SILK AND THE JAPANESE

By AENNE SANO-GERBER

For many people, silk and Japan are almost synonymous, and for obvious reasons. Not only is Japan the world's main producer of silk, but there is also no other country where the production and manufacture of silk are so closely interwoven with the economic and cultural life of the people.

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"BUYERS of pure silk textiles or articles surrender only one quarter of the number of coupons that would be required for other materials," reads a special regulation concerning the ration cards for clothing which have been introduced into Japan since November 1941. This tells a story, a story of closed foreign markets and of a vital branch of agricultural and industrial production whose domestic market must not suffer from added restrictions.

At first sight it may seem to the foreigner an unjust privilege to the wealthy classes that silk should be given such an advantage. However, we are in Japan, and Japan is the land of silk, where the average consumption per head of population is about twenty times as high as in Germany; where even in prehistoric times the silkworm with its delicate yet strong thread won a place for itself beside the ancient native flax culture; and where the word *kinu*, which today only means silk, meant cloth of any kind up to the Heian-tyo Era (tenth to twelfth centuries A.D.). Not until about the seventeenth century was cotton added as a new and important factor of clothing material. And wool was only introduced in very recent times, mainly as an imported product from abroad. Native sheep-raising has never been properly developed, although men like Siebold regarded conditions for it on the many unexploited hillsides as favorable and made the utmost efforts to introduce it.

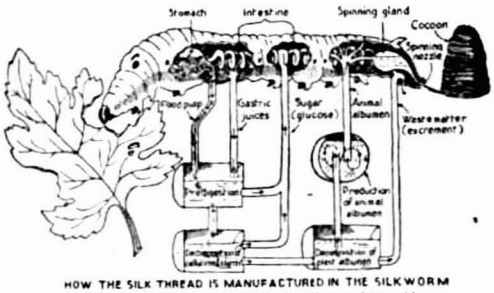
The Japanese is not a by nature a cattle raiser. In mythology, in old fairy tales and legends, he appears only as a fisherman or a hunter, and later as a farmer or a woodcutter. If he keeps any domestic animals at all, he uses them only as working animals. The chicken alone, which makes its offerings so to speak voluntarily, has become a common domestic animal. The *kaiko*, (silkworm) is the only one to have found affectionate care and breeding, the silkworm which disembodies itself and, so to speak, becomes spirit when it is thrown into boiling water for man to take from it the fruits of its existence and labor.

"LITTLE SUN GOD"

What does the silkworm mean to us? At most probably nothing more than a photograph casually looked at in an old geography book, or Shakespeare's challenge to try to forbid it to spin. In Japan, however, it is not called simply *kaiko* but *o-Kaiko-Sama*, a term of respectful endearment which includes it in the world of humans. In addition to this, *o-Kaiko-Sama* has a lot of other names: "gift of God," "little child of God," "little sun god," or simply "baby," quite aside from the technical expressions by which the sericulturist indicates the various stages of its existence.

That this was the case even in ancient times is shown by the tale told in the *Nihon-Syoki* (eighth century) about Emperor Yuryaku. In the sixth year of his

reign, the Emperor was pleased to instruct his counselor Sugaru to collect babies from all over the empire, whereupon the latter immediately set off on his search. He had soon assembled a considerable number of infants, which may not have been so difficult in those days when children were often abandoned, especially in years of bad crops. But when the counselor proudly appeared with his collection before the Emperor, he was received with roars of laughter and the command to undertake the rearing of the waifs at his own expense, which fact caused his clan to be known thereafter by the name of Tihisakobe (children's man). What the Emperor had meant by "babies" was *kaiko*, for he wanted his wives to raise silkworms and to spin and weave the silk.



HOW THE SILK THREAD IS MANUFACTURED IN THE SILKWORM

(This schematic drawing is intended to show the circulation only. Actually the spinning gland and the spinning nozzle are located in the head of the caterpillar.)

This is the first mention of sericulture at the Imperial Court; the tradition has been preserved to this day. The Empress is the patroness of the craft and keeps *o-Kaiko-Sama* herself as a counterpart to the rice field which the Emperor cultivates as the patron of rice-growing.

For the hands that look after the little sun god must be gentle, and much loving attention must be spent to keep all evil influences away from this frail creature. It is said, for instance, that the silkworms must in no circumstances see a snake if the cocoons are not to become malformed. So the "stable work" and the preparation of fodder for this miniature cattle are essentially a feminine task. The work is done inside the house in a spotless room, and the chief tool is a pair of chopsticks. These are used, not to remove the "manure," but to pick up the "babies"—which must never be touched with the bare hand—and place them gently in freshly prepared "stables," i.e., large, flat, round baskets; then the used ones are shaken clean of dirt and food remains, washed, and aired in the sun.

Like the lamb in the West, *o-Kaiko-Sama* lives in Japan since time immemorial in children's songs, fairy tales, and legends. Even the oldest myths of the *Koziki* (eighth century) mention that silkworms, together with all the fruit of the fields, issued forth from the dead body of the earth goddess after she had been slain in wrath by the storm god because she had offered him unclean food made of grain which she had taken from the openings of her body. All legends mentioning *o-Kaiko-Sama's* origin agree in that it is divine, that, like the fruit of the fields, the silkworm is a precious gift to be accepted with gratitude.

All this seems to indicate a very early origin of the silkworm rather than that it has been taken over from China, although dictionaries of the Heiantyo Era sometimes speak of the *kaiko* as *kure-no-mimizu* (Chinese worm). There can be no doubt that new varieties of silkworm and advanced methods of breeding and of treating the silk thread were imported from China later on; the very beginnings, however, go back to prehistoric times. Indeed, an ancient Chinese geographical work, dating from the first century B.C., already mentions the fact that there were mulberry trees and silkworms in Japan.

CARDBOARD BOXES AND AIRY ATTICS

Among the ladies of the feudal courts of the Yedo Period, as well as among modern Japanese schoolgirls—all of whom have probably at one time or another kept *o-Kaiko-Sama* in a cardboard box with holes in the lid, much to the annoyance of neighbors with mulberry trees in their gardens—sericulture has always been just a fascinating game. In the silkworm villages in the mountain areas where the cultivation of rice is impossible or very restricted, the *kaiko* and its grazing ground, the mulberry tree, fill the lives of the inhabitants. Even the outward appearance of these villages is typical; for

most of the houses boast of an upper story with narrow apertures, in contrast to the usual one-storied Japanese farmhouse with its thatched roof pulled well down over it like a hat.

The large, light, airy room of the upper floor belongs to *o-Kaiko-Sama*. In the winter, while the little sun god hibernates in the egg, this room with its long shelves to hold the round "stable" baskets is empty. The eggs are laid by the silk moth—not much to look at with its whitish color—as neatly as any Japanese could wish on sheets of white paper, close together but so that one never covers the other. Sticking to the paper, they look as if a skillful baker had covered a wafer with dark poppy seeds. These "egg sheets" were a much-desired import article in America, where they are trying hard to develop their own silk industry.

But it is not so easy to create a new silk industry. Thousands of years of experience and tradition cannot be caught up with overnight; and, especially in the treatment of the silkworm, the sensitive Japanese hand is difficult to replace by even the finest machinery. In Japan, too, the actual raising of the silkworms up to the cocoon or raw-thread stage is done almost exclusively in the homes of the peasants, as it requires intensive day-and-night work by skilled hands in irregular periods with long intervals in between which would be wasted in a factory.

In spring, when the mulberry trees show their first tender, pale-green leaves, the eggs are hatched. The *kaiko* "rubs the sleep out of its eyes" and, tiny and helpless as it still is, begins to perform the supreme duty of this stage of its life: it eats and eats. Day and night without cease, the rustling of all the chewing jaws—growing stronger day by day—soon fills the whole room. The life of *o-Kaiko-Sama*, the silkworm as such, lasts five such periods of eating interrupted by four periods of rest, so to speak five days and four nights. But its days and nights do not in any way coincide with those of human beings. Measured by the sun, these five days of the *kaiko's* life last about a month.

As long as it is awake, it eats without pause and makes a lot of work for its nurses, who must constantly provide the correct amount of fresh leaves. At first the leaves are finely chopped, then gradually more and more coarsely till the caterpillars have become strong enough to manage the large jagged leaves themselves. Four times during their lives the strange creatures stop eating and fall into a coma, during which time they do not lie stretched out but with the front part of their bodies raised. Perhaps this similarity of the *kaiko* to a rearing horse was the reason for a fairy tale about its origin which contains an explanation of the connection between the mulberry goddess Osirasama and the silkworm:

THE HORSE AND THE MAIDEN

"Once upon a time there was a peasant who had a beautiful daughter. He also possessed a horse. When the daughter grew up, she went into the stable every day, leaned against the doorpost, and talked with the animal. Finally she and the horse became lovers. The father found out what was going on and flew into a rage. He dragged the horse out of the stable and led it into the mountains, where he tied it to a great mulberry tree and killed it. While he was skinning the animal, his daughter came running to the spot, sobbing and shedding bitter tears. Suddenly, the horse's hide, which was just dropping from the carcase, wrapped itself like a cloak around the girl and flew off with her into the air.

"From then on, the father and mother spent their days in deep anxiety over their child. But one night their daughter appeared to them both in a dream and consoled them: 'Do not weep for me, dearest parents,' she said, 'I was born under an unlucky star and I must accept my fate. I beg of you to forget me. Only at dawn on the sixteenth day of the third month, look into the big mortar on the threshing floor: in it you will see a great number of curious little worms with horses' heads hatching out. Feed the little creatures carefully with the leaves

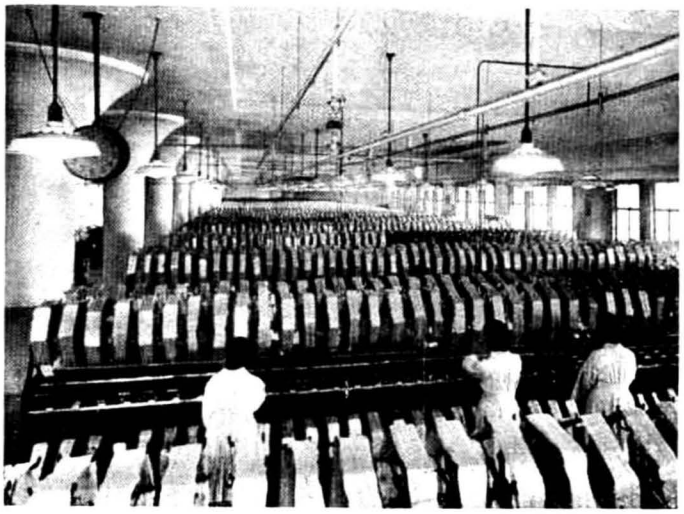
THE SILKWORM

Silkmoths carefully lay their eggs on clean white paper

Fresh mulberry leaves must be provided at regular intervals for the "babies"

Feeding time for the almost fully grown silkworms

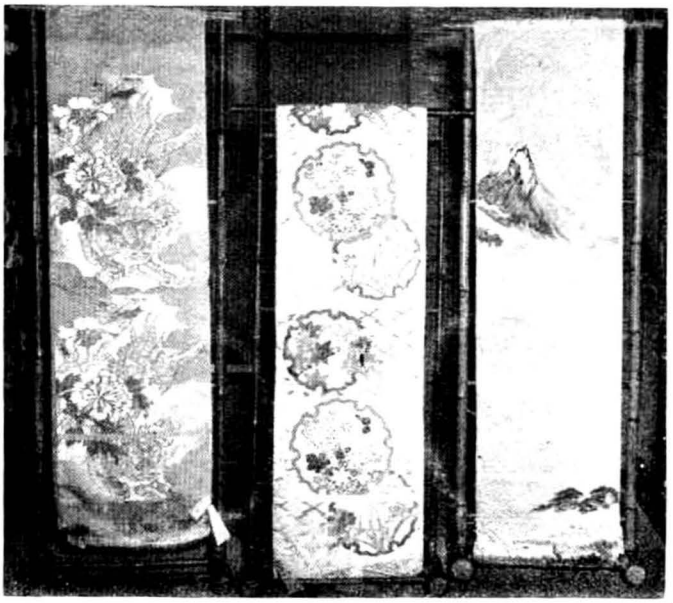
A handful of cocoons. Note the little straw "sheds" at lower left in which the silkworms like to spin their thread



Interior of one of the large silk factories in Japan

From the Cocoon to the Finished Product

Drawing the ends of the threads out of the hot water to fasten them to the winding machine



The finished product – beautiful silks woven in intricate designs

of the mulberry tree at which you slew my beloved horse. Then they will present you with silken threads which you can wind into strands and sell for rich reward. The worms are called *Totoko* [little sun god], and they are among the most precious things of this earth.'

"The parents awoke from this dream and were amazed beyond all measure. When the sixteenth day of the third month approached, they looked into the great mortar, and lo and behold! they really found all the little horse-headed worms which their dream had predicted. They made haste to fetch leaves from the mulberry tree in the mountains and fed them to the worms. These began to eat them with relish, and before long they spun themselves into little white cocoons. This is how sericulture, so widespread today, is supposed to have come to us. Horse and girl, however, became the goddess Osirasama, who therefore has a twofold form—one with the head of a horse, and the other with the face of a princess (*o-Hime-Sama*)."

So much for the fairy tale, which did not appear until comparatively late, probably not till the Yedo Period. An identification of the silkworm with *o-Hime-Sama* (noble maiden, princess) is to be found much earlier, in a topography of the Harima district written in the Nara Period. In it we find the story of how the god Onamuti-no-Mikoto wanted to banish his unruly son from his realm. The young man thereupon bribed the storm and the waves and sent his father's ship with all it contained to the bottom of the sea. It is to this circumstance, hardly a pleasant one for the participants, that we owe a detailed list of everything belonging at that time to the traveling equipment of a great man. In this list we come across silkworms, which are described as *hime*, i.e., little princess. These "little princesses" were, like many other things, said to have been thrown onto the beach somewhere, and the place where this happened was called Hime-no-Oka (Princess Hill) and is supposed to be the Himezi of today. Thus the town of Himezi would appear to be called "Princess Vale," and these princesses turn out to have been, not beautiful court ladies, but silkworms.

AT LAST THE COCOON

When *o-Kaiko-Sama* awakens for the fourth and last time from its coma, it becomes a *teruko* (perhaps "the glimmering one") and looks glassily transparent, almost unearthly. Now it will soon start the work that will take up one eighth of its life, namely, spinning a cocoon, while its own body will dry up into a chrysalis. Formerly, the *teruko* was placed on small branches to do its work of spinning; but through this the anchoring threads with which the *kaiko* fastens the cocoon to its support were lost. For a number of decades now, the value of these anchoring threads has been recognized: today it is used for the warm silk fluff with which quilts, etc., are filled. Hence nowadays straws are bent and placed side by side in long rows to form rooflike, airy sheds. Into these the *terukos* soon crawl, carefully choosing a place to their liking. They sway and arch their little horses' heads from side to side and place the shining white, incredibly thin thread, which issues from their mouth, artistically on one spot after another and around themselves. After a while the beautiful oval cocoon with its slight indentation in the middle hangs securely under the little straw roof. Like so many other things

in the nature and life of Japan, the cocoon, too, has become a popular element of decoration.

For the silk village there now begins a period of cheerful activity. Although more and more of the total silk harvest now finds its way to the factories at the cocoon stage, because the by-products—such as fertilizer and fodder; pharmaceutical substances; oil for soap, glycerine, machine and edible fats (from the chrysalis); albumen, hormones, etc.—can be made use of to the full, a large part remains at the farms for treatment there, at least up to the stage of the raw thread.

Then the water bubbles in large kettles, the silk fluff piles up, and the women bring in basket after basket of cocoons. The cocoons have already been separated into ordinary and twin cocoons; for the latter, in which two chrysalises are enclosed and which supply a stronger thread, must be carefully disentangled by hand. The ordinary cocoons are thrown into the boiling water and stirred all the time until the ends of the threads detach themselves on their own. Six of these, fished out in their sticky, wet condition and fastened together to the winding wheel, unite in the air to a sixfold thread, strong and yet still cobweb-fine, which is wound onto the yarn wheel. Each cocoon consists of a single, continuous thread several kilometers long, so that six cocoons supply quite a considerable bundle of the shimmering, ivory-tinted raw thread.

In China, where *o-Kaiko-Sama* is kept mainly out in the open, on the trees themselves, the silk is coarser and more yellowish; for out-of-doors the silkworm is also satisfied with the leaves of trees other than the precious mulberry, which can be used for many other purposes. However, the threads can then never be bleached quite white, and they are more difficult to dye than mulberry silk. In Japan, too, there are such "wild cocoons," but they are not particularly popular. The raw silk of the twin cocoons is usually spun by hand at home; this yarn is then used for special textiles.

A MAINSTAY OF AGRICULTURE

Three times a year, in spring, July, and August/September, can the patient mulberry tree be robbed of its leaves; and the "egg sheets," for the preparation of which the silk moth is placed in special boxes, can be stored and even sent overseas and made to hatch at any desired time. Thus the silk village is busy three and sometimes even four times a year, with a winter of leisure in between. The spring cocoons have the highest yield and are the most valuable. In summer and in autumn, the threads of ten cocoons must be united to produce a raw thread of the same strength as is supplied in spring by six cocoons.

Rice cultivation and sericulture—those have always been the two pillars of Japanese agriculture. Ancient chronicles more than once mention the importance of sericulture. They tell us that in the earliest days the *kaiko* was placed in the mouth and the thread drawn out; that in the reign of Emperor Ozin, who was born in 201 A.D., Chinese emigrants came or were summoned to Japan to teach the Japanese an improved technique. During the Heiantyo Era, with its refinement in all objects of daily use, silkworm-breeding and silk-weaving developed into an art. It is from these days that a good deal of the taste in colors, textures, and designs has been handed down, al-

though the rough and restless centuries of the chivalrous Middle Ages with their more severe simplicity also represent a decisive break with tradition in this field. Today, when Japan after a few decades of exaggerated Europeanization has suddenly become aware again of her own innate powers, much has been revived in sericulture, too, from the classical feudal days of old and is being unearthed from existing remains, reports, novels, and poems, or wherever else traces are still to be found. The Yedo Period brought with its domestic peace and the growing power of the wealthy urban class new life into the old silk-working crafts. Indeed, it led to such luxury in clothing that the Tokugawa Government had repeatedly to issue strict rules of simplicity. But in vain, for these regulations were cleverly circumvented: the precious materials, vivid colors, and exquisite designs were simply worn inside the clothing, as lining and underwear, instead of outside. This was the origin of the still prevailing taste in Japanese clothes.

The real Japanese material, used for the kimonos of men and women, children and even babies, for outer material and lining, for underwear, indoor clothes, and outdoor clothes, is about thirteen inches wide and is woven and sold in lengths of about twelve yards, or in double lengths. In average consumption of silk per head of population, Japan is said to lead the world. The enormous leaps in the production of silk, however, which have been made since the Meiji Era are due to the tremendously increased export trade. From 1880 to 1890, the raw-silk production was more than doubled, and almost quadrupled by 1900. In 1934 Japanese sericulture supplied 82.3 per cent of the world's exports.

FARMYARD TO FACTORY

It is only natural that, in the long run, home production could not take care of this increase. The fact that, on the whole, it was able to do so up to the end of the Russo-Japanese War (1904) is all the more amazing. From then on, however, silk production was rapidly industrialized. Large companies were founded which employed machinery wherever possible. With their huge buildings and exemplary social conditions for their workers, these concerns are equal to the most modern Western enterprises.

But, side by side with these silk factories, the old craft as done by hand continues to live—mainly for domestic requirements—and has maintained its strong local traditions: spinning in the actual silk-raising districts, weaving in Nisizin (Kyoto), Kiryu, Echigo, etc., quite aside from such finicky work as Osima weaving, in which the yarn is first put on the frame and tied into designs, then dyed with vegetable or earth dyes, and finally woven. In the case of complicated designs, even a skilled craftsman cannot weave more than a fraction of a yard per day, and such laborious work can, of course, only be done in small workshops. The art of dyeing has also offered strong resistance to industrialization. Everywhere the buyer can still have his material dyed in whatever colors and designs he chooses. And in Kyoto, the traditional home of dyeing, one can still see the master craftsman and his assistants standing in high rubber boots in the water of the swift Kamo and Kitasira Rivers. There they rinse the long, narrow strips of freshly dyed material, so that the waves flow on in all shades of red, violet, and black; there they beat the bunched material with heavy clubs and let the strips flap in the wind to dry.

A FRIEND OF THE FAMILY

Probably the most interesting phenomenon of all the stations on the long road which the silk travels from the peasant to the finished kimono is the silk dealer. Here, too, tradition is still very much alive. The silk dealer sits in his house surrounded by a galaxy of assistants and servants. The customer must first be greeted ceremoniously and served with tea before the conversation gradually advances to the stage at which he mentions his wishes. Then busy hands bring out from the back all kinds of interesting

designs and weaves, which the customer approves and admires till finally the desired goods are found and the purchase can be effected.

But the silk dealers in the famous silk centers of Kyoto, Fushimi, Echigo, etc., have their customers all over the country and send out trusty agents, who have been trained since boyhood, laden with a sample collection wrapped in a cloth and carried on their backs. The dealer knows the requirements and tastes of his flock, and he also knows when the time has arrived for his customers to look at new materials for the coming season. The housewife feels safe in his hands and has great confidence in his unerring taste, his reliable memory, and his knowledge of customs and propriety. She often leaves the choice of a daughter's trousseau or the entire clothing of the family for special celebrations or mourning in his hands. The catering to a certain circle of customers with its special tastes distinguishes each of these dealers down to the smallest one who goes out himself with his bundle of silks on his back to visit his customers. It is said that a skillful agent goes off with one length and brings back ten orders, while an ordinary agent has to carry around ten lengths to get rid of only one.

To a certain degree, this personal attitude and taste live on even in the great department stores which, characteristically enough, all started as silk shops. For that reason, the best location—the entire first floor—is reserved in every department store for the kimono material, silk.

But all this, which we who are now living in Japan can still see and experience, is already almost a thing of the past, a relic of the "good old days." It is impossible to foresee what effect the incisive regulations affecting all trades and crafts will have in the future. Japan can no longer afford the luxury of all the leisurely existences in individual workshops. She must concentrate her energies and free her hands for the myriad tasks incurred by the war and the future reorganization of immense regions. The regulations of the last few years have extinguished the individual artisan and tradesman; they have created entirely new economic units in which, according to the type of trade, five or more of the old concerns are combined. Those who do not wish to work under the new system can change their trade and work elsewhere; those who participate are no longer independent tradesmen but profit-sharing employees. What we have seen during the last few years in the way of reorganizations of this kind is only the beginning of the great transformation which Japanese economics are undergoing. That which strikes every outsider who observes this process is the care with which, in spite of all sudden changes, every Japanese endeavors to preserve and pass on that which is best and most valuable in his tradition.