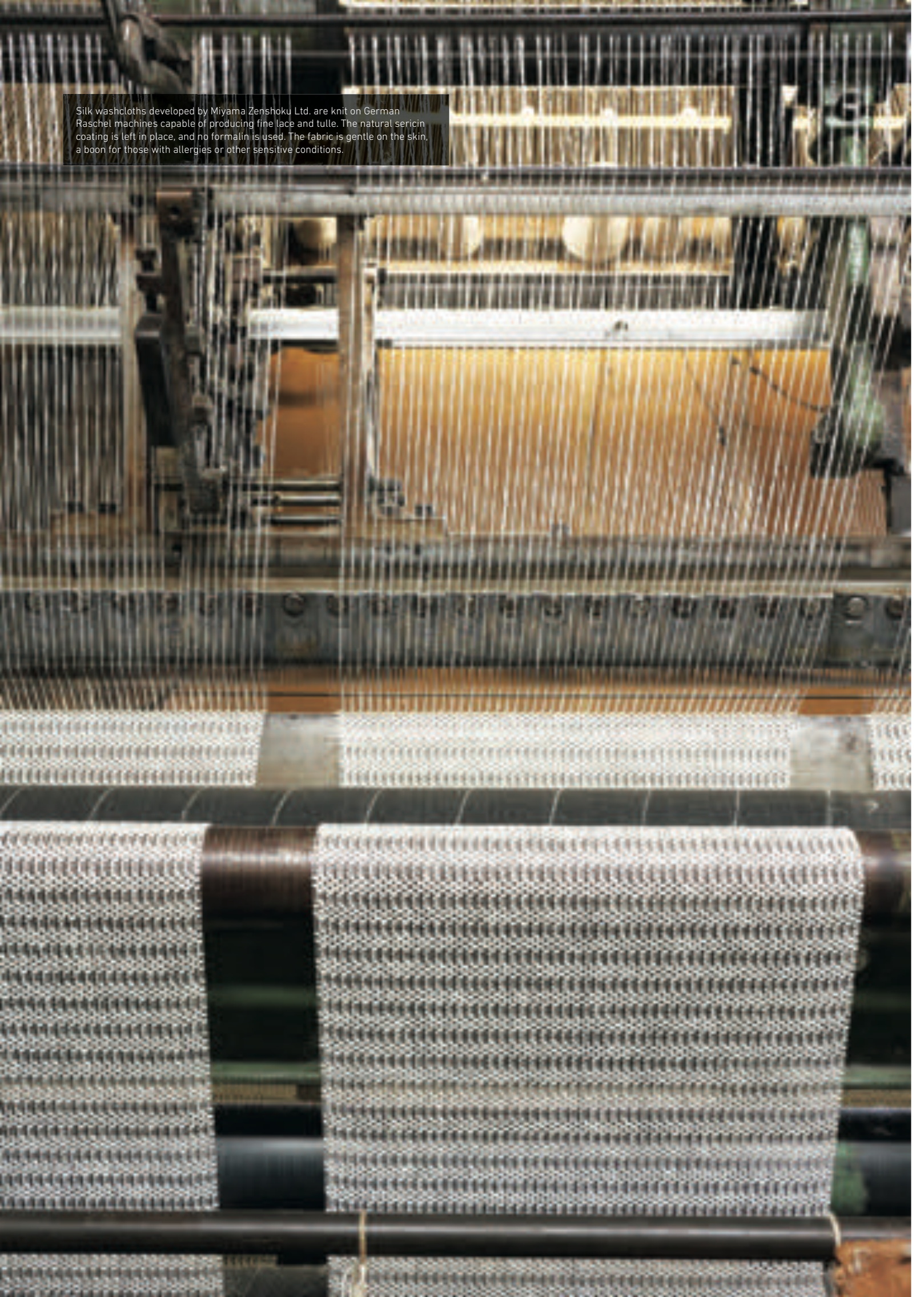
Gunma 200 The *Bombyx mori* variety that yields the most commonly produced silk thread in Gunma is easily cultivated. The thread is 3 denier and is used in both traditional Japanese and Western-style apparel.

Seiki Niichi This strong and hardy variety of silkworm produces fine fiber of 2.5 denier and up to 1,500 meters in length. It has excellent dyeability with a good texture and an elegant sheen.

Shinkoishimaru A triple-cross hybrid of Koishimaru, grown at the Imperial Palace farm, and the Chinese varieties 1 and 2. It yields a fine silk of uniform consistency suitable for use in high-end kimono.

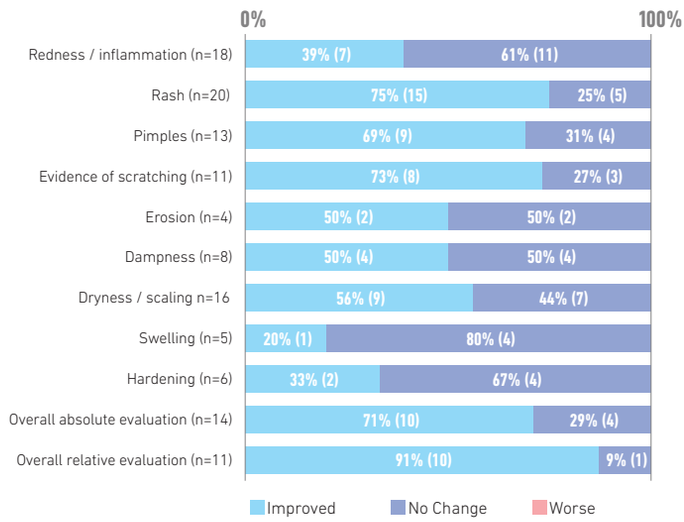
Shinseihaku This is a first-generation hybrid of the Chinese variety 200, raised at the Gunma Sericultural Technology Center, and the Japanese breed Seihaku. The raw silk is glossy with a distinctive light-green hue.

Gunma Gold Another Chinese-Japanese first-generation hybrid, Gunma Gold crosses the Si-125 and Gunma varieties. Its glossy raw-silk thread is approximately 2.5 denier, and true to its name in color.



Silk washcloths developed by Miyama Zenshoku Ltd. are knit on German Raschel machines capable of producing fine lace and tulle. The natural sericin coating is left in place, and no formalin is used. The fabric is gentle on the skin, a boon for those with allergies or other sensitive conditions.

Shinsuke Nagatake (right) of Miyama Zenshoku and Haruo Kubozuka of Kubozuka Textiles in Kiryu discuss an order of washcloths that Kubozuka will make. The city of Kiryu has a long tradition of textile production in Gunma.



This chart shows results by type of symptom for tests of 31 women with atopic and contact dermatitis who wore brassieres coated with sericin. The variable *n* indicates the number of subjects affected. Many subjects showed improvement, and there were no cases where symptoms worsened, indicating that undergarments containing sericin have beneficial effects.
Source: "Study of Patients with Atopic and/or Contact Dermatitis Wearing a Sericin-Coated Undergarment (Brassiere)," Osaka Dermatology Regional Association Journal *Skin Research* 41, no. 4 (August 1999).

3. Antioxidant Qualities

The antioxidant power of sericin is equivalent to that of vitamin C, helping to prevent wrinkles and pigmentation.

4. Brightening

Sericin inhibits tyrosinase, an enzyme that catalyzes the production of melanin and other darkening pigments in response to environmental factors.

5. UV Defense

The silk amino acids tyrosine and tryptophan absorb harmful UV rays and protect the skin. The yellowing of silk over time is an indicator of this effect: the protein fibers turn yellowish-brown in response to light.

6. Static Electricity Prevention

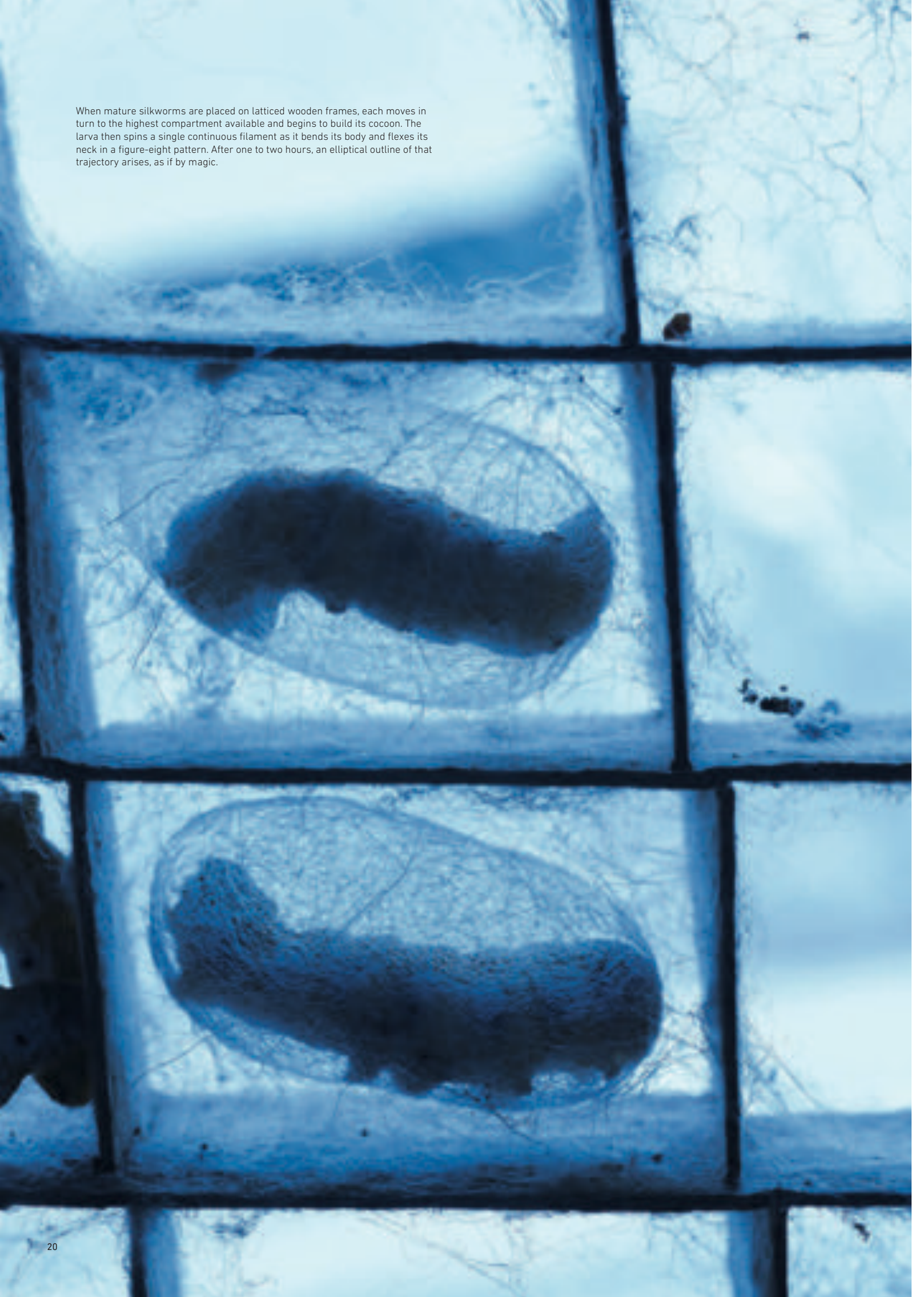
Sericin has excellent absorbency. Its ability to retain moisture effectively discharges static electricity.

It's no surprise that the silkworm's cocoon, built to shelter the pupa from natural elements as it develops, is equipped with natural defense capabilities—just like the skin of a fruit.

Established in 1955, Miyama Zenshoku Ltd. of Midori, Gunma, is an avid developer of silk products that contain sericin. In addition to washcloths, the firm markets shawls, socks, and gloves.

For one of its lines, open-mesh cloths are knit at slow speed on Raschel machines developed in Germany for the production of fine lace and decorative trimmings. The thread used is raw silk with the sericin left intact. Compared to conventional refined silk, it has a crisp, slightly stiff texture that can be softened with processing as needed.

Many studies show that sericin has numerous beneficial effects and applications. New branding initiatives are underway at Miyama Zenshoku for other products made with natural sericin recovered from the silk manufacturing process, such as bath infusions and gentle soaps.



When mature silkworms are placed on latticed wooden frames, each moves in turn to the highest compartment available and begins to build its cocoon. The larva then spins a single continuous filament as it bends its body and flexes its neck in a figure-eight pattern. After one to two hours, an elliptical outline of that trajectory arises, as if by magic.

Shinsuke Nagatake of Miyama Zenshoku and his family stand with members of a sericulture farm in Midori. Years ago in this area, silk harvesting was conducted bimonthly, but now it is conducted just twice a year.

Supporting Sericulture Farms in Decline

In Japan, sericulture farmers reverently call silkworms—*kaiko*—"Okaiko-san." In decades past, many rural households engaged in sericulture. The larvae, a valuable revenue source, shared the family's living space. The number of sericulture farms in Gunma prefecture peaked in 1970 at 66,200. As prices for cocoons plummeted, that number dropped to just 1,930 farms by 1999. As of 2017, a mere 121 farms remained. With only 336 farms left nationwide now, the fate of the silk industry in Japan rests largely on Gunma. To this end, the prefectural government offers support to new entrants.

Four years ago Miyama Zenshoku financed operations at an abandoned sericulture farm. The first order of business was to secure the proper temperature, humidity, and ventilation of the rearing house. When we visited in September, preparations were underway for the mature silkworms' fifth and final molt, when they build cocoons. The larvae are placed in rotating wooden frames split into 12-centimeter square compartments. These are stacked in groups of ten and suspended from the ceiling. In due time each silkworm finds and occupies the highest spot available and begins to spin its nest.

In the last week before cocooning, the silkworms are fed mulberry leaves four times a day, from morning to night. They eat ravenously, increasing their weight 10,000-fold in just seven days. A small truckload of the leaves, which are grown without the use of pesticides, is brought in for each feeding.

Usui Raw Silk Company, Japan's largest silk mill, is nestled in the low foothills surrounding Annaka. The craggy peak in the background is Mount Myogi, renowned for its striking rock formations. The Usui River flows behind the mill. This abundant source of water allows the company to operate without burdening the environment.

Gunma Silk is Environmentally Friendly

Usui Raw Silk Company in Annaka, Gunma, is Japan's largest silk mill. In 1970 there were 106 silk mills operating in the prefecture. Now, Usui is the only one left. It is the last bastion of support for sericulture farms producing high-quality cocoons in Gunma.

Each cocoon is spun of a single strand of silk. The reeling, or extraction, process unravels those individual filaments and spins them together to make one much thicker thread. A huge reeling machine—like something you might imagine from the Machine Age of the early 20th century—is used for this. Nothing is computerized. With people operating the reeler and carefully tending the process, the silk rendered is of far higher quality.

Silk making at Usui is environmentally conscious. Sustainability is emphasized; waste is minimized. The mill obtains cocoons only from sericulture farms that use no chemical pesticides in cultivating their mulberry trees. Once the silk filament has been harvested the expired pupae are used as food for monkeys at the Japan Monkey Centre, and for carp. Silkworm feces are collected and returned to the earth as fertilizer. No formalin or other disinfectants are used in the reeling process. Waste yarns are graded for quality and repurposed as spun silk. Such sustainable measures taken throughout the production process heighten the intrinsic quality and appeal of Gunma silk.

Silk Reeling 1
Cocoons, softened in hot water to make them easier to unravel, flow into a tank where rotating brushes tease out the end of each filament for automatic gathering.

Silk Reeling 2
The machine rolls the filaments of several cocoons into a single thread. When it senses a knot in the line, it stops. A worker then quickly cuts out the knot and rejoins the thread by hand.

Re-reeling
To make skeins of standard size, the thread is re-reeled on larger reels of about 150 centimeters in circumference. This also ties up broken ends and makes the thread continuous.

Finishing
With their sericin coating left intact, the newly minted threads are gathered into 250-gram skeins. These in turn are bundled into lots of 20 and shipped as raw silk.

Scanning down from top left:
Square plates by Kofutoen (small, medium, large); tiny bowl by Kofutoen; bowls by Tsubakigama (small, medium, large); rectangular white plate by Hantoen; round plates by Tsubakigama (small, medium, large); hexagonal plates by Sanpoen (small, large); round white plates by Sojuen (small, medium, large); sake cup by Tsubakigama; small bowl by Tsubakigama); three small hexagonal plates by Sanpoen

Seto Ceramic Ware

Brand Highlights

- *Setomono*, or Seto ware, is synonymous with ceramics in Japan. The influence of this "Land of Pottery" surpasses that of all other pottery-producing areas in the country
- Clay, tools, diverse technical know-how, and educational facilities: everything to do with the ceramics trade is found in Seto
- Eight Seto potteries are open to the public for tours to see the quality firsthand

Seto, in the north central part of Aichi prefecture, is *the* place for pottery. Indeed, the generic term in Japanese for ceramics is *setomono*—wares from Seto. It's a household name found literally in the cupboards and on the tabletops of just about every home in the country. Archaeological evidence suggests that high-temperature kilns capable of firing ash-glazed works were here as far back as the late 10th century. By the 12th century, Seto and Mino in Gifu prefecture were the only places in Japan able to produce glazed ceramics. Today some 300 business concerns make up the prefectural ceramics association. There is no knowing the number of potters who have worked in Seto, or how many tons of wares they have made. Seto has everything related to pottery: high-quality clay, shops for equipment and glazes, museums, and vocational schools.

Kilns that could fire clay to a high temperature and produce ash-glazed pottery were first established in Seto in the 10th century. By the 12th century, Seto and Mino in Gifu prefecture were the only places in Japan capable of making glazed pottery. There have been ups and downs, but even in the early postwar years of the late 1940s, Seto was home to more than 500 workplaces related to the ceramic industry. Seto's potters have established a vibrant base for the mass production of a diverse range of pottery, as well as a solid distribution network both domestically and abroad.

Local legends address the development of kilns in Seto for high-fired glazed ceramics. One tells of Shirozaemon Kato, who went to China in the early 13th century and brought back the techniques he learned. Inspired by a dream, the story goes, he found high-quality clay in Seto and established his kiln there. The first person to begin making porcelain in Seto was Tamikichi Kato, the son of a local potter. After learning porcelain methods in Kyushu, Kato was central to advancing manufacture of the Seto *sometsuke* blue-and-white style. The two men are enshrined at Fukagawa and Kamagami Shrines, respectively.

Left: Two Seto scenes; below them, tools used in making pots on the wheel at Sanpoen. Such implements are typically handmade by potters themselves, but many shops in Seto offer all the equipment one needs for making pottery.

Above: Wielding a large brush, Mayuki Kato of Singama demonstrates how she uses surface tension to apply cobalt-oxide pigment to a white ground for a *sometsuke* piece. This technique, called *dami*, achieves a superb gradation of blue.


Hiromasa Yamamoto
Aichi Pref. Pottery Industry Cooperation
Tatsunobu Kato
Sanpoen
Mayuki Kato
Singama
Eiji Hayashi
Tsubakigama
Dai Shimakura
Chikudoen

These 10 elite potters at the forefront of today's Seto ware are shown in a quarry located in the city's center. One of Seto's strongest assets as a pottery-producing area is the superb quality of the clay found at this site—it puts Seto in a class of its own.

The vast amounts of clay extracted from this quarry over the past thousand years or so have been shaped and fired into Seto ware that has been dispatched across Japan and throughout the world. Known as "the heart of Seto," the location is carefully guarded; even those directly involved in the local industry have limited access to it.

Indeed, to potters in Seto this is a sacred site. It represents the spirit and talents of countless artisans whose porcelain wares have brought functional beauty to the lives of everyday people.

One day, when all its clay deposits have been mined, the quarry will be filled with soil from another place. Eventually the land will be transformed into a forest or community park or residential area. It's not so commonly known, but other clay pits from times past now serve their communities as open fields, wooded lands, and recreational sites, showing no hint of their former role.

Uwae-kashoku: Overglaze enamel decoration (hand-painted)

After pots have been fired, they are decorated with overglaze enamels and fired a third time at a lower temperature. Decorations are painted by hand, just like the iron or cobalt pigment decorations that are done before glazing. A diverse range of vivid colors is the distinguishing feature of this type of decoration.

Oribe

This type of pottery is named after Furuta Oribe, a feudal lord of the Momoyama period (1568–1603) who favored it. Pots of Oribe design are often asymmetrical and boldly decorated. Nowadays "Oribe" generally refers to pieces colored with a bright green copper glaze.

Kinsai: Gold overglaze enamel

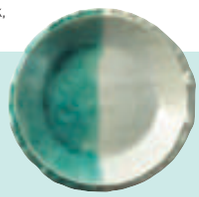
Gold overglaze enamel is applied to glazed pieces that have already been fired. They are then fired at a lower temperature for the third time. Pottery with gold or silver overglaze enamel decorations is very popular outside of Japan, and a large amount of it is made in Seto for export overseas.

Doban tensha: Copperplate-printed transfer

With this technique, the design is copperplate printed on Japanese washi paper. The paper is then stuck onto bisqueware and water applied to transfer the design. The technique requires some skill, but is well suited to high-volume production of pots with detailed decorations. The transfers can be applied to seamlessly cover the entire surface—curves and handles and all.

Kakewake: Double glaze

Applying a transparent glaze on top of a fritted crackle glaze enhances the translucent quality and brings out the inherent beauty of the color. The crackle glaze is applied by brush. If it is too thin, the color will not turn out properly; too thick, and the glaze will run. Skill is required to achieve just the right balance.



Furitto-yu: Fritted glaze

This clear-gloss crackle glaze is difficult to achieve, because it requires a low temperature and can only be fired in a limited area of the kiln. The glass-like glaze crackles after unloading from the kiln.

Paddo insatsu: Pad printing

In the pad-printing process, zaffer, or cobalt-oxide pigment, is applied to a copperplate etched with a design. A machine then pushes a silicone pad onto the copperplate to pick up the pigment pattern and apply it to the surface of the piece. When a mold is used to produce pieces in large quantities, the process allows detailed designs to be applied to exactly the same specifications.

Ame-yu: Amber-colored glaze

So-called *tenmoku* (natural wood) glazes are obtained by mixing iron with various natural wood ashes. In oxidation firing they achieve a deep amber color, but they are temperamental, demanding expertise in both glazing and firing.

Rasuta shiage: Luster finish

True to its name, a luster overglaze brings unique color and shine to a piece. The glaze is purposely applied unevenly, so the final effect catches the light in ways that reveal beautiful color variations.

Kushime: Combed decoration

The surface of a piece is scraped as though by a comb. Sometimes the purpose is not just for decoration, but is also functional, as in the case of this mortar for grinding sesame seeds and spices.

Sometsuke: Blue-and-white

Decorations painted on a white ground with zaffer, a catchall term for cobalt-oxide pigments, are fired at a high temperature. The shades of blue and white vary from kiln to kiln. Blue-and-white ware from Seto is fired with a special technique called *nerashi* (soaking), which yields a soft, warm effect.

Hai-yu: Ash glaze

This glaze is made from natural pine ash and feldspar. Reduction firing yields green and, in places where the glaze has pooled, a deeper glossy emerald. With oxidation firing, the iron inherent in the glaze turns yellow.

Kuro Oribe: Black Oribe

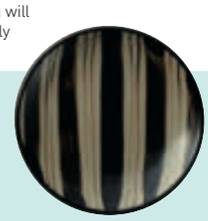
Black Oribe refers to works with a white clay body that is partially covered with a black glaze, and with some element of decoration. The decoration may rendered with engraving, so the white body shows through, or by painting the black in sections and then brushing iron-oxide designs between them. In olden days, paper stencils were used to create such decorative patterns.

Hori + Yuyaku: Carving and glaze

This form of decoration is achieved by carving a design and applying glaze over it. After firing, the pattern shows clearly, as the glaze has pooled inside it. Such designs have a softer look than hand-painted decorations.

Tetsu-e: Decoration brushed with iron pigment

Decorations are brushed onto bisqueware with iron-oxide pigments derived from rusted iron. Depending on the thickness of the glaze and the amount of iron in the pigment, the color after firing will range from yellowish to nearly black browns.

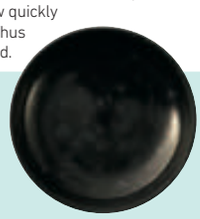


Kizeto: Yellow Seto

Yellow Seto ware is derived from *oniita* and *bengara*, two kinds of iron oxide, as well as other iron content in the clay and glazes. Carved or stamped decorations are often used and are given a green accent with the application of *tanpan*, a sulphate mineral. *Kizeto* pots may have a glossy or rough surface. Each Seto kiln has its own particular style.

Tetsu-yu: Iron glaze

The main components of this glaze are iron and manganese. The color after firing is determined by the thickness of the glaze, its manner of application, where the pot is placed within the kiln, and how quickly the kiln is cooled after firing. Thus various effects can be achieved. The glaze contains a number of minerals and so gains a metallic finish, providing a nice contrast to the ceramic material.



Uwae tensha: Overglaze decals

An image on a paper decal is transferred to a fired pot, which is then fired again to temperatures of 750 to 800°C. Suited to mass production, this technique makes it possible to render intricate designs in a variety of vivid colors.

***Gairome* type A (frog's eye)**
A typical example of granite-derived Seto clay with quartz particles. This extremely plastic sedimentary kaolinitic clay is a main ingredient in porcelain and tableware.

The 20- to 30-meter-thick geological stratum of the Seto area is believed to be granite rock that eroded from Mount Mikuni and Mount Sanage five million years ago. Washed into a lake that no longer exists, the sediment accumulated to form the Seto stratum. The high-quality clays used in Seto ware derive from different kinds of deposits captured in it.

***Odo* (yellow ocher)**
Contains about 80 percent good-quality clay, but the shrinkage rate is high. Used to fashion ceramic hot pots, tiles, and flower pots.

***Shirotsuchi* (white clay)**
Close to *kibushi* kaolin clay but without as much organic matter, *shirotsuchi* vitrifies at a lower temperature. It is used to make mortars and large storage pots.

Fuka
This diatomaceous clay, found in the layer between *gairome* and silica sand, is commonly used for tiles.

***Kibushi* type A**
Derived from feldspar and mica eroded from granite, this finest of clays contains carbonized fragments of wood. Fine-grained, it has high plasticity and heat resistance, and is used in the manufacture of ceramic dolls.

***Gairome* type C (frog's eye)**
This clay, which contains sericite mica, is somewhat lower in quality than *gairome* type A.

The Vast World of Seto Ware

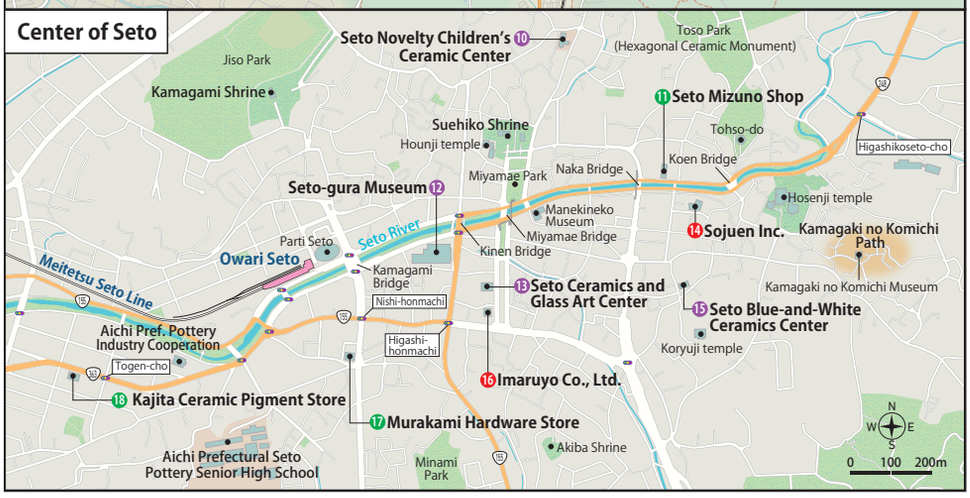
The 18 samples on the opposite page, made by nine members of the Local Creators' Market Seto Ware team, reveal the great variety of expression possible. From traditional Oribe and yellow Seto glazes to pad printing and luster finishes, there is practically no design or technical challenge that Seto potters cannot meet. These artisans draw from a long and varied tradition, and whether their wares are produced in bulk quantities or for small-lot orders, the artistic human touch is always present. Flat rectangular or hexagonal plates cannot be made by machine, and even bowls or pots fashioned by the thousands on slab rollers each have their edges neatly rounded off by hand. Such attention to detail is a great part of the appeal of Seto ware.

A rainbow of colors

At the Seto Mizuno shop in the center of town, large glass sake bottles filled with liquids of many different colors are on display. At first glance the offerings seem a rather unusual assortment of sake, but this is no liquor shop. It is an *enoguya*, a place where those in the pottery business obtain their glazes. The colored liquids are the concoctions of shop owner Yasuharu Mizuno. A chemist of sorts, he gauges what his clients need with the assistance of color chips, and prepares the glazes accordingly for their review. He is a storehouse of experience and advanced knowledge on the subject.

Places to Go in the Land of Pottery

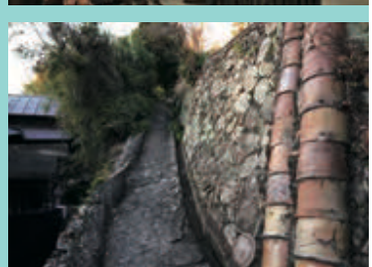
Swing by a few potteries in charming Seto to meet the experts and learn directly from them about their wares.



Classic Seto scenes

The Seto-Gura Museum, pictured at right, is located close to Owari Seto station. One of its features is an impressive installation reproducing the town of Seto in olden days, complete with climbing kilns and pottery shops. Visitors can learn a great deal about the history and skills involved in Seto ware.

Those looking for a scene unique to Seto should head over to Kamagaki no Komichi in the Hora-machi district. Climbing kilns once dotted this area, formerly a bustling hive of pottery production. A 400-meter footpath is lined with a wall built of old shelves, props, and other kiln items.



Whether you are visiting for business or leisure, the best way to see the appeal of Seto ware and its many production techniques firsthand is to visit some potteries. The eight listed here are open to the public.

Potteries

Chikudoen 6 1-101 Shinano-cho
T: 0561-42-0322 (Jpn. only) F: 0561-41-3424
chikudouen@tohki.co.jp
Closed weekends and public holidays. No reservation required

Hantoen 3 62 Suihoku-cho
T: 0561-48-0489 (Jpn. only) F: 0561-48-1411
Closed weekends, public holidays, and year-end/New Year holidays. Reservation by fax

Imaruyo Co., Ltd. 16 1-58 Higashi-honmachi
(Production area not open to public)
T: 0561-82-6121 F: 0561-82-6123
104@imaruyo.jp
Closed weekends, public holidays, and year-end/New Year holidays. Reservation by fax or email

Kofutoen 1 1309 Sono-cho
T: 0561-48-1035 (Jpn. only) F: 0561-48-1035
mail@sonegama.com
Closed weekends, public holidays, and year-end/New Year holidays. Reservation by email

Sanpoen 7 123 Kamamoto-cho
T: 0561-82-3256 (Jpn. only) F: 0561-87-1351
sanpouen-kama@outlook.jp
sanpouen-kama.com
Reservation by email or through website

Singama 4 330 Nakashinano-cho
T: 0561-41-0721 (Jpn. only) F: 0561-41-0721
singama@gctv.ne.jp
Closed irregularly. Reservation by phone or email

Sojuen Inc. 14 24 Sugitsuka-cho
T: 0561-82-6428 (Jpn. only) F: 0561-82-6428
info@souzyu-en.com
Closed weekends, public holidays, August 13–15, and year-end/New Year holidays. Reservation by fax or email

Tsubakigama 2 532 Suihoku-cho
T: 0561-48-1265 (Jpn. only) F: 0561-48-1538
tubakigama@nifty.com
Closed weekends, public holidays, and year-end/New Year holidays. Reservation by fax or email

Companies

Aito Co., Ltd. 8 1-1 Karijukushin-cho, Owariasahi
T: 0561-54-2111 F: 0561-52-0746
akazechi@aito.co.jp
Business appointments only. Closed weekends and public holidays

Museums

Aichi Prefectural Ceramic Museum 9
234 Minamiyamaguchi-cho T: 0561-84-7474
Hours: 9:30-16:30.* Closed Mondays (if Monday is a public holiday, then closed the day after) and year-end/New Year holidays. Open daily during Golden Week

Seto Blue-and-White Ceramics Center 15
98 Nishigo-cho T: 0561-89-6001
Hours: 10:00-17:00. Closed Tuesdays (if Tuesday is a public holiday, then closed the day after) and year-end/New Year holidays

Seto Ceramics and Glass Art Center 13
81-2 Minaminakanogiri-cho T: 0561-97-1001
Hours: 10:00-18:00.* Closed Tuesdays (if Tuesday is a public holiday, then closed the day after) and year-end/New Year holidays

Seto Novelty Children's Ceramic Center 10
74-1 Izumi-cho T: 0561-88-2668
Hours: 10:00-17:00. Closed Mondays (if Monday is a public holiday, then closed the day after)

Seto-Gura Museum 12
1-1 Kurasho-cho T: 0561-97-1190
Hours: 9:00-18:00.* Closed fourth Mondays and year-end/New Year holidays
*Admission ends 30 minutes prior to published closing time

Shops

Kajita Ceramic Pigment Store 18 2-22 Togen-cho
Tools, glaze components, and other materials for making pottery
T: 0561-82-2765 Closed Sundays and public holidays

Murakami Hardware Store 17 56 Ichonoki-cho
Tools and materials for pottery
T: 0561-82-2749 Closed Sundays and public holidays

Seto Mizuno Shop 11 4 Haneda-cho
A wide range of glazes
T: 0561-21-820 Closed weekends, public holidays, and year-end/New Year holidays

Yamada Ceramic 5 6-161 Shinano-cho
Seto and other clays
T: 0561-42-0121 Closed Sundays

Aito Co., Ltd.

Total coordination of pottery production from design onward

Tableware, ovenware, pottery for tea, vessels for drinking sake, crafts, designer items

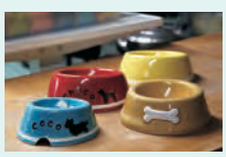
The trading firm Aito Co., Ltd. works with pottery designed in-house as well as commissions. Of all the companies in Seto, it has the most items geared to young professionals. CEO **Akimasa Azechi** says that if what people eat changes, then the tableware they use will, too. Across the design process from draft proposals to final product, Aito creates solutions that meet contemporary tastes and lifestyles.

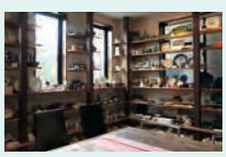
Chikudoen

Colorful, personalized dishes for children

Tableware, dishes for children, dishes for pets

Established in 1924, Chikudoen specializes in small-lot consignments. In 2018, its fourth-generation head **Dai Shimakura** created Sucuu, a colorful range of attractive pottery with rounded edges and easily graspable handles designed for children. Chikudoen also personalizes dishes with a hand-painted name or message, a service that's proven popular in the baby-shower and pet markets.





Hantoen

Diverse designs from porcelain to overglaze-enamel-decorated pieces

Traditional Japanese, Chinese, and Western tableware, interior goods

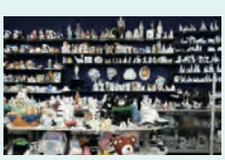
Highly diversified production is Hantoen's strength, and the company maintains a successful export business to the United States. Between 10 and 20 production lines of a dozen or so pieces each are launched each year, each one based on a theme. Some include designs conceived by fourth-generation head **Shigetoshi Kato** himself. Despite that volume, each piece undergoes careful finishing touches by hand.

Imaruyo Co., Ltd.

Subtle shapes for adding flair to interiors

Novelty items and interior goods

Established more than a century ago by the grandfather of CEO **Hiro Ikeda** in 1917, Imaruyo developed porcelain figurines in the postwar years. The company did much to establish the Seto name abroad through its exports to Europe and the United States. Ikeda is shown holding the highly lauded Seto-ne, a ceramic speaker that can more than double the volume of music played on a smartphone, using no electricity.



Kofutoen

Creation of a wide range of colors

Personalized dishes for children, tableware with crackled glazes, Oribe tableware

In the early days following its inception in 1964, Kofutoen produced much pottery with fritted glazes and also forged new markets by developing products for the wedding trade, specifically gifts to be presented to guests. Second-generation head **Masao Kato** is stepping up the firm's consignment production. Particularly adept at using notoriously difficult glazes, Kofutoen has created a wide range of colors.

Sanpoen

Handmade pieces embellished with crackled glaze

Tableware, vases, pottery, Oribe, and yellow-glazed ware

The first generation of Sanpoen potters fired Oribe pots in a climbing kiln. **Tatsunobu Kato**, the sixth-generation head, has successfully expanded the pottery's customer base with a modern style of tableware featuring single-glaze mugs, hexagonal plates, and other pieces. Sanpoen pottery, which features crackling accentuated by horse-chestnut tannin, is entirely handmade, and includes greens, yellows, and whites.

Singama

A beautiful contrast between pure white and cobalt blue

Tableware and vases (porcelain, traditional craft, Seto blue-and-white ware)

The deep blue rendered from glaze mixed with cobalt-oxide pigment is a distinctly Seto color. After studying ceramic design, **Mayuki Kato** entered the world of Seto blue-and-white ware as the heir apparent to her parents' Singama Pottery, where she is now mastering the art of painting on porcelain. From the molds to the designs, much of the pottery produced at Singama is original.

Sojuen Inc.

High-strength porcelain, pad printing, and screen printing

Tableware (rice bowls, tea cups, plates, etc.) for personal and commercial use (catering, hotels, airlines, etc.)

Sojuen uses a slab roller for fast and efficient production of as many as 1,000 to 2,000 items per day. It's no surprise that their wares are found throughout Japan. Still, president **Keiichi Ishikawa** ensures that the production line keeps the human touch with hand-painted designs, screen printing, and pad printing. Sojuen's high-strength, shatter-resistant porcelain is sought after by clients in the medical and social-service fields, and airline companies.

Tsubakigama

Modern tableware with natural ash glaze

Tableware, tableware for the catering trade, blue-and-white porcelain, ash-glazed pottery, interior goods, vases

After apprenticing at a pottery in Kyoto, **Eiji Hayashi** returned to Seto to take over as the second-generation head of Tsubakigama, makers of simple yet beautiful Seto blue-and-white ware. "A vessel is complete once it has food arranged on it. How appetizing the food will appear when it's on the dish is our focus, so we keep our designs understated," says Hayashi of their contemporary take on old-style Seto pottery.

Top shelf: Three cups (Sojuen), three small bowls (Kofutoen)
Second shelf: Mug (Tsubakigama), cup and teapot set (Aito Co., Ltd.)
Third shelf: Six mugs (Sanpoen), sake flute (Kofutoen), large cup (Aito Co., Ltd.)
Bottom shelf: "Seto-ne" smartphone speaker, three containers with fine Japanese patterns (Imaruyo)

Top row:
• Leaf-shaped and square dishes in various sizes by Singama
• Plates for grilled fish by Hantoen; small bowls with spouts by Kofutoen
• Coffee cups by Singama
Middle row:
• Clockwise from upper left: Small bowl by Hantoen; oval plate by Tsubakigama; plates by Aito Co., Ltd. (small, medium, large)
• Upper shelf: Cups and bowls for children by Chikudoen. Lower shelf: Two teapots by Imaruyo; five sake cups by Sojuen
• Plates with fine Japanese patterns by Kofutoen (small, medium, large)
Bottom row:
• Square plate by Kofutoen; floral plate by Aito Co., Ltd.
• Cups that can be fitted with plastic lids by Sojuen

Kainan, Wakayama

Kishu Lacquerware

Brand Highlights

- **Plant-derived lacquer depletes no fossil materials and uses no harmful organic solvents**
- **Exclusive trading rights in the late 1700s propelled the area into an innovative center of lacquerware production, as Kishu products became accessible throughout Japan**
- **Our focus here is on certified traditional artisans* who use only natural materials**

Kishu lacquerware hails from the city of Kainan in northern Wakayama prefecture. Together with Aizu in Fukushima and Wajima in Ishikawa, Kainan is one of the three major centers of lacquerware production in Japan.

Kishu lacquerware got its start in the late 1600s, when woodturners from present-day Shiga came to live in the Kuroe area of Kainan, drawn by its plentiful cypress wood. Lacquerers and painters of *makie* designs rendered with gold, silver, and other powders followed them. *Shibuchi* bowls, which used persimmon tannin in place of costly raw lacquer when forming the primer paste, helped to put Kishu products in the reach of commoners. In 1760 the artisans of Kuroe were granted exclusive trade rights from the domain. Fast-forward two centuries, and

Kishu lacquerware was recognized by the national government as a traditional craft in 1978.

Synthetic polymers and coatings arrived in Kainan in the 1960s, opening the floodgates for cheaper, more easily produced wares. Today 90 percent of the lacquerers here use synthetic resin and polyurethane paints in place of natural lacquer. We introduce three certified traditional artisans who, eschewing plastics, work to revive the old ways: Katsuhiko Hayashi and the father-daughter duo Toshifumi and Kumiko Tanioka.

Opposite page, top: *Natsume* tea caddy by traditional artisan Katsuhiko Hayashi with designs raised in relief. In this most complicated of *makie* techniques, the lacquer is gradually built up to make the image rise from the ground. Hayashi lavished three different types of gold on this caddy, which is used in the tea ceremony to hold matcha powdered tea. In the portrait Hayashi stands in one of the *mikan* citrus fields for which Wakayama is known—the prefecture is the leading producer of the fruit in Japan.
Left: The wood grain of this low table in the studio of traditional artisan Toshifumi Tanioka has taken on a deep amber hue from years of use in spreading lacquer.

Opposite page, bottom: Traditional artisan Kumiko Tanioka on the beach at Wakanoura. Her lidded incense burner pictured here employs the Zuiun-nuri method, named after the phenomenon of iridescent clouds. To create this look, a layer of thick *roiro* reduced lacquer is applied to multiple colored base coats and then polished down to yield a glowing, shimmering effect.
Above: Those who venture along the Kishu trail leading to the Kumano Kodo pilgrimage route will be treated to this view of Kainan, taken from the Gosho no Niwa garden at Jizobuji temple. The hamlet of Kuroe lies in the valley at lower center.

*National certification as a traditional artisan is bestowed upon those who endeavor to preserve a traditional craft native to their area. Holders of this title are devoted to the study of the craft's techniques and skills, and play an active role in transmitting the vocation to the next generation.

This whimsical *katakuchi* sake flask is made from a calabash gourd cut lengthwise, dried, and layered with multiple coats of lacquer. The use of gourds and even citrus peels as a base for Kishu lacquerware finds delight in nature's shapes, no two of which are exactly alike.

Katsuhiko Hayashi

Katsuhiko Hayashi is a *makie* artisan, like his Kishu-based father and grandfather before him. Among his works are sake cups and flasks fashioned out of hollowed-out gourds, as well as cups made of citrus peels. Just as is done when working with wood, he applies layer upon layer of lacquer to these all-natural materials to create a thoroughly unique piece.

Hayashi's interest in *makie* grew from around the age of 12, when he attended a lacquer-making workshop in which his father was involved. The event was filmed for television, and Hayashi was shown making his first *makie* design. The scene might have been the idea of the TV producers, or it might have been his father trying to involve him in the family business. Either way, it worked: he was hooked.

He attended a fine-arts high school in Kyoto where he focused on lacquerware, and after graduation remained in Kyoto as an apprentice to *makie* artisan Shunsho Hattori. After ten years studying under the master, Hayashi returned to Kainan.

Hayashi began crafting products from citrus peels around 2013. Lacquerers had experimented with using these as a base for their wares as far back as the Edo period (1603–1867), most likely to make resourceful use of the abundant local crop.

Plastic was introduced to Kishu in the 1960s. Its use as a base material, as well as that of synthetic resin and polyurethane paints in place of raw natural lacquer, soon became widespread among artisans here. Today, 90 percent of those producing wares in Kainan use such chemical coatings. Hayashi, however, prefers the far more temperamental raw lacquer, because it feels alive.

Top: These finely dimpled sake cups owe their unique texture to citrus peel. The pulp is removed and the peel soaked in warm water for two days to draw out its oils. Then it is dried for half a year before lacquering. Thick-skinned varieties work best.
Above left: Katsuhiko Hayashi at work on a piece in his Funoo studio. "I want the things I make to be used. The natural luster of lacquer improves over time, with use. And you can't enjoy the texture of a piece without actually taking it up in your hands," he says.
Above right: Small and large cups made from gourds glisten with their lacquered black sheen. As each one is a different size and depth, they don't stack neatly—but therein lies their appeal. They are as versatile as they are one of a kind.
Third row: Hayashi applies lacquer to the inside of a citrus-peel cup using a handmade brush. The inside of the cup will receive a total of ten coats, hardening the material and enhancing its thermostability. The outside is coated just three times so that the texture of the peel remains. Each application must be dried and polished before the next, so the work demands patience. The result of the painstaking process is an original cup with a brilliant luster that belies just how tough it is.
Bottom: This detail of a finely rendered *makie* piece by Hayashi shows the nuanced effects he achieves with gold and silver powders. For many lacquerers, the art of *makie* becomes a natural extension of their work.

Kumiko Tanioka

Kumiko Tanioka is the first woman in Kishu to earn the nationally certified title of traditional artisan. She also represents the fifth generation of Tanioka Lacquerware, founded in 1883 by a woodturner who came to Kishu for its abundant wood and eventually added lacquer work to his trade.

The family workshop was on the second floor of her childhood home, so Tanioka grew up watching artisans come and go each day. All of her friends came from lacquerer families. She herself, however, was not interested in work that meant staying indoors most of the time.

Her view shifted in college, when a friend asked her about lacquerware. She realized she didn't know enough about the history or techniques of her hometown tradition to explain them. After getting her master's degree in economics she returned to Kainan, where she participated in a program set up to train successors in the lacquerware trade. She spent three months in the workshop of a *makie* expert and was fascinated. For the next ten years she apprenticed at various studios while holding down a teaching job at a cram school.

She earned her certificate as a traditional artisan just as the base of the local industry was floundering. "I worked hard to become a traditional artisan. With so many veterans in the field stepping down, I knew that something had to be done to preserve the craft—if only for the sake of those who had come before me," she says.

Tanioka considers herself an artisan, not an artist. She takes pride in filling orders for multiple quantities of the same item, each piece in the set as beautifully rendered as the next. Her work features on the tables of upscale restaurants in Tokyo's Akasaka district, and most of her *tsubo* pots are purchased by foreigners.

Opposite page: A Negoro-nuri pot by Tanioka Lacquerware. In this style, which is one of the foundational techniques of Kishu lacquerware, layers of vermilion are applied over base layers of black. When the top coats are rubbed away—either by long years of use or by the hand of the artisan—the contrasting beauty of both colors is revealed. The style is said to have originated at Negoro Temple in Wakayama, where monks used to make their own lacquered trays and bowls, layering the two colors. After years of use the red would wear down in places, a look that caught on as an attractive design. The effect is sometimes likened to the sky at dawn, when clouds are lit from below.
Top left: Traditional artisan Kumiko Tanioka in her hometown. "I don't want people to equate Kishu lacquerware with synthetic pieces," she declares.
Top right: Softly curving lines meld in this simple form uniting round and lozenge-shaped vases. The piece looks striking in a contemporary space.
Above, left and right: As the vermilion top coats are rubbed with Suruga charcoal, a superb polishing material made from the wood-oil tree, the black lacquer beneath is revealed. No two pieces are the same.
Left: A *makie* detail by Tanioka, who found her path to lacquer work through her fascination with this art form. She is one lacquer artisan to keep an eye on.

Wood substrate

Wood is turned on a lathe to create the base for the lacquered piece. At Tanioka Lacquerware, Kishu cypress is used.

Surface smoothing

Irregularities in the wood surface are chiseled out and filled in with a mixture of raw lacquer, rice flour, and sawdust.

Primer coat

A paste made of water and fired-clay or shale powder is kneaded, then mixed with raw lacquer and applied to the surface.

Base to middle coats

The piece is painted with lacquer. After each coating it is placed in a humidity-controlled drying chamber to harden.

Base coat polish

Suruga charcoal is used to remove brush marks from the hardened lacquer film and to polish the surface.

Why lacquerware?

To the uninitiated, lacquerware can look just like plastic. This perception typically prompts the question, "Why is it so expensive?" Even among Japanese, who see and use lacquered bowls and trays regularly, there are many who are unaware of just how time-consuming and labor-intensive the art of lacquering is.

The craft process shown above for an item of Negoro-nuri lacquerware is in fact a condensed version of all that is involved. A piece is coated, allowed to harden, and polished repeatedly. It takes a seasoned artisan to accomplish the dozens of tasks involved. The higher price reflects this.

But why all the fuss—is it really worth it? The answer lies in the stellar properties of lacquer as a coating and the beauty of its lustrous coat. Made from the sap of tall deciduous trees of the cashew family, this all-natural varnish creates a hard, durable film that repels water, heat, salt, acids, and alkalis. It can even withstand nitrohydrochloric acid, which dissolves gold. Natural lacquer also has superior antiseptic and antibacterial qualities. Lacquered items several thousand years old have been excavated intact, their sheen unblemished. Its only vulnerabilities are extremely dry conditions and the UV rays in direct sunlight.

The dewy look of lacquer is owed to its molecular pliability. Indeed, the surface has a silky, almost wet quality. Note the feel of a lacquered cup when you bring it to your lips, and compare its texture to that of plastic. Viewed under high magnification, the surface of hardened lacquer has an uneven grain structure. That "give" accounts for its plump feel and soft luster.

It seems contradictory that a material rivaling epoxy resin in terms of sheer toughness and durability should feel so soft to the touch. No other coating boasts this combination of qualities. That, essentially, is the enduring appeal of this all-natural wonder material.

Above: The raw lacquer that is essential to Kishu lacquerware.
Left: The handles of these brushes used by traditional artisan Toshifumi Tanioka shine with their long years of use in lacquering.

Tajima Lacquer in Kainan refines natural sap and colors it. The shop carries lacquers harvested in Japan, China, Vietnam, and Myanmar. By far the most lacquer used in Japan today comes from China—40 tons are imported annually. In contrast, just 800 kilograms of sap are collected domestically each year. The main component of both Japanese and Chinese lacquer is urushiol, an oily mixture of organic compounds. Vietnamese sap, by contrast, mainly contains laccol, while the main component of lacquer from Myanmar is thitsiol. The surface durability and clarity of urushiol and non-urushiol lacquers differ.

Raw lacquer is not a material that lends itself to convenience or efficient harvesting. Only 200 grams of sap can be collected from a tree that's been cultivated for 10 to 15 years. Cuts are made in the trunk by hand, and the sap is collected as it slowly seeps out. The trade-off, of course, is that once it is harvested and processed, natural lacquer yields a coating that remains durable and beautiful for thousands of years.

Vermilion coat

Raw lacquer reduced 95 percent is called *roiro*. This thick, translucent coating is blended with vermilion pigment for the top layers.

Polishing

The surface is polished down in places to reveal the black underneath. This is the classic look of Negoro-nuri lacquerware.

Finishing

A long final polishing process yields a mirror-like sheen, bringing out the full luster of the multiple lacquer coatings.

Completion!

Made entirely of natural materials, the finished piece comes with a stand and is packed in a wooden box—a lovely gift.

Above, right, and far right: Toshifumi Tanioka, Kumiko's father, is the fourth-generation proprietor of Tanioka Lacquerware. Each day before he sets to work on a new coating, he first strains the lacquer to remove any dust or other impurities—the surface of each coating must be rendered absolutely clear.

Lacquer itself has no natural color, so Tanioka blends pigments to yield the desired hue. A number of lacquered clay and wooden objects from prehistoric Jomon times have been excavated in Japan. The basic colors used then, too, were vermilion and black.

Raw lacquer hardens through a chemical reaction between laccase, an enzyme present in the sap, and the oil urushiol, the sap's main component. At an adequate temperature and ambient humidity, laccase absorbs oxygen from the moisture in the air and supplies it to the urushiol in a process called oxidative polymerization; this is what effectively hardens the liquid lacquer. Laccase activates at temperatures of 20 to 25°C and humidity of 60 to 80 percent. The drying chamber maintains these optimal conditions.

These elegant chopsticks by Katsuhiko Hayashi showcase a variety of techniques, including Negoro-nuri and *makie*. Each pair is the result of many patient layerings of lacquer, and their varied designs speak to Hayashi's skills as an artist. Thanks to the antibacterial properties of natural lacquer, the chopsticks require only a quick rinse in water after use.

Opposite page: The wall behind the head councilman's seat in Kainan City Hall is graced by a Negoro-nuri panel made by Toshifumi and Kumiko Tanioka. The work brings a bright warm accent to the understated browns and grays of the modernist chamber. Other commissioned works by the two are found at the reception desk and in the hallways of the building, which was completed in 2017.

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.

Hamada, Shimane

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.

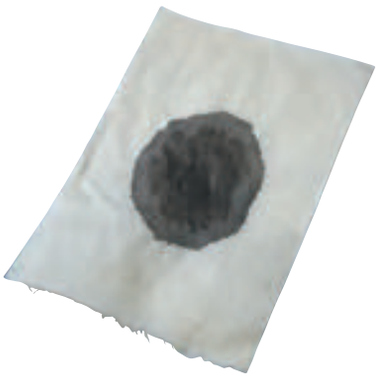
Four studios continue to produce washi just as in olden times—by hand, one sheet at a time, primarily using the fibers of the paper-mulberry tree, as well as also those of the Oriental paper bush and the *gampi* plant. In Hamada any number of products are made from the fibers: calligraphy and drawing 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

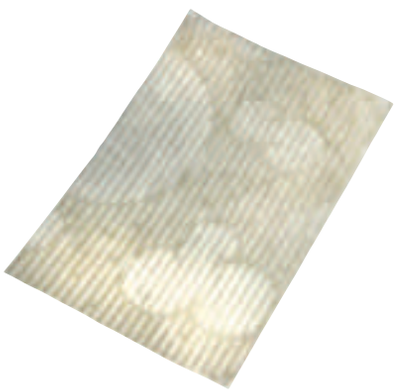
Twisting

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.

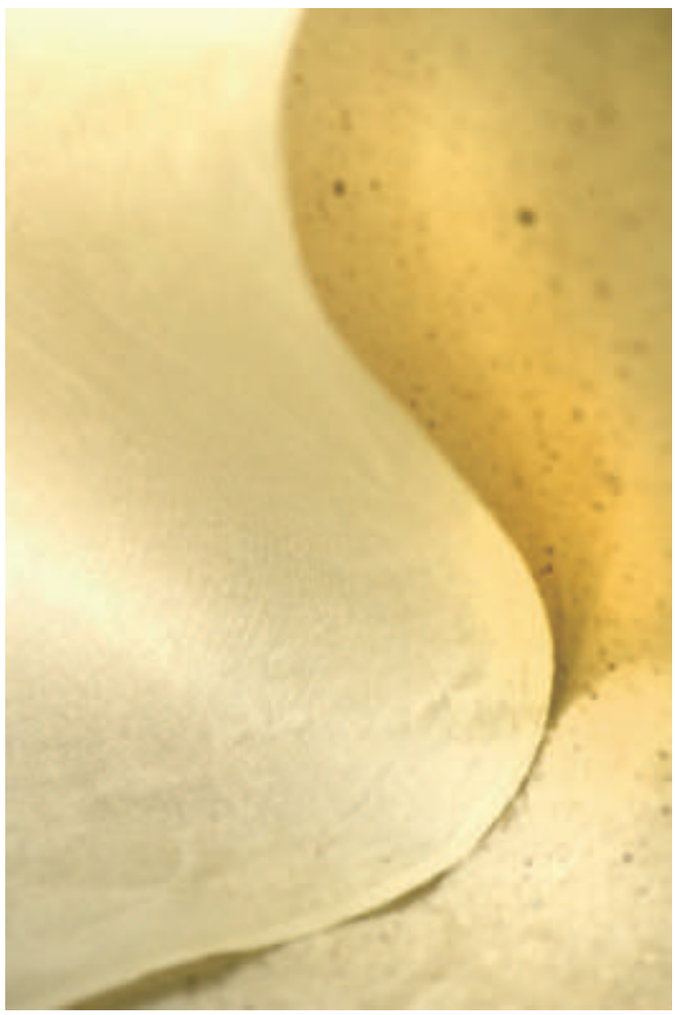
Splicing, known as *kuisaki*, is one such creative use. Strips are ripped by hand to render rough edges. As the plant fibers will readily reknit themselves, two sheets of different colors can be combined to create two-toned papers, or multiple strips can be united to form a single sheet, with seamless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

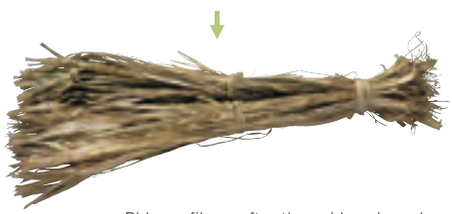
By contrast, washi is made from non-wood plant fibers harvested from shrubs that grow 2 to 3 meters a year. Papers made from a one-year-old plant can last more than 1,000 years. Clearly, a great strength of Sekishu washi is its sustainability.

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

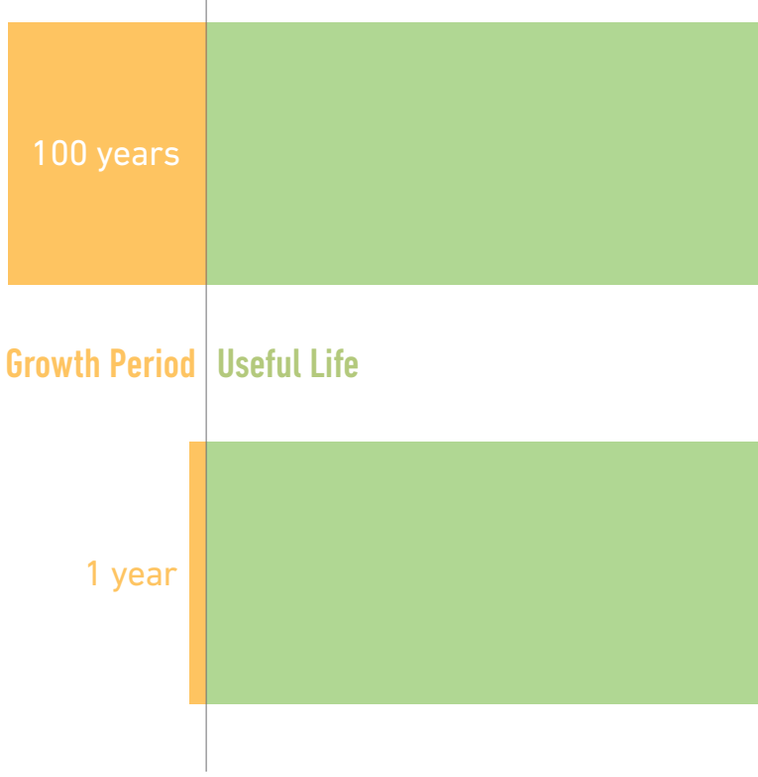


Phloem fibers after the epidermis and much of the cortex layer have been removed

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

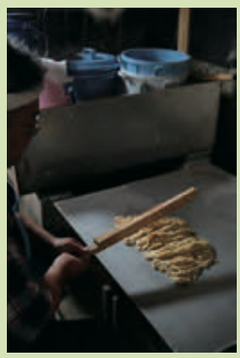
Excerpt of a physical assessment of washi conducted by the Sekishu Washi Engineers' Society

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.

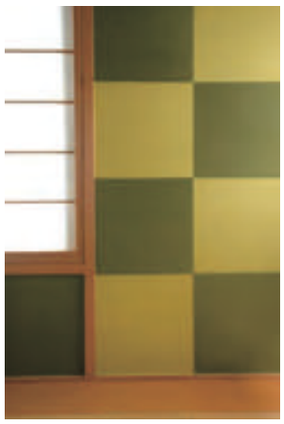
7 Each newly made sheet is laid flat, with successive ones layered on top to form a bed.

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.


1


2


3


4


5


6


7


8


9

Kurashiki Canvas

Kurashiki, Okayama

Brand Highlights

- Seventy percent of the canvas produced in Japan is made in Kurashiki
- A high-density weave yields the luxury look and fine quality of made-in-Japan canvas
- The extra-thick, leather-like No. 2 canvas and the versatile No. 8—the preferred choice of many bag makers—are woven on vintage shuttle looms

Kurashiki, located in south central Okayama prefecture, is well known for its historical district and picturesque canal lined with white-walled storehouses. A lesser-known fact is that the city produces 70 percent of the canvas made in all of Japan. From truck canopies and industrial gear to the fabrics used in name-brand backpacks and bags, two Kurashiki-based concerns, Takeyari Co., Ltd. and Marushin Industry K.K., carry the lion's share of canvas production in Japan. While much of their output is sold as raw material to other manufacturers, the firms also sew and fashion a wide variety of finished products under OEM license. Baistone, a popular retail shop established by the two manufacturers, carries original brands.

The beauty of Kurashiki canvas lies in its high-density weave. The fabric's unblemished, uniform surface shows clearly when compared with American-made canvases. Of special note are the extra-thick No. 1, 2, and 3 fabrics. Woven on old-fashioned shuttle looms, these high-quality weaves are unlike any canvas product made elsewhere in the world. The No. 2 especially, densest of them all, enjoys a cult-like following among lovers of Kurashiki canvas.

Above left: The white-plaster design of *kura*-style architecture adorns a building at Marushin Industry in Kurashiki's Sobara district. The Baistone shop, a favorite haunt of those seeking out Kurashiki canvas, is down a side street just a minute away.
Above right: Immaculate piles of freshly woven canvas await shipment at Marushin Industry.
Left: Automated Picanol looms from Belgium like this one are no longer made. Lovingly cared for in the Takeyari factory, they are key players in the production of Kurashiki's quality canvas. With each flight of the shuttle through the warp, another piece of fine white canvas comes closer to completion.

Opposite page: A bolt of thick, extra-durable No. 2 canvas rests atop a length of the versatile No. 8 fabric used in the manufacture of handbags and other items. Both are by Takeyari. Note the tight, dense weave made possible by carefully tuned old-style looms. Fine-textured as well as durable, high-quality Kurashiki canvas is used in all manner of items that become treasured, long-lasting personal accessories.

From cotton fields to canvas weaves

Cotton cultivation began in Kurashiki and the surrounding Bizen region in the late 16th to early 17th centuries and flourished in these areas reclaimed from the sea, where the salty soil was unsuited to rice production. Manufacture of plain-weave, undyed sailcloth made from handspun cotton developed from the Meiji era (1868–1912) onward. Takeyari was founded in 1888 by a farmer named Ishigoro Takeyari. His wife, Ume, was an accomplished weaver whose cloth was much sought after in the area. They started the business to market the products of her loom.

The Takeyaris' concern expanded when a cotton wholesaler began to order Ume's cloth to make men's obi sashes, *tabi*-sock soles, and other products. In due course the cloth won prizes at fairs in Osaka and Tokyo and then in industrial exhibitions.

Second-generation head Takue Takeyari oversaw the shift from handwoven cloth to machine-loom weaving, and then from water-wheel- to steam-engine-driven power. During his time production also shifted from *tabi*-sock bottoms to sailcloth, marking the advent of Takeyari canvas. In 1933, Takue's brother Shin'ei founded Marushin Industry.

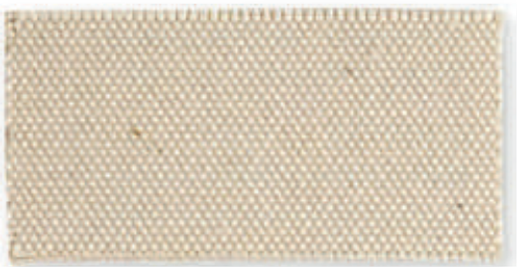
In 1968, third-generation head Kazuo Takeyari introduced Picanol shuttle looms to Takeyari's operations. They remain in use today, right alongside their high-speed modern counterparts.

Opposite page: Natural light streams in from the windows of the canvas warehouse at Takeyari, bathing piles of pure-white canvas awaiting shipment.
Top three photos: At top left is Ishigoro Takeyari, founder of the company, and at right is his wife, Ume, an accomplished weaver. The canvas specialty shop Baistone takes its name from the couple—"bai" being an alternate reading of the character for her name, *ume*, and "stone" a translation of *ishi*. The lower photo shows a mechanized power loom installed at Takeyari in 1909.
Above left: A Belgium-made Picanol loom in action at Takeyari. The machines are fondly maintained by skilled technicians who make adjustments as needed to keep them running smoothly.
Above right: The "sawtooth roof" of the Takeyari factory, now an architectural rarity. The face beneath each pent roof is fitted with windows, drawing ample natural light into the floors below.
Right: The younger generation is charged with getting the word out about quality Kurashiki canvas. Pictured here are Manami Edamatsu and Shota Kagawa of Takeyari, and Ayaka Takeyari of Marushin Industry.

No. 1

30 warp x 20.0 weft/inch; thickness 1.45 mm; weight 980 g/sq m; horse tack

No. 2



30 warp x 19.5 weft/inch; thickness 1.62 mm; weight 932 g/sq m; conveyor belts, wheel dolly storage bags; rescue tool storage bags

No. 3

30.5 warp x 21.0 weft/inch; thickness 1.37 mm; weight 846 g/sq m; sumo belts; boat hatch covers

No. 4

31 warp x 20.5 weft/inch; thickness 1.31 mm; weight 787 g/sq m; gymnasium floor coverings; boat tackle, boat hatch covers

No. 6

34 warp x 25.0 weft/inch; thickness 1.12 mm; weight 656 g/sq m; totes, gymnasium practice mats

No. 8

35 warp x 25.0 weft/inch; thickness .80 mm; weight 484 g/sq m; bags, satchels, shoes, upholstery cloth

No. 9

46 warp x 33.5 weft/inch; thickness .82 mm; weight 517 g/sq m; vehicle canopies and cover sheets, white denim, sumo belts

No. 10

46 warp x 35.5 weft/inch; thickness .65 mm; weight 434 g/ sq m; truck canopies and tacks, ship sails, martial-arts uniforms, *mochi* cloth

No. 11

43 warp x 39.0 weft/inch; thickness .65 mm; weight 333 g/sq m; shopping totes, aprons, jackets

No. 79A

63 warp x 43.0 weft/inch; thickness 0.5 mm; weight 280 g/sq m; bags, aprons, shoes, karate uniforms, *noren* curtains

Sturdy, versatile canvas

In the heyday of sailing ships vast amounts of canvas were produced for sailcloth. Today this durable fabric is found in everything from kitchen goods to stylish street fashions and even the canopies of trucks. At Takeyari, both vintage and modern-day looms are used to weave all grades of canvas from No. 1 to No. 11. All are JIS compliant; in fact, the firm adheres to the stricter standards that were in place before these industrial provisions for textile engineering were relaxed.

The versatile No. 8 canvas is the choice of many clients for use in making backpacks and bags. The extra-thick No. 2 made on Takeyari's Belgian looms is strong enough to equip conveyor belts, but its application to bag designs has generated new interest in and appreciation of canvas among fashion-conscious consumers. The No. 1, 2, and 3 fabrics, produced only in Kurashiki, are sturdy enough to stand up on their own, opening up a realm of interior design possibilities such as colorful storage bins and shelf organizers.

Canvas is a 100 percent natural fabric that becomes more attractive the longer it is used. Its eco-friendly qualities are in step with the growing inclination on the part of makers and consumers alike to favor designs that stanch the environmental damage wrought by fast fashions.

Left and below: Striped canvas by Marushin, popular for handbag and coaster designs. The pattern is created by weaving pre-colored yarns, rather than printing or dyeing finished cloth. Made mainly for OEM products, this fabric can be produced in any combination of colors, and the widths and numbers of the stripes can be altered to customer specifications. The threading of the loom is entirely manual and demands great skill and patience, but discerning eyes can see the difference in the final product. Because the design is generated by the weave itself, the colors remain sharp and the pattern appears on both sides of the fabric.

Opposite page: Canvas of different weights is used across all areas of life. Samples by Takeyari are shown with their density, thickness, weight, and most common uses listed.
Above left: Freshly finished canvas woven on a vintage shuttle loom is soft and silky to the touch. (Marushin)
Left: Warping in sections is a useful technique for small-lot production and striped products. (Marushin)
Right: A collaboration between Takeyari and British designer Faye Toogood produced "ABCD"—outsized canvas cushions in the shape of those letters. The cushions can be used separately or assembled easily with a simple rope to form an armchair or modular sofa. ABCD was exhibited at Milan Design Week as a new interior design product highlighting the attractive texture and durable nature of canvas.

Bag collection

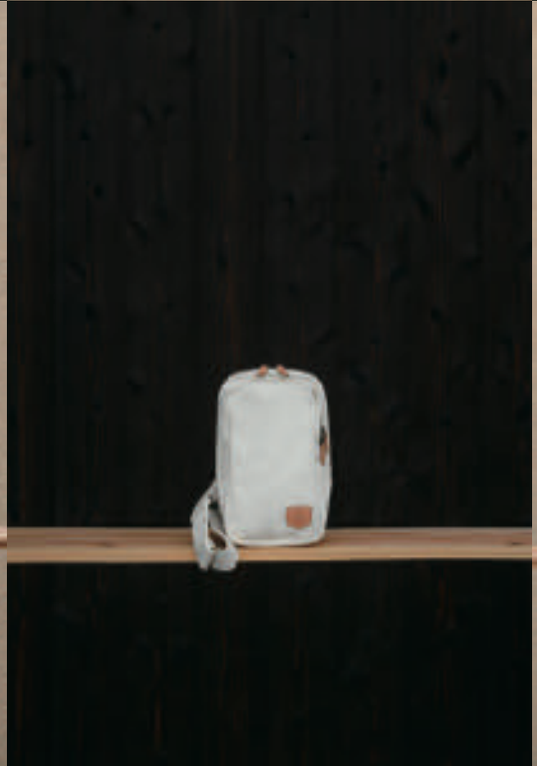
A variety of bags feature in the original product lineups offered by the Takeyari and Baistone brands. Some are made from extra-thick canvas, others make resourceful use of the selvage produced by the old-style looms, and still more stylish items unite canvas fabric and leather. Bags made of the No. 2 weight are classic Kurashiki canvas, favored by fans for the way the fabric ages over time and deepens in character.

Takeyari production manager Chizuru Ooka holds a tall tote made of No. 2 canvas.
Opposite page: The bags shown against a dark background are from Takeyari's own line; the others are branded by Baistone.
• Top row: Standard flap tote, coated canvas bag, selvage flap tote
• Middle row: Tall No. 2 canvas tote, vertical selvage tote, extra-thick chambray tote made of cloth woven with charcoal-gray weft
• Bottom row: Standard flap tote, extra-thick chambray one-strap shoulder bag, tall selvage tote








Expert quality control

No matter how remarkable the looms used to produce Kurashiki canvas might be, their capabilities would be nothing without the practiced hands and eyes of the veteran technicians on the floor.

At Marushin, the weaving process begins with formation of the cotton thread. Two to eight strands are combined to make each one, the number determining the thickness of the finished canvas. The thread is then twisted and measured off into the right lengths for loading onto the loom. The warp is wound onto the beam and placed on the machine.

The condition of the thread is affected by the season and weather. Relatively high levels of humidity are best, as the threads become brittle when dry. The technicians make adjustments as necessary. True artisans, they keep their hands constantly in touch with the process, feeling the condition and tension of the thread as it moves through the machines and moving nimbly to prevent unevenness or breakage.

Every inch of the fabric is visually checked to identify any flaws in its weave. Repairs are made by hand. Whether the canvas has been woven on a vintage Picanol shuttle loom or a modern-day high-speed loom, it is the product of people committed to fine workmanship.

Opposite page: Multiple strands of cotton thread are twisted together to increase their strength and prevent the warp and weft threads from napping.
Above left: The warp to be loaded onto the loom is first wound onto giant drums in 6 to 10 bundles of 200 to 300 threads each.
Above right: Threading the warp through the comb-like reeds is painstaking manual work. For a striped canvas, the threads are inserted one at a time in accordance with the color and width of the stripe. The process can take anywhere from one to three days. (All photos on this page: Marushin)

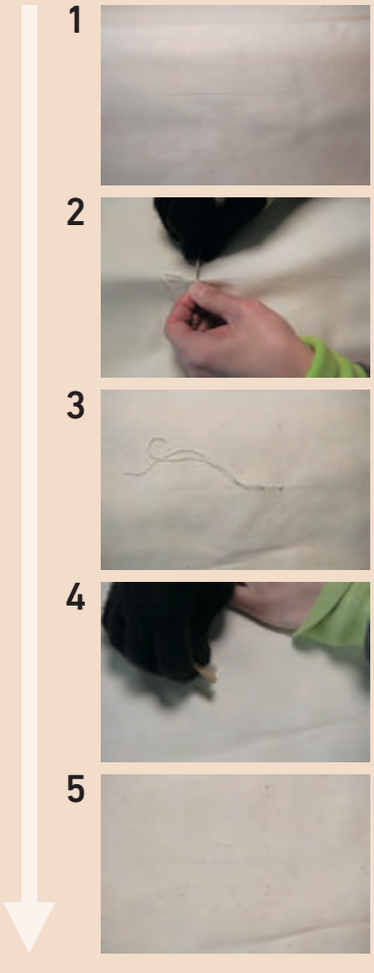
A careful visual inspection of the woven canvas is made to locate any flaws in the weave—knots resulting from tangles in the thread, set marks that can occur when the loom is stopped, dust or fluff lodged in the fabric during weaving, and so on.

In one corner of the well-lit Takeyari factory, workers examine each new roll of cloth, checking carefully yard by yard. The fabric is stamped wherever a flaw has been found. Takeyari further grades the fabric as class A for bolts with few flaws and class B for those with relatively more. No machine produces perfect results, so minimizing the number of class B bolts also depends on how many flaws can be removed through touch-up and repair.

Flaws that can be easily fixed are taken care of at the inspection stage. Some, such as the repair of set marks and other more intricate errors, will require the skills of another artisan, a next step in the finishing process.

As shown in the five photos at right, if the weft has skipped a few warp ends, the resulting "float" is carefully removed with a needle and the fabric smoothed with a special tool, leaving no trace of unevenness.

Such attention to the finer details of workmanship explains why Kurashiki canvas accounts for 70 percent of the canvas produced in Japan. From the thread formation to weaving and finishing, hands-on dedication shapes each step of the process.



Shinsuke Nagatake (rear) of Miyama Zenshoku inspects the finished Gunma silk products woven by Kubozuka Textiles, a small workshop run by a husband-and-wife team.

Kofutoen is located in a peaceful rural setting in the Sono-cho district of Seto. Masao Kato is shown at work in the pottery.


METI
Ministry of Economy, Trade and Industry