

niponica

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Discovering
Japan

2015
no.

17



Special Feature

Tiny but Awesome!
Miniature Is Big in Japan



Cover photo (also seen on left):
Small figurine to hang on a cup
for a surprisingly amusing effect.
Height approx. 5 cm. (See related
article on pages 21.)
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04 The Traditional Decorative Arts of
Japan, on a Minute Scale—
Magnificent and Meticulous

10 Timepiece Manufacturing

14 New Ways to Have Fun with Bonsai

17 Column:
A Fashion Motif Inspired by the
Microscope

18 More Than Just Toys

22 Tasty Japan: Time to Eat!
Kyara-ben

24 Strolling Japan
Ise-Shima

28 Souvenirs of Japan
Hashi-oki

Left: On March 3 every year it is common for families to cel-
ebrate their young daughters during the *Hina-matsuri* festival,
by displaying small dolls in the home. In one region in Shizuoka
Prefecture, homes are decorated with *tsurushi-bina*, which are
made of cloth and suspended in an ornate display. (Photo: Aflo)

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Special Feature

Tiny but Awesome! Miniature Is Big in Japan

Haiku, a complete poem in just 17 syllables. Bonsai, a tree grown in a tiny pot. Or just a pocket-size transistor radio. Even without these well-known examples, it is clear that Japanese culture has a long history of miniaturism—the aesthetic of reducing things to a size just right for their own tiny, perfect world. An appreciation of the beauty of the minuscule and the ability to achieve it have resulted in traditional crafts, industrial products, toys and a lot of other things that are tiny, awesome and cute.

Refinement and elegance for military hardware

Tsuba guard to protect a samurai's hand on his sword (see blue arrow, photo of sword in scabbard). Both sides of the guard are embossed in miniscule detail, depicting a pine tree and a crane. Object name: *Sakura momiji makie wakizashi koshirae* ("Tsuba Guard Decorated with Cherry Blossom and Maple Leaf"). End of 19th century. 6.2 x 6.9 cm. Property of the Nezu Museum.



The Traditional Decorative Arts of Japan, on a Minute Scale—Magnificent and Meticulous

Arms for samurai, personal ornaments for common people, art exports to other countries... A specialist in the history of Japanese industrial art and handcrafts explains this ancient world of meticulous decorative arts, honed to perfection by rival artisans whose techniques were the best of their time.

From a conversation with Kurokawa Hiroko

A look back at the history of Japanese art quickly takes you to renowned works made with precision techniques, whether for lacquer ware, metalwork or other works of art. But this kind of art was mainly found on objects used for devotional offerings to the gods and Buddhist saints, or luxury goods for aristocrats—items of culture for just a small group of people at the top of society. It was in the Edo period (1603–1867) that the common folk began to enjoy the achievements of sophisticated artistic techniques. It was a time of flourishing urban culture, when the world of decorative arts was expanding in diverse ways.



The Spirit of Old Edo, miniaturized

Here are some humorous *netsuke* toggles depicting living creatures, characters from tales, etc.

1. Raijin, the god of thunder and lightning, gripping wooden footwear (*geta* clogs). Object name: *Raiden* ("Thunder and Lightning"). Carved ivory. Height 5 cm.
2. Frog depicted in graphic detail—for example, the tiny eyes are inlaid with the finely-crafted touch of a master. Object name: *Hoshigaki ni kaeru* ("Frog on a Dried Persimmon"). Made by Suke-naga. Carved Japanese box wood. Height 3 cm.
3. Depiction of a bonito fish to be eaten for the first time during the new season, a delicacy which was prized by the citizens of Edo. Object name: *Kiba-bori hatsu-gatsuo netsuke* ("First-of-the-Season Bonito as Carved Tusk Netsuke"). Made by Mitsuhiro. Carved ivory. Diameter 4.1 cm.
4. Small dog with one foreleg raised in a cute pose. Object name: *Koinu* ("Puppy"). Made by Suke-naga. Carved wood. Length 3.5 cm.
5. Pear peel and a bee, astoundingly true to life. Object name: *Nashi ni hachi* ("Pear with Bee"). Made by Kogetsu. Carved wood. Height 4.9 cm.
6. A mother tiger guards her two cubs with her sharp eyes. Object name: *Oyako tora* ("Mother and Cub Tigers"). Made by Hakuryu. Carved ivory. Length 3.5 cm.
7. Sparrow with feathers fluffed out to keep warm. A common motif at the time. Object name: *Fukura suzume* ("Bouffant Sparrow"). Lacquered. Length 4 cm.
8. Monkey holding a peach, which is a symbol expressing hope for a long life. Object name: *Saru* ("Monkey"). Made by Toyomasa. Carved wood. Height 3.7 cm.

Photos of all *netsuke* toggles taken from *Netsuke: Gyoshukusareta Edobunka* ("Netsuke: Edo Culture in Miniature"), compiled by the Japan Netsuke Academy and published by Bijutsu Shuppan-Sha Co., Ltd, 2005.

Perhaps the most impressive examples of the meticulous decorative arts of the Edo period are samurai sword parts. The end of the Warring States period had ushered in peace and tranquility, but the old practice of decorating swords lived on, remaining a symbol of samurai status. In fact, with times of peace, sword decoration evolved toward even more intricate detail. One example is the *tsuba* guard used to protect the hand on the sword hilt. The *tsuba*, hewn from a metal plate and measuring about 7 cm in diameter, featured delicate carving on both sides—masterful scenes of nature in an exquisite miniature world.

Techniques nurtured by fashion

We must, of course, also remember the cultural world of kimono, and how it encouraged the development of other exquisite handcrafts. When worn, the kimono presents the viewer with long vertical lines. It is an excellent palette for patterns, but hardly lends itself to jewelry like a necklace or earrings. Kimono fashion adopted delightfully trendy styles in accessories like *kanzashi* hairpins for women, and sword-related objects for samurai—in other words, a blend of the practical and ornamental.

Inro are an excellent example. These were decorative accessories worn suspended from the waist. They were originally conceived as carrying cases for things like personal seals and medicine. The fashion trend was begun by samurai, but by the time the trend spread to commoners the *inro* was viewed simply as an accessory. They were rectangular in shape, generally around 9 cm high by 6 cm wide. The exterior was ornamented with illustrations



Inro carrying case. Ivy illustrated in *makie* (gold or silver on lacquer) and *raden* (mother-of-pearl). The case has a round *netsuke* toggle also decorated with *makie*. Object name: *Tsuta makie inro* ("Ivy Makie Inro"). 6.8 x 4.9 cm. Property of the National Museum of Japanese History.

or patterns using techniques such as *makie* (gold powder sprinkled on a lacquer design) or *shippo* (cloisonné enamel). Some motifs were inspired by objects from nature or fairy tales, some were auspicious patterns. Each minutely detailed design tells a unique story, and our eyes never tire of what they see.

Netsuke, another example, are small toggles used to hold things such as *inro*, *kinchaku* (cloth purses) and tobacco pouches suspended from the waist. The demand for *netsuke* as small personal ornaments also inspired the growing sophistication of manufacturing techniques. Generally modeled from wood or ivory, the designs were often humorous and exhibited exceptional skill, presenting a microcosm of nature on an object measuring only a few centimeters across. *Netsuke* are works of art depicting elements from the everyday culture of Edo in miniature.

Global fascination for Japan's decorative arts

Official policy cut the country off from the outside world during most of the Edo period, although the export of ceramics, lacquerware and other works decorated with ornate patterns was permitted from the port of Dejima in

Nagasaki, bound for Europe. After the country opened up and political circumstances changed with the Meiji period (1868-1912), many more works of art were sent overseas, helping to meet the government's foreign currency needs. The first time Japan exhibited in a world fair was the Paris Exposition of 1867. This was followed by exhibitions in Vienna, Philadelphia and elsewhere, all offering opportunities for the presentation of Japan's decorative arts. The response was enthusiastic.

Western aesthetic curiosity for Japan led to *Japonisme* fads in the latter part of the 19th century and the early part of the next. It is well known that the Impressionists were strongly influenced by *ukiyo*e woodblock prints. But Japan's decorative arts also struck the eyes of European artists as highly innovative, especially the choice of insects for motifs, and inlay works that combined metals of different colors. Émile Gallé (1846-1904) and René Lalique (1860-1945) are good examples of the *art nouveau* masters whose works include insect and bird motifs. In Japan, within the history of nature motifs, cultural trends had favored the flowers, birds, insect sounds and other natural phenomena of the current season since the Heian period (794-1192). Ito Jakuchu (1716-1800) and his contemporaries drew

Absolute perfection in miniature



Ceramic urn elaborately decorated with gold and colored illustrations, made for export during the Meiji period (1868-1912) to cater to overseas demand. Object name: *Iroo karakusamon shishi chu kazari-ko* ("Colored Pot Decorated with Arabesque Pattern and Lion"). Made by Kinkozan Sobe'e. Height 46.4 cm; diameter 23.2 cm. Property of the Tokyo National Museum. Image: TNM Image Archives.



A masterpiece by Ito Jakuchu, showing a tight flock of thirteen fowl in splendor and great detail. Jakuchu, a painter active in the 18th century, has left us many illustrations of animals and plants. Name of this scroll illustration on silk: *Gun-kei-zu: Do-shoku sai-e* ("Illustration of a Flock of Fowl: Colorful Realm of Living Beings"). 142.6 x 79.7 cm. Property of Sannomaru Shozokan (The Museum of the Imperial Collections).



meticulous illustrations with insect and bird motifs, basing their work on realistic sketches, and above all, their art still attracts admiration today.

The Meiji Restoration ended the Edo period, and the rank of samurai was abolished. When a decree was issued prohibiting the carrying of swords, metalwork artisans faced the risk of losing their jobs. What saved them was keen overseas demand for their work. Eager to encourage industry, the Meiji government promoted the export of industrial arts, bringing renewed prosperity to metalworkers.

Another example of Japanese art attracting the attention of overseas markets is *jizai okimono*, lifelike models of animals and insects assembled from intricately worked metal pieces but look so realistic they seem alive. Such works were discovered by art lovers outside Japan during the Meiji period, and this resulted in the export of superior pieces. Meanwhile, in the Japan of today, the surprising sophistication of the various forms created by the armor craftsmen of Edo is finally attracting the respect it deserves.

The spirit of traditions that paid such exquisite attention to detail remains alive even today in the cornerstone of Japanese industry, manufacturing. And all those figurines and other modern trinkets that seem to have adopted the role of *netsuke* toggles, like key chains and cellphone straps, display the same fondness for detail, as is also seen in elaborate miniature figurines.

Kurokawa Hiroko
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Flair and skill
flaunted for the
export trade

1. Metal model of a *jizai okimono* dragon with many moveable parts, including legs, claws and mouth. Made by Myochin Muneaki, a maker of military armor. Object name: *Jizai ryu okimono* ("Dragon, *Jizai* Articulated Figure"). Length 136.5 cm. Property of the Tokyo National Museum. Image: TNM Image Archives.
2. Plates made from a combination of different colored metals: gold, silver and bronze. During the Meiji period (1868-1912), metalworkers specializing in decorative swords turned their skills to ornamental metal. Object name: *Kiku-ka mushi zu-zara* ("Plates Illustrated with Chrysanthemum Flowers and Insects," front and back). Made by Shoami Katsuyoshi. 5.9 x 27.7 x 25.9 cm. Property of the Hayashibara Museum of Art.

3. *Shippo* (cloisonné enamel) plate with butterfly and cherry blossom motif. Made by Namikawa Yasuyuki. Japan's *shippo* art earned rave reviews when it was exhibited at the Paris Exposition in 1889. Object name: *Ochozu hira-zara* ("Plate Illustrated with Cherry Blossoms and Butterflies"). Diameter 24 cm.
4. Small *shippo* perfume bottles with intricate illustrations. Object name: *Kacho-mon kosui-bin* ("Flower and Butterfly Motif Perfume Bottles"). Made by Namikawa Yasuyuki. Height 8 cm. (Nos. 3 and 4: Property of the Kiyomizu Sannenzaka Museum; photos: Kimura Yoichi.)
5. Dragonfly, one in the *junishu konchu* series of 12 varieties of insects rendered as *jizai okimono* ornaments with moving parts. This insect's wings and legs can be moved. Made by Takase Kozan. Length 7.5 cm. Property of the Mitsui Memorial Museum.

Timepiece Manufacturing

The Long Road to the Japanese Wristwatches of Today

Wristwatches occupy a precision world since they are only a few centimeters in diameter and it is impossible to make them without advanced technology. This is the kind of sector Japanese manufacturing has excelled in for a long time. On these pages we examine the history of wristwatch manufacturing in Japan, showing the special care taken at every step of the way to ensure optimal performance.



Photos: Seiko Watch Corporation, Citizen Watch Co., Ltd., Casio Computer Co., Ltd., The Seiko Museum, Japan Clock & Watch Association, and PIXTA



Page top: Seiko Watch Corporation's Astron watch uses GPS signals to automatically recognize the time zone you are in, anywhere on Earth. You can trust the accuracy, even on the top of Mount Everest or in Antarctica.

Right: Inro-dokei timepiece incorporated in an inro (a small carrying case for personal items like medicine). The clock face numbers were adjusted to compensate for the changing lengths of daytime and nighttime as the seasons changed. The ornate decoration uses tortoise shell and makie (gold or silver powder on lacquer).

The early days of clock-making in Japan

Clock-making in Japan was kick-started around the middle of the 1500s when a Portuguese missionary arrived with a mechanical clock. But not too long after that, the Edo Shogunate closed the country off to the outside world. So then Japanese mechanical clocks started to evolve in a distinctive way, as *Wa-dokei* that told time in the traditional Japanese style.

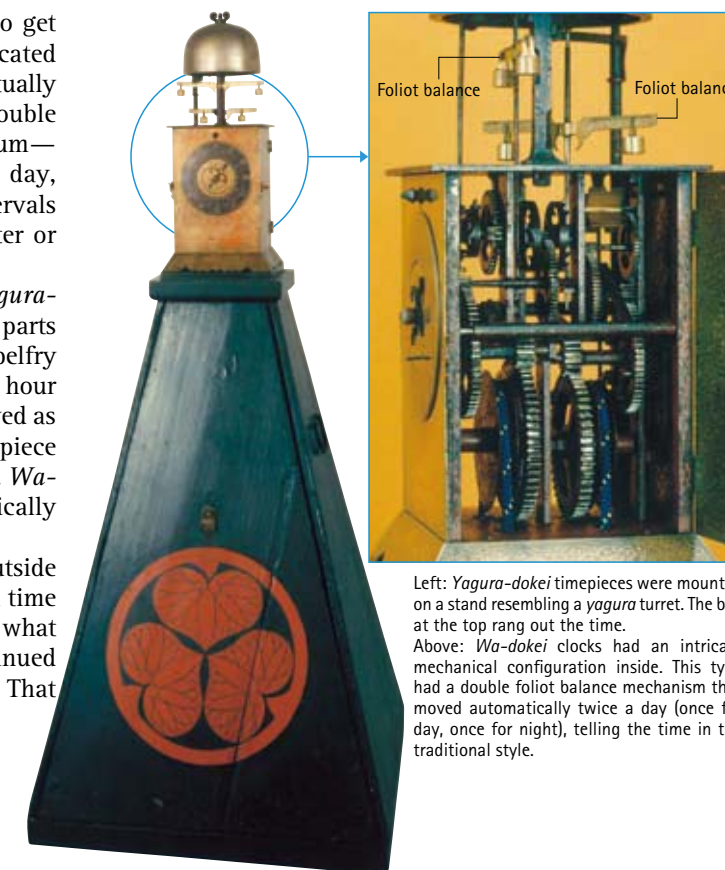
The most interesting feature of *Wa-dokei* was that they used an uneven time schedule. Today, we divide a day into 24 hours of uniform duration, whereas in old Japan they divided a day into daylight time and night time. Day and night had the same number of "hours." The *Wa-dokei* system was faithful to the natural rhythms of life and remained a standard for daily living, whereas in the West hours of equal duration became the norm when mechanical clocks gained favor.

Day and night have different lengths, depending on the season, so, for example, the old Japanese system assigned longer "hours" for daytime in summer and shorter

ones in winter. The challenge, of course, was how to get a mechanized clock to tell time with such a complicated system. After plenty of trial and error, clockmakers actually came up with multiple systems. One system had a double foliot balance mechanism that moved like a pendulum—it switched automatically twice a day, once for the day, once for the night. Another system changed the intervals between numbers on the clock face to display shorter or longer "hours."

The old clocks came in different designs. The *yagura-dokei*, named after a *yagura* turret, had its mechanical parts mounted on a stand, and the stand was shaped like a belfry or a fire watchtower. The *shaku-dokei* pillar clock with hour scale used weights that drove the mechanism and served as the clock hands. The *inro-dokei* was a portable timepiece on an *inro* carrying case that was stylishly decorated. *Wa-dokei* were fine pieces of craftsmanship, both technically and artistically.

In 1873, a while after opening up again to the outside world, Japan adopted the Western system of uniform time intervals. This ended the role of traditional clocks. But what did not end was the zeal that timepiece makers continued to exhibit in their designs, techniques and originality. That lives on today in Japan's watchmaking industry.



Left: *Yagura-dokei* timepieces were mounted on a stand resembling a *yagura* turret. The bell at the top rang out the time.

Above: *Wa-dokei* clocks had an intricate mechanical configuration inside. This type had a double foliot balance mechanism that moved automatically twice a day (once for day, once for night), telling the time in the traditional style.



The 1964 Tokyo Olympic Games made use of a total of 1,278 time devices of 36 types, including stopwatches and large time display panels. The photo was taken during the marathon.

Delivering accurate time for all: The quartz wristwatch

Japan's timepiece industry entered its glory days in 1969, when the world's first-ever quartz wristwatches hit the stores (see page 12).

Quartz timepieces governed by a crystal oscillator were first developed in 1927 in the United States, but the invention did not quickly lead to a commercially viable product. The biggest obstacle was size: Japan's first commercial quartz timepiece was 2 meters tall, about the same as a wardrobe. The next development was a quartz timepiece



Quartz timepiece used as a master clock for long-distance races during the Tokyo Olympics. Released by Seiko in 1963, it offered lower battery consumption and came in a compact size that made it highly portable. It became an official timepiece for competitive events throughout the world.



Assembly line for wristwatches at a Seiko factory around the year 1970. The number of timepieces produced in Japan grew by leaps and bounds in the 1960s and 70s, thanks to strict quality controls and efficient mass production launched by the industry in the second half of the 1950s.



Right: The world's first quartz wristwatch was called the Quartz Astron. Made by Seiko in 1969, it surprised consumers with an accuracy within 0.2 seconds per day, or 5 seconds per month. Left: The working innards of the Quartz Astron.



The world's first wristwatch capable of maintaining precise time through the use of signals from multiple transmitting stations. It was made in 1993 by Citizen Watch Co., Ltd. and received standard time and frequency signals from Japan, the U.K. and Germany, for precision accuracy. The antenna is mounted in the middle of the watch face.

First-generation G-Shock wristwatch designed for thoroughly rugged shock resistance. Made in 1983 by Casio Computer Co., Ltd., it was known for being able to survive a drop from a height of 10 meters. This feature, revolutionary for the market up until then, added to its popularity.



for ships. Its footprint was 45 x 45 cm, and it weighed 30 kg. It had become smaller, but it was still impossible to carry about. But then in 1963, the year before the Tokyo Olympics, a quartz timepiece 20 cm tall and 16 cm wide was released for timing athletic events (see p. 11). It weighed 3 kg, which in those days demonstrated a remarkable advance in the direction of smaller and lighter.

This evolution culminated in the quartz wristwatch. From a clock as tall as a wardrobe to a watch on a wrist—engineers had worked very hard to make a reliable, shock-resistant, accurate, wearable timepiece.

Initially, a quartz wristwatch small enough to wear on the wrist cost about the same as a family car. But before many years had passed mass production became the norm, rapidly making owning a quartz wristwatch a possibility for just about everyone. Precision and mass production worked together to change the world's timepiece industry radically. After several centuries of clock-making, the arrival of affordable quartz wristwatches was a transformative event.



The first-generation Astron revolutionized the wristwatch industry. It reflected the wish of the Japanese for accurate time-keeping, a wish that lives on in today's advanced wristwatches.

Great functions and quality in a small watch

The technology behind wristwatches continues to evolve, and Japan is one of the major players in these advances. Japanese engineers are keen to keep adding value, whether through greater shock resistance, or features to measure things like altitude and barometric pressure, or connectivity with smartphones. Features like utilizing light energy or ordinary arm movement to charge the watch, or ever-greater accuracy delivered with automatic electromagnetic wave-based synchronization, are now found in cheaper models, too. Japanese companies have recently moved ahead of the competition with synchronization using GPS signals, for precision no matter what time zone you happen to be in at the moment.

A product tells the story of the maker's mindset and aspirations. Perhaps the desire for accuracy so precise that it uses satellites indicates the earnest nature of the Japanese, who are known for their respect for punctuality and precision.

Reliable, practically unbreakable, functionally advanced, high-quality, priced for everyone, precise, dependable, so punctual and proper... these are the qualities of Japanese timepieces. The next time you have the opportunity, you may want to try out a small watch crammed with all that Japanese technology and dedication.



Citizen's newest GPS model, the Attesa F900, incorporates advanced new technology for charging from any light source. This model can even transform low indoor lighting into enough energy to keep the watch charged, eliminating the need to change the battery. Better for the environment, too.

Casio's newest G-Shock watch. Its special feature? It uses either standard time radio-wave signals or GPS signals to tell time with extreme precision. Some models in the series also provide two-way smartphone connectivity.



New Ways to Have Fun with Bonsai

Mini bonsai and bonsai-inspired art recreate nature in a tiny pot

Bonsai present scenes of the natural world and the changing seasons, all in a pot. The art demonstrates nature in compact form, attracting worldwide admiration. Attentive care is taken in arranging the shape, flower and fruit of the tree, and bringing these together with a pot to match. The result can be something more beautiful than nature itself. Recent trends add to the fascination of bonsai. Some focus on achieving the minimum size for close-at-hand enjoyment; others tap into pop culture. Mini bonsai rest on the palm of the hand, decorating bonsai with figurines can make a micro diorama, and man-made materials can create bonsai that will never die. The bonsai hobby lives on in greater diversity than ever.

Photos: Kuribayashi Shigeki
Collaboration: Ichimoku Issowa Gallery



Far left: No matter how small the bonsai, its branches and trunk still have to be trimmed to keep the form beautiful.
Left: Mini bonsai pots are so small that several fit on the palm of the hand. An added enjoyment is choosing a pot with a decorative pattern and shape that will match the tree and flowers.



Left: The yellow fruit and the leaves of this lesser flowering quince somehow balance each other nicely.
Right: The trunk and branches have been pruned to lead the eyes from right to left. The cute red fruit on this dwarf pomegranate heightens the effect.

Mini bonsai for beauty in miniature

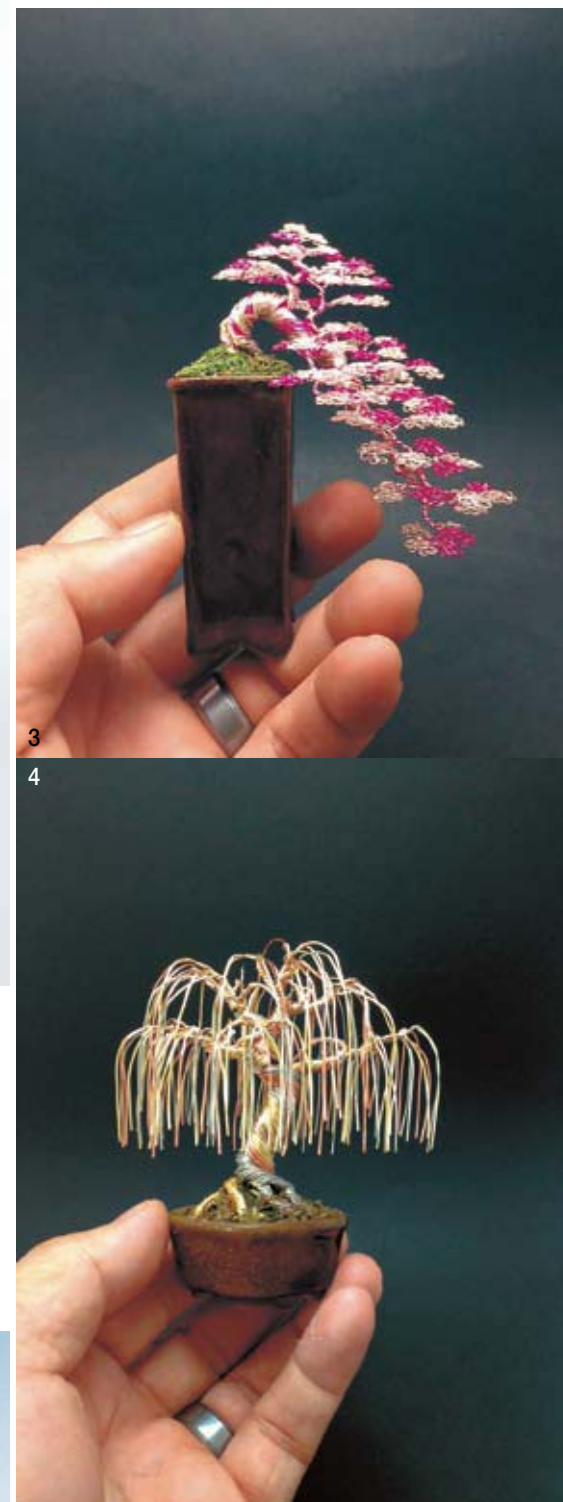
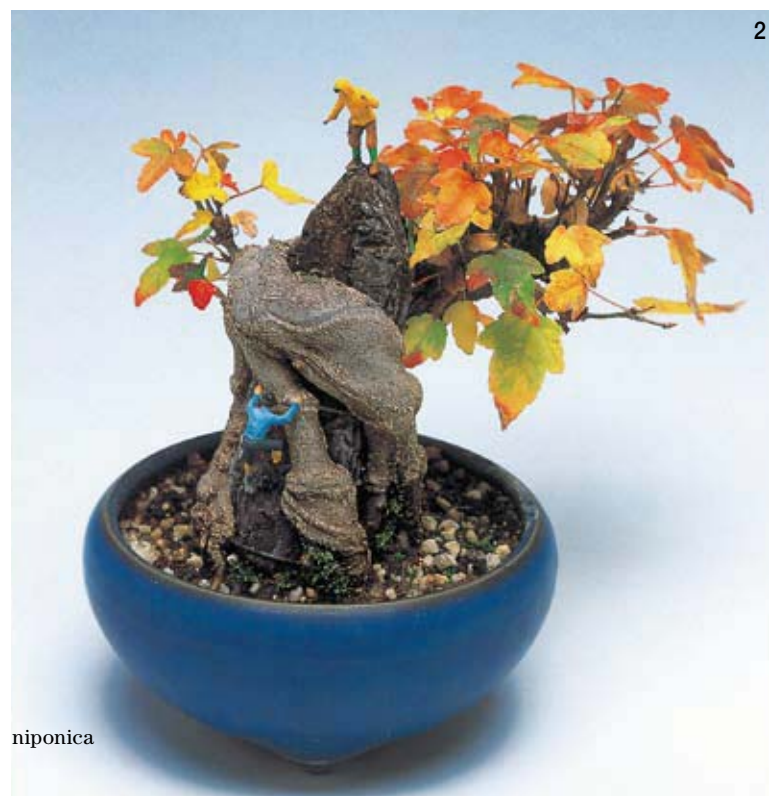
Bonsai change with the seasons, adding color to daily life. Mini bonsai are no more than 10 cm tall, making them easier to handle and display. Clockwise from the teacup: Chinese elm, Japanese forest grass, Japanese hawthorn, Chinese juniper (sargent juniper), matsumurae maple.





New art forms inspired by bonsai

1. Art director Aiba Takanori created a "Bonsai Art" world that is somehow reminiscent of a theme park. From his imagination has come a resort tree house. (Photo: Masunaga Kenji and Nacasa & Partners. ©TOKYO GOOD IDEA Development Institute Co., Ltd.)
2. The figure helps to make a picture that tells a story: having fun mountain climbing when the maple trees are in their fall colors. (Creation of Paradise Yamamoto. Photo: Tanaka Hideki.)



Mini pop bonsai from unusual materials

3, 4. Wires of different colors create a branch and trunk motif. The metal glows in ways a plant never could, adding to the appeal. Mini bonsai by the American artist, Ken To.

A Fashion Motif Inspired by the Microscope

Snow crystal motifs in trendy Edo



During the Edo period (1603-1868), snowflakes held such a fascination for one feudal lord that he got the nickname, "The Lord of the Snows." His name was Doi Toshitsura (1789-1848), the lord of the Koga Domain (in present-day Ibaraki Prefecture). He was the first person in Japan to study snow crystals under a microscope, in research that stretched over two decades. He called snow crystals "*sekka*," which literally means "snow flowers," and published his observations in the book *Sekka Zusetsu* ("An Illustrated Study of Snow Crystals" in 1832. Explaining 14 beneficial effects of snow and illustrating 86 types of snow crystals, his book and its sequel are highly regarded as Japan's first natural science treatises on snow.

Interestingly, the delicate beauty of the stylistic snow patterns found in Toshitsura's research soon became all the mode among the common people during the Edo period. These patterns treated snow crystals as flowers, and were used to add grace to kimono and accessories. This fashion trend of old Japan is seen vividly in many of the *ukiyo-e bijin-ga* woodblock prints of beauties wearing *sekka* motif kimono. The fad was a case of microscope-inspired design, a crystallizing example of how early modern Japan took to the leading science and technology of the day. Even during our own modern times, "snow flower" patterns remain a popular motif, evoking a fashion trend of Edo. Snowflake motifs naturally decorate small Japanese-style accessories, yet it is interesting to find them also on T-shirts, running shoes and other contemporary items.



1. The shirt is a creation of today's fashion, but the snowflake motif dates from centuries earlier. (Collaboration: Needles; Uneven General Store)
2. *Ukiyo-e* woodblock print of a woman in kimono with snowflake motif. Print name: *Edo no matsu meiboku zukushi oshiage myoken no matsu* ("Pines at Oshiage-myoken: Old Trees of Historical Interest in Edo"). Art by Keisai Eisen. Property of the Koga History Museum.
3. 19th century cups for green tea. The snowflake pattern fad even influenced decorative art for containers. Cup name: *Yuki no kessho moyo senchawan* ("Green Tea Cups with Snow Crystal Pattern"). (Photo: Takeo Nabeshima Family Archives; property of Takeo City)
4. *Inro* container. Object name: *Sekkamon makie inro* ("Snow Crystal Pattern *Makie Inro*"). Made by Hara Yoyusai, a famous *makie* artist of the Edo period. Property of the Koga History Museum.
5. A page from *Sekka Zusetsu* ("An Illustrated Study of Snow Crystals") by Doi Toshitsura, the man nicknamed "Lord of the Snows." Property of the Koga History Museum.



More Than Just Toys

Animé characters, vehicles, animals, works of art... These are just some of the tremendous array of made-in-Japan scale models that are always popular for their diversity and high quality. Join us for a tour of two factories and discover some of the secrets behind precision model manufacturing.

Photos: Natori Kazuhisa

Craftsmanship in a small factory brings realism to plastic scale models

Molten plastic is injected into metal molds to make scale-model parts. One of the mold manufacturers is Syuto Inc. It was established in 1978 and operates in downtown Edogawa City, Tokyo.

The molds for parts of a plastic model are each assembled from several parts to make a single mold. Individual parts of the mold can easily end up with a slight distortion or size discrepancy. It is especially difficult to make molds for parts that will be snap-fit without glue.

Syuto excels in precision molds, including molds for models with snap-fit parts. From its small factory have come molds for an impressive array of hit products. The company is a driving force in Japan's scale model industry, and a shining example of craftsmanship at work.

Company founder and chairman Shibata Mikio was closely involved in the creation of Japan's first plastic model, which was a model of the nuclear-powered submarine USS Nautilus. "Back then, our tools for making metal molds included cold sets, which are something like chisels. One effort after another ended in failure, but it was amazingly rewarding trying out different techniques until we got it right," he grins.

Today, after the computer design phase, the factory uses a 3D printer to make samples, and then machinery to cut the metal pieces that will become the molds. Tiny sharp edges that cannot be smoothed down with a cutter are removed through electric melting, leaving the desired smoothly rounded surfaces.

Then finally, human hands take over as artisans use remarkable skill to fine-tune parts to an accuracy of 1/100th of a millimeter. They paint the mold's joints and place them together to check for surface irregularities, and whittle those irregularities away with an electric sander, using their fingers for confirmation. In addition to touch and other senses, their work is guided by experience. It takes at least five years to become truly skilled at it.

When scale-model parts are made from high-precision molds, no burrs remain on the final product, showing how smooth the joints of the mold were made. The trick to



making products without burrs is simply for everyone involved in the mold-making process to be vigilant about avoiding them. Setting high goals and finding ways to reach them seems to be essential in precision manufacturing.

Life in miniature, inside a capsule

Supermarkets and video game centers are some of the places where you can easily find capsule toys dispensed from vending machines. Inside the capsules are tiny figurines, their popularity as strong as ever. Their history in Japan goes back to the 1960s, when they were first imported along with gumball machines from the United States. Back then, they could be bought cheaply, for around 10 yen each. Since the 1970s the range of items has evolved to include things like figurines and erasers of animé characters. Today, one capsule goes for around 300 yen.

The "Japanese Frogs" and "Antarctica" series are just two of the many items created by the company Ikimon, which specializes in capsule figurines of natural living things. Its products come in series of six to eight items in capsules 40 to 75 mm in diameter, and they are often ready to expand through assembly or folding.

Bringing life to figurines is difficult, so the creators at Ikimon never compromise on the design elements, such as the curvature of the neck and the expression of the eyes. Color is also important. The company generally needs from six to eight months, and sometimes almost two years, to take an item from the planning stage to a finished product.

The figurine molds are made by cast creators. They shape the resin with an electric grinding machine, and develop the form with handmade tools made of materials such as wood and thin brass wire. "There's no right way to make the original form, no set procedure. Everyone here uses their own method, and develops their own tools for the job at hand," says Terasawa Ko. His career in the field goes back 15 years.

If things go smoothly, a six-item series can be finished in a month, but if doubts arise, it might take more than a year.

"When something isn't right, it seems odd right away. At first I don't know why I get that feeling—maybe the arm contours, or the pose; I just know I have to change certain details, and then others. That is why it can really take time."

The figurines may be cheap and easy to buy, but customers still want a high degree of perfection. The creators who deliver it have brought renown to Japan's scale model culture through hard work and self-discipline.

Japanese scale models have a quality that depends highly on subjective senses such as impressions and touch. They exude a special friendliness. Perhaps because of their vibrant, lifelike nature, they seem to take people—young or old, male or female—into a world of fantasy.



Total sales of mobile suits and other plastic scale models in the *Mobile Suit Gundam* animé series have reached about 445 million units since they first went on sale in 1980, indicating their astounding popularity. Shown here: HGUC 1/144 scale models of the RX-78-2 Gundam. Made by BANDAI Co., Ltd.
©SOTSU and SUNRISE



Remarkably faithful 1/12-scale model of the interior of a sleeping car from Japan's sleeper train. The actual train was removed from service in 2015. Model of interior of Twilight Express Class B sleeping car, Type 24, Series 25. Made by TOMY TEC Co., Ltd.
©TOMY TEC Product manufactured under license from West Japan Railway Company.



Plastic scale model of a 4-wheel drive racecar with a motor powered by AA batteries. For extra fun, users equip their racecars with upgraded parts and compete using the dedicated speedway track model. Item shown: Mini 4WD Starter Pack AR Speed Type (Aero Avante)
©TAMIYA



In the country that brought the world plastic food models for restaurant windows, these replicas are getting smaller as they evolve. The photos show miniature conveyor belt sushi, with a replica of new touch-panel system for ordering (top left). Petit Conveyor Belt Sushi. Made by RE-MENT Co., Ltd.
©2015 RE-MENT

Japan's scale models: Everything and more

Plastic scale models, figurines, dioramas, model train sets... when great ideas and technology come together, the result is a fun world of miniature.



Fighter heroes, with masks and armor in matching colors, made famous in a TV drama series crammed with special effects. Ninjin Action Series 01-03. Made by BANDAI Co., Ltd.
©TV Asahi, TOEI AG and TOEI



Scale model of parts of the human body are often used for teaching purposes. This heart is realistic right down to the left and right ventricles, as well as the sympathetic nervous system configuration. Scale model of human heart and head. Nature Techni Colour Series, Shinzo to Tobu no Kozo Mokei.
©IKIMON



The triceratops comes with trees, a pond, rocks and other diorama elements. There is a choice of two poses: with the front legs in a walking or running stance. 1/35 Dinosaur World Series. Triceratops Diorama Set. Made by TAMIYA Inc.
©TAMIYA



Among the multitude of people who love castles, many of them would like a hands-on experience making one. All kinds of models, especially plastic scale models, are available. 1/700-model of Osaka Castle. Made by FUJIMI.
©FUJIMI MOKEI Co., Ltd.



The world of figurines now includes traditional sculpture, like this Buddhist statue. It presents an atmosphere of energy, changing its posture when its moveable joints are rearranged. Eleven-faced Kannon. Made by KAIYODO Co., Ltd.
©KAIYODO

This Godzilla hit the stores in 2014, 60 years after his first appearance. He comes with plenty of punch and agility, vividly recreating the moves that are feared on screen. S.H. MonsterArts Godzilla. Total height about 155 mm. Made by BANDAI Co., Ltd.
©TOHO PICTURES, INC. TM&
©1995, 2014 TOHO Co., Ltd.

Virtual singer Hatsune Miku. The main visuals for her events are now presented in 3D, and illustrative artwork with great attention to detail makes her come alive. Hatsune Miku Magical Mirai 2015 version. (Max Factory)
©Hoshima/Crypton Future Media, INC. www.piapro.net/TOKYO MX
Illustration by Hoshima/Costume design by Shikimi



Capsule toy to hook on the edge of a cup. She can assume a number of different poses, giving fans plenty of variety as they build their collection. Fuchiko and Cup. Made by Kitan Club Co., Ltd.
©Tanaka Katsuki/KITAN CLUB



A new type of figurine comes with a system that lets you reproduce manga and animé, even with written sound effects like "bam" and "pow," as well as add ornamentation that was never possible before. Monkey D. Luffy Figurs Zero Figure, 5th Anniversary Edition. Made by Bandai Co., Ltd.
©Oda Ei'ichiro, SHUEISHA Inc., Fuji Television Network, Inc., and TOEI ANIMATION Co., Ltd.



This magnetically levitated train is available as a scale model, even before the real thing is launched. The model was the first in the world to run levitated, propelled using the repulsive force of magnets. Name of model train set: Linear Liner Superconduction Linear LO Special Set. Made by TOMY Company, Ltd.
©TOMY/Manufactured under permission of Central Japan Railway Company.



Kyara-ben

Fun Lunch Boxes Use Art to Communicate

Collaboration: Miyazawa Mari and Suzuki Miho



Aflo

Animals, dolls, animé and manga characters—they all appear in *kyara-ben* (short for “character *bento*”). The characters come from various media, and *bento* means “boxed lunch.” Quite a few people use food ingredients to come up with elaborate, fun arrangements for family and friends. The “artwork of the day” frequently appears on blogs and social media.

Kyara-ben are made with common ingredients just like other *bento*, but the rice may be molded into the shape of an animal or media character, with black sesame seeds and *nori* seaweed for the eyes and mouth. For colors, egg makes a nice yellow, with carrot for orange and cucumber for green. The ingredients are determined by the picture the maker is trying to create. Letters and patterns can be made with, for example, thin slices of ham or cheese. Utensils, like a mold for the rice and a stencil kit for the *nori*, give the design a finishing touch. Actually, this type of *bento* art is not a new or sudden fad. These techniques have been used for more than 40 years. Fancifully sliced wiener becomes an octopus and carved apple becomes a rabbit. And in Chiba Prefecture, the local *futo-maki-matsuri-zushi* variety of sushi, said to date back to the Edo period (1603-1867), has the ingredients laid out so that when the sushi roll is cut, an illustration appears. These traditions have been practiced for many years in Japanese homes.

Miyazawa Mari has published many books and hosts a website on the subject. For her, the inspiration goes back to 2002, when she began making *bento* for her family.

“After a while, I got bored making ordinary *bento*. Then one day I used

a cutter to make some flower-shaped carrot slices, and found it quite fun. I tried out different things and became more and more interested. Then I thought that I could keep making *bento* this way for quite a while.”

Through *kyara-ben*, the affection and best wishes of the maker are easily conveyed to the eater. Miyazawa believes that *kyara-ben* is a joyful means of communication between people.

When it looks good, it tastes good too, so even the arrangement and the container require a good deal of thought. One might even say that *kyara-ben* is a new form of cuisine, yet another branch of the philosophy of *washoku*, Japanese cuisine.

When the *bento* covers come off, the children cry out happily and the adults smile. *Kyara-ben* are a small but inspiring way to add joy to everyday life.

This *kyara-ben* presents animals made from readily bought ingredients. The rabbit is rice, while the chicks are quail eggs. The faces get their expressions from black sesame seeds and *nori* seaweed. Black *nori* tends to absorb moisture and get wrinkled after a while. In order to prevent this, it was placed on thin pieces of cheese.

Ham, *nori* seaweed and thin slices of omelet were used to make this surprisingly realistic picture of the celebrated manga hero Naruto. One trick for bringing him to life is to make the black pupils of his eyes larger.

©Kishimoto Masashi, Scott/SHUEISHA Inc., TV TOKYO Corporation, Pierrot Co., Ltd.



When the *maki-zushi* roll is cut, flowers and other things appear, thanks to the meticulous arrangement of the rice, vegetable, omelet and other ingredients laid out before everything was rolled. A Chiba Prefecture tradition, called *futo-maki-matsuri-zushi*. *Nori* seaweed is often used to delineate the lines. (Photo: Akezumi Kazuhito)



Little piggies made from quail eggs and ham at their camp on a piece of bread. Their tent is a slice of omelet, the trees are broccoli, and the campfire is *kinpira*-style sautéed carrot and burdock root. Using common ingredients such as these for the lunchbox motivates kids to eat with gusto.

Traditional Culture in a Spectacular Natural Setting

Photos: Miyamura Masanori, Aflo, and Akafuku Co., Ltd.
Maps: Oguro Kenji

The Ise-Shima region is rich in traditions fostered since the dawn of history against a backdrop of large and small islands in a beautiful blue sea.



Far left: Sunrise, seen from a spot before Uji-bashi Bridge at the entrance to the Inner Shrine of Ise Jingu Shrine. (Photo: Ise-Shima Tourism & Convention Organization)
Left: Large trees grow in their natural state on the shrine grounds, making the air refreshingly cool. Many are camphor trees, cedars or Japanese zelkovas.



One of the biggest magnets for tourists in Japan is the Ise-Shima region in eastern Mie Prefecture. Ise-Shima faces the Pacific Ocean, and its scenery features a sawtooth coastline marked by headlands, inlets, and many islands, some large, some small. One of these islands is Kashiko-jima, the site chosen for the G7 Summit meeting in 2016. The region is also home to Ise Jingu Shrine, which honors Amaterasu Omikami, Japan's most revered Shinto deity.

The shrine complex consists of the Inner Shrine (Naiku) dedicated to the goddess Amaterasu Omikami, who is likened to the sun, and the Outer Shrine (Geku) dedicated to Toyouke Omikami, the goddess of agriculture and industry, who is believed to preside over the three essentials of human life: clothing, food and housing. In the old days, the common folk had faith and a strong desire to make a pilgrimage to Ise Jingu Shrine at least once in their lifetime, and even today it is as popular as ever.

For centuries, the custom has always been to first visit the Outer Shrine, then go to the Inner Shrine, located about six kilometers away. Uji-bashi Bridge stands at the entrance to the Inner Shrine, at the boundary between the ordinary world and the sacred realm. A forest of trees, some estimated at 500 to 1,000 years old, is inside the grounds, and the atmosphere throughout is soothing and austere.

Every 20 years, Shogu, the main sanctuary, and other buildings are reconstructed nearby. All sacred treasures, deity costumes, furnishings and other venerated objects dedicated to the shrine are also remade. Then each goddess is moved to the newly constructed shrine. These Shikinen Sengu rituals have been performed over the last 1,300 years. Renewal every two decades ensures that the best traditional craftsmanship is passed on to younger generations.

Close to the Inner Shrine is a district called Oharai-machi, which has thrived since ancient times thanks to its location near



Top left: The scene after crossing Uji-bashi Bridge and strolling around the Oharai-machi district, which is laid out for about 800 meters along the Isuzu River. In the middle of the district are Oharai-machi and Okage-yokocho, which have an old-town atmosphere and attract many tourists.



Below left: Stylish straps made by braiding colorful twine in the old fashioned way. Made by Kumihiro Hirai.



Ise *itto-bori* carvings are said to have started with shrine carpenters. The job is done quickly without stopping, taking care to be guided by the natural grain of the wood.
Right: Kishikawa Yukiteru has been carving *Ise itto-bori* for 36 years. In just 20 minutes he finished this pair of Ebisu Daikoku carvings, using a number of different knives. (Height: 3 cm; see photo above).



Shopping at Kamiji-ya and other shops in Okage-yokocho for traditional crafts can be plenty of fun.
Below left: *Ise gangu* toys are known for their cheerful colors. They have been made here for souvenir hunters for centuries.
Center: Hand towels dyed using *Ise katagami* pattern paper.
Right: These two *netsuke* toggles represent a *takenoko* bamboo shoot and a *takara-tsuchi* good luck mal-let. Another example of Japan's finely detailed handcraft traditions, they are carved from Japanese box tree wood, which is particularly hard and is known at Ise as "precious stone wood."



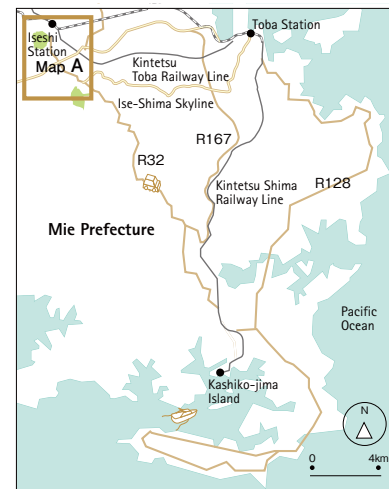
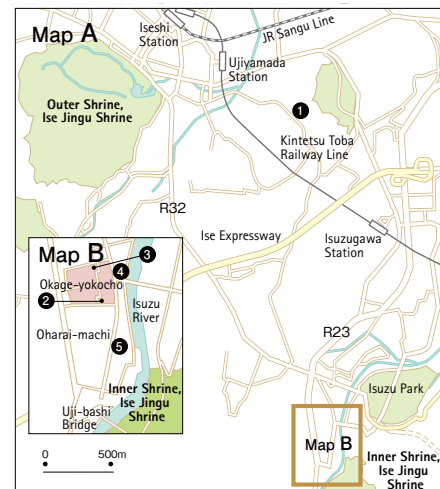
a major pilgrimage center. Here you will find souvenir shops and eating and drinking establishments. The most sought-after treats are *anko-mochi* rice cakes topped with a sweet bean paste made by a traditional confectionary established in 1707. In the middle of the district lies Okage-yokocho, a town constructed in the ancient style to keep alive Ise's history and old ways of life. It was built in 1993 at the time of the Shikinen Sengu ceremony. Crowds flock to the streets and shops all day.

The shops offer a wide selection of souvenirs inspired by traditions developed over centuries of pilgrimages. Fine souvenirs include handcrafts such as *Ise gangu* toys, manufactured here since ancient times, *Ise netsuke* toggles for cords used to suspend small objects, and *Ise katagami* pattern paper featuring dyed designs and motifs. One special kind of souvenir is *Ise itto-bori*, which are sculpted with a single knife and come in shapes such as animals and charms connected in some way

to the shrine. This craft is said to have started when shrine carpenters began carving left-over pieces of wood after they constructed the sacred buildings. The small rustic sculptures, with their straight lines and roughly hewn surfaces, have an endearing nature that warms people's hearts.

Moreover, the Ise-Shima district offers fine food from the sea, the most tempting surely being the local specialty, *Ise ebi* (Japanese spiny lobster). Its bright red color and its long "whiskers," symbolizing long life, make it a favorite on festive occasions. Preparation styles vary from *sashimi* raw to grilled whole. The area is also known for its beef from a Japanese breed of cattle. When grilled with vegetables on a wire mesh, it is tender and satisfying.

Blessed with a magnificent natural environment, Ise-Shima is also ready to charm you with decorative crafts rooted in ancient traditions.



1. & 2. *Akafuku mochi* rice cakes are covered with *an* bean paste and shaped like the ripples of the Isuzu River flowing nearby. *Akafuku mochi* is always a popular souvenir. While at the shop, you might like to have one with a cup of tea.
3. *Amiyaki*, Japanese beef dipped in a soy-sauce-based sauce and grilled over a charcoal flame, served at a restaurant called Butasute.
4. At Yamatoan Kuroishi, try some of the local products from the sea around Ise-Shima, such as raw slices of tasty *Ise ebi* (Japanese spiny lobster), abalone, and blowfish.
5. A mixture of sugar and finely squeezed ginger is simmered until it thickens into a candy called *shogato*. The six-sided candies have the shape of a shrine charm.

Ise-Shima Area Maps

●Getting there

From Tokyo Station, take a JR Tokaido Shinkansen train to Nagoya Station. From there, take the JR line or Kintetsu line to either Ise Station or Ujiyamada Station (about 90 minutes).

●For more info

Ise Jingu Shrine
<http://www.isejingu.or.jp/english/> (Chinese, English, Japanese and Korean)
Ise Traditional Crafts Preservation Association
<http://www.ise-dentokougei.com/> (Japanese-language website)
Okage-yokocho
<http://www.okageyokocho.co.jp/> (Japanese-language website)
① Yamatoan Kuroishi
<http://kuroisi.com/> (Japanese-language website)
② Butasute
<http://www.butasute.co.jp/restran/okage/index.html> (Japanese-language website)
③ Kamiji-ya
<http://www.okageyokocho.co.jp/tenpo.php?no=44> (Japanese-language website)
④ Akafuku
<http://www.akafuku.co.jp/global/english/> (English and Japanese)
⑤ Kumihimo Hirai
<http://www.dento.gr.jp/hirai/index2.html> (English and Japanese)



Hashi-oki

Recently one can find a vast and colorful variety of *hashi-oki* for sale. The techniques and designs of traditional craftsmanship are absorbed to them, so you have every chance of finding nice ones for souvenirs. Chopstick rests are *objets d'art* representing in miniature some aspect of the season, and they will surely bring flair and cheer to your dining table.