

Japanese And Chinese Lacquers

Of late years, large quantities of Japanese lacquer - ware have been brought to this country in the "course" of trade, and sold often at remarkably cheap prices. The markets, indeed, have been quite glutted - with Japanese manufactures; nevertheless, the works of real art in Japan lacquer always realize a high price.

It has been said that the process of lacquering, as known to the old Japanese workers, is, if not quite lost, becoming rapidly so in the present day, and that the modern system of lacquering is not calculated to stand the ravages of time, as was the work of a generation or two since. It is not to be supposed that the cheap lacquered articles of the present day, that are made simply to sell, will ever bear comparison in workmanship with the more costly and durable work, the make of which, as well as the polish, are, notwithstanding their great age, as perfect as when they left the hands of the workman.

The date of the discovery of the art of lacquering in Japan, is given by the Japanese as a.d. 724; some authorities, however, consider it to have been later, probably indeed about 889 or 900. It seems, however, not to have attained to any degree of perfection till the year 1290, for the name of a distinguished painter in lacquer, who lived at that time, is still handed down as the founder of a particular school of art in lacquer - painting. From that time, it developed until it attained its present perfection.

A very elaborate report on the lacquer industry of Japan has recently been produced by J. J. Quin, H.M. Acting Consul at Hakodadi. This report has been drawn up chiefly as a description of the articles of various kinds illustrative of the lacquer industry of Japan, collected for the use of the Museum of Economic Botany at Kew. This collection is a most complete one, and is now exhibited in the No. 1 Museum, Royal Gardens, Kew.

It comprises not only a fine series of finished lacquer articles, such as boxes, cabinets, bowls, trays, etc, both of ancient and modern workmanship, but also a very complete set of the instruments and appliances used in the manipulation of the lacquer - ware, including specimens of the trunk of *Rhus vernicifera*, gashed to show the mode of extracting the juice or lacquer, together with the iron instruments used for this purpose; also a complete set of the lacquers themselves, and of the colouring matters used.

The following notes are abstracted from the report referred to, which is probably the most detailed account ever written of the lacquer manufactures of Japan. In his introduction the writer says great difficulty has been experienced in obtaining thoroughly reliable information, as not only are the artificers for the most part uneducated, but they are entirely ignorant of what takes place in any other department, except that to which they have been brought up.

A well - known and most intelligent manufacturer, Takei Tosuke, who has been over 20 years himself a worker in gold lacquer, and from whom great assistance has been derived in bringing together the present collection, was quite unaware of the mode of tapping and treating the trees, and had never seen a cut specimen of the wood until the pieces now forwarded were procured. He states that his head workman, a highly - skilled artisan, over 50 years of age, hardly knows the name of a single article that he uses.

The *Rhus Vernicifera*, the well - known lacquer tree of Japan, is met with all over the main island, and also in smaller quantities in Kiushiu and Shikoku, but it is from Tokio northwards that it principally flourishes, growing freely on mountains as well as in the plains; thus indicating that a moderate climate suits the tree better than a warm one. Since early days, the cultivation of the tree has been encouraged by the Government in every province and district.

The lacquer tree can be propagated by seed sown at the end of January or the beginning of February. The first year the seedlings reach a height of 10 in. to 1 ft. The following spring the young trees are transplanted about 6 ft. apart, and in 10 years an average tree should be 10 feet high, the diameter of its trunk 2 1/2 to 3 in., and its yield of lacquer sufficient to fill a 3 - oz. bottle.

A more speedy method is, however, generally adopted. The roots of a vigorous young tree are taken, and pieces 6 in. long and the thickness of a finger are planted out in a slanting directions few inches apart, 1 in. being left exposed above the ground. This takes place in the end of February and through March, according to the climate of the locality. These cuttings throw a strong shoot of 18 to 20 inch the first year, and are likewise planted out the following spring. Under equally favourable circumstances, these trees would be in 10 years 25 per cent larger in girth, some 2 or 3 ft. higher, and would yield nearly half as much more sap than the trees raised from seed.

It has not hitherto been the custom to bestow any special care on the trees after planting them out, but in cases where leaf or other manure has been applied they are much finer. Of late years, hillsides and waste grounds have been used for lacquer plantations, as owing to the rise in price of cereals and farm produce generally, it does not pay the farmers to have their land cumbered with trees. Those that have been hitherto planted along the borders of fields are being rapidly used and uprooted, and, where practicable, mulberry - trees are planted instead, with a view to rearing silkworms.

Nevertheless, as a good workman is expected during the season to tap 1000 trees 10 years old, and as the province of Yechizen alone sends out 1500 "tappers" yearly to the various lacquer districts, it will be seen that an immense production annually takes place, stimulated doubtless by the demand for cheap lacquered articles abroad.

It should also be mentioned that to remedy the possible exhaustion of the supply, and in view of the great rise which has taken place in the price of lacquer, several companies are being projected to plant waste lands with the tree.

Japanese And Chinese Lacquers. Part 3

It is also known as yeda urushi, or branch lacquer. The sap obtained from the first 5 cuts above each notch is poor, containing, as it does, a large proportion of water; the middle 15 cuts produce the best sap, and the sap obtained from the last 5 incisions is poor, and lacks consistency. Again, the sap obtained from the ura-me (back marks) and tome (finishing) cuts, is very good, and dries quickly. The sap from the first 25 cuts is mixed and sold together; but the ura-me and tome sap is almost always mixed and sold separately. The operations above described kill the tree in one season, but frequently the tree is made to last 2 years or more by giving only half the number of incisions, and reserving the ura-me and tome cuts for the final year.

The sap obtained the second and following years is, however, of an inferior quality, and this method is only resorted to by private individuals, who tap their own trees during intervals of farming. Ordinarily a wholesale dealer in lacquer buys so many thousand trees from the owner, and, as a matter of course, extracts the sap with as little delay as possible, making a contract for the purpose with professional tappers.

A first - rate workman will receive over 100 yen (equal, at the present low rate of exchange, to nearly 13/ sterling) for the season, and can collect 4 1/2 tubs (equivalent to 18 gal.); but the average receive 75 yen, and collect proportionally less. The present price per tub of

lacquer ranges from 90 to 100 yen. After the sap has been taken, the exhausted tree, which remains the property of the seller, is cut down by him, and is used for firewood, for building purposes, or for making boxes.

The roots of the young trees throw 3 to 5 shoots the following spring, and these can be used in 6 or 7 years. Of these 5 sprouts 3 are commonly much stronger than the other 2. In such cases, the strong ones only are tapped and cut down, the weaker ones being allowed a year or two longer to grow, when, receiving the whole of the nutriment, they shoot up in 1 year as much as an ordinary tree would in 3. After tapping and cutting down, fresh shoots to the number of 5 are again allowed to sprout, and so on, the root not seeming to become exhausted by the process; but when a very old tree is cut down, the roots will not give out new shoots. In the northern provinces, very old and large trees are met with in considerable quantities. These were kept for the sake of their berries, from which the wax used for the Japanese candles was obtained. This was the more profitable use to which to put the tree, as a good tree, from 80 to 100 years old, yielded yearly, on an average, equal to 6s.; while the price of a 10 year old tree, to be used for extracting the sap, was under 1s. 2d.

Previous to the revolution of 1868, every tree reserved for making wax was officially registered, and the owner was not allowed to mutilate it in any way. Even if a tree died, he had to get official permission before removing the stump.

The Shogun's Government, and also the local magnates, had large plantations of the lacquer - tree reserved for wax, but since the opening of the country to foreign trade, and the introduction from abroad of kerosene oil, the wax industry has greatly declined, and there are now no restrictions on the free sale of the tree for tapping, and, consequently, all the fine old trees (which will sell at 5 to 6 yen each) are fast disappearing. To show the relative value of the berries and the trees a few years ago, the following may be cited:

A wholesale lacquer merchant 5 or 6 years ago went, as usual, to purchase trees in the district of Aizu, and among others bought one tree for a yen (then equal to 4s.), the owner reserving the berries that might be got as his own property. He does not consider the bargain was a cheap one, but the owner realized a sum of 80 sen (equal to 3s. 2d.) from that year's yield of the berries alone, before cutting down the tree.

It should be mentioned that the above description of the method pursued in tapping the lacquer - tree is that which is recognised as the proper one, but the rule is not rigidly observed, the style and size of the tree, and the caprice of the workman, combining to cause variations in the number of incisions given in each series.

The woods chosen for lacquering on are naturally selected according to the use to which the lacquered article is to be put. For shelves, cabinets, boxes of all kinds, the following are principally used, and are set down in the order of their excellence:

Hinoki (*Chamaecyparis obtusa*) by far the best wood for making boxes, as it does not warp. Kin (*Paulownia imperialist*): light wood .used for clothes - boxes, which are only lacquered on the outside. It is also used for making tea - caddies, as the wood has no smell. Hono - ki (*Magnolia hypoleuca*): sword sheaths have hitherto been made of this wood. Sawara (*Chamaecyparis pisifera*): a wood of a coarser grain than Hinoki (*C. obtusa*). Hime-ko-matsu: used for carved figures of men, animals, etc. It is not liable to split and crack. Tsuga (*Abies tsuga*), Hiba (*Thuja dolabrata*): for making cheap articles. Akamatsu (*Pinus densiflora*), sugi (*Cryptomeria japonica*): only used in making the cheapest and most inferior goods. The following woods are mostly used in the manufacture of such articles as are turned in a lathe, as bowls, rice - cups, round trays, etc.: - keyaki (*Planera japonica*), the best being obtained from the province of Hiuga. Shoji, the scientific name of which is unknown.

Sakura (*Prunus pseudocerasus*). Katsura (*Cercidophyllum japonicum*). Tcho (*Gingko biloba*). I - go: grown in large quantities in the neighbourhood of Hakone. It is principally used in the manufacture of cheap articles. Buna: principally used in the district of Aizu for the same kind of utensils as keyaki and sakura, but being a brittle wood, it cannot be turned in a lathe to make such fine articles; those made of this wood are coarse and heavier. For raised gold lacquering over unvarnished surface, the following hard ornamental woods are often used: - Shitan, Tagayasan, Karin (quince), Kuwa (mulberry), Keyaki (*Planera japonica*), ornamental grain.

Various Kinds Of Lacquer And Mixtures Used

(A) For Plain Work

Ki-urushi (crude lacquer) is the generic name by which all lacquer obtained from the trunks of live trees is known. It forms the basis of nearly all the various mixtures used in making lacquer ware.

Naktanuri-Urushi (Middle - Painting Varnish)

This is merely the crude lacquer. After having been exposed for some time to the sun to darken it, and to get rid of all water, it is used for under coats for making first class ware.

Nuritate - Urushi (Finishing Lacquer)

This is a mixture of crude lacquer and a little turpentine with to-midzu (whetstone water), being the mixture obtained from whetstones on which blades have been sharpened. In it is some 7 to 8 per cent. of iron, and after mixing, the whole is exposed to the sun, both for the purpose of getting rid of all the water, and to darken the colour. This is used for final coats of cheap lacquer, which is not polished afterwards.

Jo-Hana-Uruski

This is a mixture of the above kind, with oil obtained from the ye plant (*Pecilla ocymoides*). This is used for still more common kinds requiring no after polishing, and the lacquer does not present a hard surface.

Jo-Chin, Called In Kioto, Chiu - Hana; Jo-Tame, Called In Kioto, Ge-Hani

These contain more and more oil, and are used for the commonest articles, such as for varnishing clogs, clothes - baskets, etc. These 3 last kinds give a high polish, but the lacquer does not last.

Shu-Urushi (Vermilion Lacquer)

This is the best crude or transparent varnish mixed with ye oil (*Perilla ocymoides*), sometimes as much as 50 percent being added. It is then exposed to the sun, and water is added, which is afterwards evaporated. This kind is only used for red (whence its name) and coloured lacquers; the colours being added at the time of application. It requires no after - polishing.

(B) For Lacquering With Gold

Nashiji - Urushi (Pear Basis Lacquer), Or Suki - Urushi (Transparent Lacquer)

The first name is that best known in the trade, as indicating that it is required for using over gold, silver, or tin powdering. It consists of the finest crude lacquer obtained from old trees. As stated previously, the lacquer is allowed to stand till all dirt and foreign matter have sunk to the bottom, when the best is skimmed off, and after being exposed to the sun to evaporate the water in the usual manner, and carefully filtered, it is ready for use. Except when used for the highest class of gold powdering, a certain proportion of gamboge is mixed with the

lacquer to give the dust a fine yellow colour. N.B. - The following 10 kinds are all bought by the lacquer - workers ready prepared from the manufacturers. Any further mixtures used by them are made as required, colours added, etc. Seshime - urushi (branch lacquer) and Ro - urushi are used also in making gold lacquer.

Yoshino - Urushi

This is crude lacquer from the district of Yoshine, in the province of Yamato. It dries quickly, and closely resembles transparent varnish. It is used when giving the final coats before polishing.

Yoshino - Nobe - Urushi (Yoshino Spreading Lacquer)

Same as above, with the addition of about J of camphor to render the lacquer thinner and more easy to spread.

Seshime - Nobe - Urushi (Spreading Branch Lacquer)

This is merely branch lacquer with the same proportion of camphor as above; when cheap work is required, more camphor is used till the proportions are reversed. This renders the mixture very soft, and a small quantity can be spread over a large surface.

Shita - Maki - Urushi (Under - Coat Lacquer)

A mixture of branch lacquer and benigara (red oxide of iron), in equal parts by weight.

Ke - Uchi - Urushi (Inside Line Lacquer)

This is the same as above, but it is allowed to stand for about 6 months after mixing before it is used. By this time it has got thicker, and the very finest lines can be drawn without fear of their running; they, moreover, stand out better.

Shita - Maki - Nobe - Urushi (Under - Coat Spreading Lacquer)

Same composition as above with the addition of a little camphor, to make the lacquer thin. It thus goes much further, and causes a great saving when lacquering with powdered gold – leaf (keshi fun), for which it is best suited. As in the other mixtures the more camphor is used, the thinner it renders the lacquer, and the less gold is required.

Taka - Maki - Urushi (Raised Lacquer)

To make this, a certain quantity of ro or nuritate is taken and divided into 3 parts. To 1 part is added lampblack and camphor, in equal proportions of bulk. These, after being well mixed, are boiled together; then the other 2 portions are added, and the whole stirred together, and afterwards filtered through paper. It is boiled more or less according to the season. In summer, when lacquer dries quickly, it is boiled for a longer period; while in winter or during cold weather, when lacquer naturally takes longer to dry, the mixture is boiled for a shorter time. The reason why Taka-maki is thus purposely rendered soft, is explained by the fact that otherwise the upper surface would harden at once, while the under portion, Taki-maka (being applied thickly), being excluded from the upper air, would not be able to dry, and later, the top surface would crack and show fissures; whereas the introduction of camphor renders it soft and much slower to dry, and the whole has thus time to harden equally. Camphor being volatile, is gradually lost, and the composition becomes quite hard.

Ro-Se-Urushl (A Mixture Of Black And Branch Lacquer)

This is used for the lacquer coating upon which gold, silver, or tin powder is scattered, except in such cases where the grain of the wood is to be shown, when Nashiji lacquer is used instead.

Kuna-Urushi (Shading Lacquer)

A mixture of Johana lacquer and lampblack, used for final shading in the feathers of birds or animals, or for drawing hair, etc, on flat and raised gold lacquer.

Various Kinds Of Lacquer And Mixtures Used. Part 2

It should be noticed that whenever lampblack is mentioned as a mixture, it is used for the superior kinds, wood - or coal - soot being used for inferior articles. Implements and Materials used in the Manufacture of Plain Lacquered Ware.

Hera

A spatula made of Hinoki (*Chamcecyparis obtusa*), used for applying the under or priming coats and for mixing the lacquer.

Hake

A flat brush made from human hair, used for laying on the lacquer.

Kokuso

Finely - chopped hemp. Mixed with lacquer, it is used for covering joints.

Num

Hempen cloth, used for pasting over the wood to prevent it splitting, and to strengthen corners, etc. For very fine work and small articles, silk is used.

Ji-No-Ko (Burnt Clay)

Afterwards reduced to a very fine powder. Pounded bricks are often used.

How To - No - Ko

A fine kind of clay, which is procured from Mount Mari, near Kioto. This is likewise burnt, and reduced to a fine powder.

Sumi

Charcoal made of Honoki (*Magnolia hypoleuca*), used for smoothing down the under - coats; it has rather a rough grain. Also charcoal made from Hiyakujikko (*Lagerstræmia indica*). This is very soft and of a fine grain, and is used for the final smoothing before hand - polishing. This kind is called by the trade Ro-iro-sumi (black - coloured charcoal).

How To - Ishi

Whetstones of 4 different qualities of fineness: Ara - to (rough), shiro - to (white), awo - to (green), and najura, the last being the finest. These are used for smoothing down the priming coats.

Tsuno - Ko (Horn Powder)

This is made of calcined deer's horns reduced to a fine powder, and is used for the final polishing with the finger.

To-Kusa (Equisetum)

A kind of scouring rush, used for smoothing the lacquer.

Kaki - No - Shibu (Persimmon Juice)

This is used when no ground lacquer is required, as in the Aidzu lacquer, or when the grain of the wood is shown.

N'lkawa (Glue)

This is used to mix with the groundwork for cheap kinds of ware, instead of lacquer.

Yuyen - Sumi (Lampblack)

Used for groundwork of cheap articles, mixed with persimmon juice. For still more common ware, soot of any kind is used. Gofun (whiting) - Made from burning old shells, such as are obtained from the ancient kitchen middens; used for mixing with glue to make the groundwork of common lacquer.

Sho - No (Camphor)

Used for mixing with lacquer, to make it thinner and spread more easily.

Hocho (Knife)

Used for scraping off all inequalities of the hempen cloth after it is pasted on the article, etc.

Yoshino - Gami

A very thin kind of paper, made at Yoshino; used for filtering the lacquer before using it.

Jo - Ban

A box with a very hard lacquered lid, usually containing drawers for the various pencils, etc. The lid is used for mixing the lacquer on while working.

Tsuno - Ko - Ban

Board for mixing and powdering the deer's - horn ashes before using: generally made of cherry - wood or oak.

Muro

A cave or cellar underground is used, where practicable; otherwise, an air - tight case, made of wood, with rough unplanned planks inside. These are thoroughly wetted before the lacquered article is put in to dry, which occupies a period varying from 6 to 50 hours, according to the time of the year or style of the lacquer. Lacquer will not dry or harden properly in the open air; it absolutely requires a damp closed atmosphere to do so, otherwise it would run and always remain sticky.

The following are mixtures made by the workmen as required:

Kokuso

A mixture of finely chopped hemp with rice starch and branch lacquer sufficient to make a thick paste.

Jino - ko (No. 1). - Powdered burnt clay and branch lacquer mixed together in the proportion of 1 part of clay to 2 parts of lacquer.

Jino - ko (No. 2). - The same mixed in the proportion of 10 parts of clay to 13 of lacquer, and a little water.

Jino - ko (No. 3). - The same mixed in the proportion of 10 parts of clay to 8 parts of lacquer and 2 parts of thin rice starch. This mixture is known in the trade as Han - din - ji (half - step basis).

Jino - ko (No. 4). - The burnt - clay powder mixed with liquid glue only in such proportions as will resemble the consistency of lacquer.

Kiri - Ko

A mixture of Jino-ko and Tono-ko in equal portions with 1 1/2 of branch lacquer. This becomes very hard.

Sabi

A mixture of 2 parts of the burnt clay from Mount Mari to 1 1/2 of branch lacquer with just sufficient water to mix the clay into a paste. An inferior class of Sabi is made by putting in less lacquer as little as 8 parts of lacquer being used to 20 of the clay. Less lacquer cannot be used, as it would not stand polishing after having been dried.

Mugi - Urushi

Wheat lacquer; being a portion of wheaten flour mixed with branch lacquer to such consistency as may be required. It is used to paste the hempen cloth on to the wood.

Shin

A mixture of rice flour with branch lacquer, used for the same purpose as Wheat lacquer. Wheaten flour is the best, but being more difficult to blend with lacquer it is not so much used.

Ka - No - Ji

A mixture of whiting and liquid glue used for under - coats or cheap articles.

Shibu - Ji

A mixture of lampblack and persimmon juice, used for undercoats in inferior ware.

The following are the modes of applying the lacquer:

(A) Honjt (Real Basis)

The article to be lacquered is first carefully smoothed, and the wood is slightly hollowed away along each joint, so as to form a circular depression. The surface of the whole article is then given a coating of branch lacquer (this is called Ki-ji-gatame hardening the wooden basis), and the article is set to dry in the damp press, or nuro, for about 12 hours.

The hollowed portions are filled with prepared Kokuso, which is well rubbed in with a spatula made of the wood of the *Chamaecyparis obtusa*, and the article is enclosed in the drying-press for a period of at least 40 hours.

Over the Kokuso a coating of Sabi is applied, and set to dry for 12 hours.

The next process is to smooth off with a white whetstone any roughness or inequalities of the Kokuso and Sabi. The article is then given a coating of wheaten lacquer, over which is stretched hempen cloth, great care being taken to spread it smoothly and leave no wrinkles or perceptible joinings, and it is then again enclosed in the drying - press for about 24 hours.

After taking the article out of the press, all inequalities in the cloth-which has now under the influence of the lacquer become harder than wood - are smoothed down with a knife or with a plane.

Various Kinds Of Lacquer And Mixtures Used. Part 3

Next, a coating of Sabi is applied with the spatula, to hide the texture of the hempen cloth, and the article is again put in the press for 24 hours.

Next, a coating is given of No. 1 Jino - ko, applied with the spatula, after which the article is enclosed in the drying - press for 24 hours, and this process repeated.

Next, the article is given a coating of Kiriko, likewise applied with the spatula, and the drying process is repeated for 24 hours; there is then a repetition of the same process, after which

the article is set to dry for at least 3 days.

The surface is next ground smooth with a fine white whetstone, and a hardening coat of branch lacquer is given with a spatula, and set to dry for 24 hours.

A fresh coat of Sabi is applied with the spatula, and the article is put to dry in the press for 24 hours.

When thoroughly hardened, the surface is ground with a white whetstone, as before.

Next, a thin coating of branch lacquer is applied with the spatula, and the article is set to dry in the press for 12 hours.

A coating of Naka - nuri is applied with a flat brush (ha'.e), and the article is set to dry again for 24 hours.

On being taken out, the surface is ground smooth with charcoal made from Honoki (*Magnolia hypoleuca*).

A thin coating of branch lacquer is given with cotton wool - old wool being chosen because less likely to leave hairs behind it - and rubbed off again with soft paper, after which the article is set to dry for 12 hours. A coating of 1:5 (black lacquer) is then applied, and the article is set to dry for 24 hours. The surface is rubbed smooth with a piece of charcoal made from Hiyakujikko (*Lagerstrœmia indica*). The surface is partly polished with finely powdered Lagerstrœmia charcoal, applied with a cotton cloth. A coating of Ro is applied very thinly with cotton wool, and this is rubbed off again with soft paper, after which the article is enclosed in the drying - press for 24 hours. The surface is now polished with an equal mixture of powdered burnt clay from Mount Mari (To - no - ko) and calcined deer's - horn ashes, applied with a cotton cloth and a little oil (made from *Sesamum orientate*) till a fine polish is obtained.

A - coating of branch lacquer is next given, applied with cotton wool very thinly, and the article is enclosed in the drying - press for 12 hours. The workman dips his finger in oil and rubs a small quantity of it over the surface, which he then polishes with deer's - horn ashes, applied with a cotton cloth, till a bright surface is obtained. A coating of branch lacquer is applied thinly with cotton wool, wiped off with soft paper, and set to dry for 12 hours. Oil is again applied, and then a final polishing with deer's - horn ashes given with the finger to the surface, which now assumes the most brilliant polish of which it is capable.

For articles that are liable to get rubbed, such as scabbards, these last 2 processes are repeated 7 or 8 times, the surface getting harder at each repetition; but this is not necessary for other articles, even of the best quality. In describing the above processes, the minimum time for drying has in each case been given, but for the first 25 processes the longer the article is kept in the press the better. From the twenty - eighth process to the finish it is better not to greatly exceed the times mentioned.

(b) Kata - ji(hard basis); (c) Handan - ji (half - step basis); and (d) Manzo (after a lacquer - worker of that name) - modifications of the first process.

(E) Ka - No - Ji (Inferior Basis)

In this class the joints of the article to be lacquered are frequently not hollowed away, a strip of paper being merely pasted over them, and even this precaution being often omitted. A coating of Ka - no - ji (whiting and glue) is applied with a spatula twice or thrice, and dried in the sun. The article is then wiped over with a wet brush and rubbed smooth with a white whetstone, and afterwards given an extra smoothing with the spatula. Sometimes a thin

coating of Nakanuri or of branch lacquer is given to the article, but more frequently a coating of glue and lampblack, or of glue and soot mixed together, is applied. A final coating of either Jo - hana or Jo - chiu finishes the process without any subsequent polishing.

(f) Shibu-ji (persimmon-juice basis). The joints of the article are prepared in the same manner as for (e), but instead of Ka-no-ji, 4 or 5 coats of Shibu-ji (persimmon juice and lampblack) are applied with a brush; these dry very rapidly, and the last coating is smoothed with To - kusa (Equitetutri). A final coating of either Jo-fuma or Jo-chui is given. This kind of article is chiefly made in Aidzu, and indeed goes by the name of "Aidzu ware." It has not such a good appearance as Ka-no-ji, for the grain of the wood is easily traceable under the lacquer, but being made without glue, it stands water much better, and is in general request for rice - bowls and zen (small dinner - trays with legs, one of which is set before each guest).

(G) Sabi - Sabi (Double Sabi)

In this class of goods the joints are generally hollowed out, and a basis - hardening coat of branch lacquer is given. Paper is also pasted over the work after filling in the joints with Koku - so. Three coats of inferior Sabi are then applied, and after drying for about 12 hours in the press, the article is ground smooth with a white whetstone. Next comes a coating of branch lacquer, applied with cotton wool, and then one of Naka - nuri, which is ground smooth with Magnolia charcoal. Another coating of branch lacquer is followed by one of Jo - hana or Jo - chiu, and the article is finished without further polishing. Drying in the damp press is requisite after each process for this class of lacquer. It is manufactured only in Tokid, though the processes for the under coats of Wakasa lacquer are identical. Rice - bowls, drinking - cups, and luncheon - boxes, etc., are the usual articles manufactured. In this, as in Aidzu ware, the grain of the wood is traceable, and its common appearance constitutes the reason for classing it so low, but in actual excellence and durability it ought to rank fourth next to Handan - ji.

Various Kinds Of Lacquer And Mixtures Used. Part 4

(h) Kaki - awase (mixture), or Kuro - shunkei (black Shunkei), from the name of its inventor. In this class of goods the wood is given a basis - hardening coat of branch lacquer mixed with lampblack, over which is laid a final single application of Jo-hana or Jo-chiu. This ware is made at Tokio, and is used for cheap rice bowls and boxes. For the commonest kind of work a mixture of glue and lampblack, or persimmon juice and lampblack, is used, instead of branch lacquer, as a ground coat.

(I) Akashunkei (Red Shunkei)

This kind also derives its name from the inventor. For making articles of this class, which show the natural grain of the wood, a mixture of Yoshino lacquer and gamboge is rubbed on with a hard brush, after which they are enclosed for a day in the press to dry, and then a coating of Shu-urushi (transparent lacquer, containing a proportion of Perilla ocymoides oil) is applied. When dry, it presents a polished surface, and it appears dark when at first finished, but in a few months becomes much lighter. A cheaper quality of Shunkei is made by using glue and gamboge or persimmon juice and oxide of iron for the undercoat, but though the colour has a better appearance at first, it gradually deteriorates. The best is made in the province of Dewa, at Akita. For the most part soft woods are used in making this ware.

(J) Ki-Ji-Ro (Colour Of The Grain Of Wood)

Well seasoned wood is selected, and the article having been carefully smoothed, a thin coating of Yoshino lacquer is applied with a brush, after which it is set to dry in the press for 12 hours. A coating of best Sabi is then applied with the spatula, and set to dry in the press as usual. This is ground completely away with a green whetstone. A coating of Nashiji (pure transparent lacquer) is now given, and the article is enclosed in the press for 24 hours. It is again ground with a green whetstone till no remains of the lacquer coating are apparent.

Then follows a second coat of transparent lacquer, which, after drying as before, is ground smooth with a piece of Hiyaku-jikko (*Lagerstrœmia indica*) charcoal. Transparent lacquer is again applied with a piece of cotton - wool, and wiped off with soft paper, and the article is set to dry for 12 hours. Afterwards it is given a primary polish with an equal mixture of To-no-ko and deer's - horn ashes applied with a cotton cloth and a little oil. Next, a coating of Yoshino lacquer is applied with cotton - wool, wiped off with paper, and set to dry as before. At this stage only deer's - horn ashes, with a trifle of oil, are used for polishing.

This process is repeated 3 times, and results in an exceedingly brilliant polish. Only hard woods are used for this kind of ware.

(A) Red And Coloured Lacquers

For making best red and other coloured lacquers the first 22 processes are the same as in Honji (a). Next a mixture of Nashiji (pare transparent lacquer) and vermilion, or the colour desired, is given to the article, which is thereupon set to dry. The remainder of the processes are identical with (a), except that Yoshino lacquer is substituted for "branch lacquer," and transparent varnish is used instead of Ro (black lacquer). For extra high-class work, instead of the thin coating of lacquer, which is wiped off again, a thick coating of transparent varnish is given, applied with a brush, and set to dry for about 35 hours, the further processes remaining unchanged. For second - rate articles, the colour is mixed with Shu-urushi (transparent lacquer containing oil), and no after - polishing takes place. The article presents a brilliant surface, and the colour is better and brighter than in the best kind, but the surface is much less hard. Many processes are omitted for cheaper articles, as is the case in black lacquer, and less lacquer and more oil is used.

Colouring Matters

Shu (Vermilion)

For red lacquer; used also mixed with gold - dust for shading.

Sei - Shitsu (Green Lacquer)

A mixture of Kid (chrome - yellow) and Bcro-ai (Prussian blue).

Muras-Aki-Ko (Purple Powder)

A mixture of white - lead and To-beni (magenta roseine).

Benigara (Red Oxide Of Iron)

Sometimes used instead of vermilion.

In the district of Aidzu the light colours are produced to the greatest perfection, viz., yellow, green, and intermediate shades. In Tokio, though the same materials are used, the resulting colours are inferior and darker. In Aidzu no after polishing takes place with coloured lacquers. The lacquer is applied like paint. Tokio is, however, best for black lacquer, as well as for such high - class red, etc, as are polished afterwards. These differences are attributed to some climatic influence.

The Kioto, so-called "black lacquer," shows a reddish - brown tinge. With the exception of Tokio, Kioto, Osaka, Kaga, Tsugaru, Wakasa, Nagova, Suruga, and Shidzuoka, and one or two isolated places, the method of smoothing with charcoal, and afterwards polishing, is not pursued. In Tsugaru and Wakasa neither flat nor raised gold lacquer is manufactured. It should be mentioned that the plain lacquered articles are almost exclusively manufactured by one set of workmen, who supply the workers in gold lacquer with the articles ready for the application of the gold powdering, various patterns, etc.

The wholesale lacquer trade is in the hands of a few large merchants. In Tokio there are 2 houses only. These receive the crude lacquer from the producers as it arrives from the various districts, either buying it outright or making advances to the contractors, who are bound by the rules of the guild to deliver only to them. They sell it in quantities as required to the lacquer manufacturers, who prepare and refine the sap for the market, and these again retail the material to the lacquer - workers. The various processes that the lacquer undergoes in the hands of the manufacturers before retailing are kept secret, only the approximate mixtures being known.

Various Kinds Of Lacquer And Mixtures Used. Part 5

That all lacquer, even that sold as pure lacquer, undergoes some adulteration, is rendered evident from the fact that, in accordance with a strange custom peculiar to the lacquer trade, the retail manufacturers sell even the smallest quantity at the same rate at which they buy it from the wholesale merchant.

Gold Lacquer

Among the tools and materials used in the manufacture are:

Neji - Fude

Brushes made of rats' hair, used for tracing out the patterns, and for drawing the very fine lines, etc. The best are made of the long hairs from the backs of "ship rats," whose fur is not so likely to get rubbed.

U- No -Ke- Usuji-Fude

Fine brushes made of hares' hair. These are a little larger than rats' hair brushes, and are used for filling in the patterns of the best articles, also for drawing outlines on common articles and ground work.

There are 2 sizes, Dai and Sho, used for drawing "large" and "small." There are, besides, 5 sizes of Ji-nuri-fude (grounding - brushes).

U - No - Ke - Hake

A flat brush made of hares' hair, used for spreading the lacquer on large pieces of work. There are 2 sizes used.

Men - So

A stiff brush made of deer's hair, used for applying the Sabi, etc, in making raised gold lacquer. It is only employed for stiff mixtures.

Hake

Flat brushes of human hair for smoothing the lacquer after application, as in ordinary plain lacquer. There are 2 sizes used.

Bun-Mawashi

Compasses with fine brush attached for describing circles.

Ke-Bo

Brushes made from the long body - hairs of a horse, used for smoothing the fine gold powder and brushing off extra particles, as also for dusting. There are 4 sizes.

Fude - Arai

Brush - cleaner, made either of ivory or tortoise - shell. The brushes have to be very carefully cleaned, after using, with Sesamum orientate oil, to remove every trace of lacquer.

Tsutsu

A quill from the wing of a swan or crane, over one end of which is stretched a piece of silk, used for scattering the gold - dust. There are 2 sizes used. For applying Nashiji or Hirame, bamboo tubes of 3 different sizes are used, with silk of more open texture.

Saji

Spoon, for putting the gold - dust into the quill or bamboo tube.

Hirame - Fude

A pointed piece of bamboo or other wood, used for picking up and applying Hirame, or the gold, or shell - squares.

Kujira - Bera

Whalebone spatula. Used for mixing the materials, and also when transferring the tracing on the paper to the article to be painted (process described farther on). The kind used is called island whalebone, and comes from China; that obtained from Japan is practically useless, being liable to split. Two sizes are used.

Hera

Spatulas made of Hinoki (*Chamcecypris o'tusa*), smaller than those used by workers in plain lacquer.

There are 3 sizes used for applying plain lacquer, and 3 for applying Sabi.

The tooth of a fish, ordinarily the Tai (*Cerranus marginalia*), fastened with lacquer on to a piece of bamboo, used for polishing such crevices as are too small to admit of charcoal, etc, being employed. A piece of polished shell, used for smoothing the paper on which the pattern is drawn before tracing with lacquer. –

Tsume-Ban

A palette, made either of tortoise - shell or buffalo - horn, worn on the left thumb.

Take - Ban

A small bamboo board, used when cutting the gold and silver foils into squares.

Gold And Silver Dust Used For Orna - Mentation

Of these there are several kinds, viz.: - Yasuri - ko or fun (file - powder), made of Yaki – kin (pure gold), Koban - kin (10 parts gold to 2 6/10 silver), and Gin (silver). There are 12 qualities of each, differing in fineness.

Besides these, there is an extra large kind, used for ground - work, called Hira-me (flat - eye). The coarsest filings, whether of pure gold, Koban, or silver, are taken and rolled out flat on an iron plate. Of Hirame there are 8 kinds each.

Next comes the sort called Kashiji, from its resemblance, when applied to the article, to the rind of a pear. Na - shiji is used for ground - work, in making which pure gold, also Koban - kin (10 parts gold, 2 6/10 silver), Jiki - ban (10 parts gold, 3 1/10 silver), Mam - ban (10 parts gold, 3 6/10 silver), and silver of seven qualities of fineness each, are used.

Aka-fun' (red powder) is vermilion mixed with pure gold, Koban - kin; and silver, for shading.

Kuro-fun (black powder) is camellia - charcoal powder mixed with pure gold, Koban, and silver.

Giyobu nashiji is the coarsest kind of Nashiji made, but it is little used, as it requires 7 or 8 coats of lacquer to be applied before it is covered sufficiently to stand polishing.

Keshi - Fun

This is the finest kind used; it is only made in pure gold and Koban. This is made by mixing gold - leaf in liquid glue till it is reduced to an impalpable powder; water is then added, and when the gold sinks the liquor is poured away. This is repeated till all the glue has been got rid of.

Shaku - Do Fun

A mixture of 7 parts pure gold and 3 of copper powder.

Kana - Gai

Foil made of pure gold, Koban, and silver. It is made of 4 thicknesses in each quality, viz.: Hon - neji, Chiu - neji, Usushu, Kime - tsuke, the last being the thinnest besides the above, there are several mixtures, as –

Kuri - Iro - Fun (Chestnut - Coloured Powder)

A mixture of one - half gold - dust with powdered camellia - charcoal and vermilion.

Nedzumi - Iro - Fun (Rat - Colour Grey)

A mixture of half silver and powdered camellia - charcoal, and a little vermilion. In each case it is evident that several distinct shades can be obtained according as more or less colour is added to the gold and silver dust. It is a remarkable fact that no vegetable colours can be used with lacquer. They are all eaten up, as it were, by the lacquer, and disappear, which accounts for the very few variations seen in the colours of lacquer. The workmen have never been able to produce white, purple, or any of the more delicate shades.

Of late years, since cheap work has been introduced, the custom of using tin - dust has been adopted for making common Nashiji. It is manufactured of the same sizes as in gold and silver, and when plenty of gamboge is mixed with the lacquer to cover it, an inexperienced person might easily mistake it for gold when the ware is new; but it soon deteriorates. Burnt tin - dust is also sometimes used for under - coats in making cheap raised lacquer.

Mods Of Making Gold Lacquer

(A) Togi - Dashi (Bringing Out By Polishing)

The article having been subjected to the first 22 processes, as described in making Honji (Class I.), is then treated as follows:

The picture to be transferred to the article is drawn on thin paper, to which a coating of size made of glue and alum has been applied - that known as Mino-gami is best. The reverse is rubbed smooth with a polished shell or pebble, and the outline is very lightly traced in lacquer, previously roasted over live charcoal to prevent its drying, with a fine brush made of rats' hair.

The paper is then laid, with the lacquer side downwards, on the article to be decorated, and is gently rubbed with a whalebone spatula wherever there is any tracing, and on removing the paper the impress may very faintly be perceived. To bring it out plainly, it is rubbed over very lightly with a piece of cotton wool, charged with powdered white whetstone or tin, which adheres to the lacquer. Japanese paper being peculiarly tough, upwards of 20 impressions can be taken off from one tracing, and when that is no longer possible, from the lacquer having become used up, it only requires a fresh tracing over the same paper to reproduce the design ad infinitum.

This tracing does not dry, owing to the lacquer used for the purpose having been partially roasted, as previously mentioned, and can be wiped off at any time.

The next process is to trace out the veining of the leaves, or such lines to which in the finished picture it is desired to give the most prominence, and these lines are powdered over with gold - dust through a quill. The qualities called Mijin, Koma - kame - mijin, and Aragoku, are generally used; either finer or coarser qualities cannot be used. The article is then set to dry for 24 hours in the damp press. The outline is now drawn carefully with a rat's hair brush over the original tracing - line with a mixture of black and branch lacquer, called Ro-si.

The whole is then filled in with lose applied with a hare's - hair grounding - brush. Gold - dust of a slightly coarser quality than Mijin is scattered over the lacquered portion, and the article is set to dry for 24 hours. Another thin coating of Ro-se lacquer is again given to the gold - powdered portions, and the article is set to dry for 12 hours. Next, a coat of Mo (black lacquer) is applied over the whole surface of the article, which is set to dry for at least 3 days. It is then roughly ground down with Magnolia charcoal, the surface - dust being constantly wiped off with a damp cloth till the pattern begins to appear faintly. Another coating of Ro lacquer is then given, and the article is set to dry for 36 hours.

It is again ground down with Magnolia charcoal as before, this time till the pattern comes well out. The ensuing processes are the same, from 28 to 33 inclusive, as in black lacquer (Honji) In making Togi - dashi on hard woods, transparent lacquer is used instead of.

(B) Hira - Makiye (Flat Gold Lacquer)

The article having been thoroughly finished, either in black or red, etc. as already described under the head of Honji, Class I., and the following kinds, a tracing is applied to the surface as in Togi - dashi, the outline is carefully painted over with a fine brush of rats' hair, and then filled in with a hare's - hair brush, using Shitamaki lacquer (branch lacquer and red oxide of iron). Over this surface gold - dust (of the quality called Aragoku being generally used) is scattered with a brush of horse's hair (Kebo) till the lacquer will not absorb any more. The article is then set to dry for 24 hours.

A thin coating is next applied over the gold, of transparent lacquer or Yoshino lacquer, and it is set to dry for 24 hours at least. It is then most carefully smoothed with camellia - charcoal, and finally polished off with Tono - ko and a little oil on the point of the finger, till the ornamented portion attains a fine polish. The veining of leaves and the painting of stamens, etc, of flowers, or such other fine work, is now done with a fine rats' - hair brush charged with Ke - uchi lacquer over which fine gold - dust (Goku - mijin) is scattered from a brush of horse's hair {Kebo), as before, and the article is set to dry for 12 hours.

Some Yoshino lacquer is then applied to a piece of cotton - wool, and rubbed over the whole surface of the box or other article, and wiped off again with soft paper. It is set to dry for 12 hours, after which it is polished off with deer's - horn ashes and a trifle of oil. When very high - class work is desired, Yoshino lacquer, to which a little water has been added, is applied, and polished off a second time, and a very brilliant surface is attained.

More ordinary "flat gold lacquer" differs in the manufacture as follows: - The tracing is accomplished in the same manner, but Shitamaki - nobe lacquer (branch lacquer, red oxide of iron, and camphor) is used for filling in the pattern with a hare's - hair brush. The article is then set to dry in the press for 10 to 20 minutes, during which time the lacquer has begun to harden, and less gold will adhere. Then gold - dust {Goku - mijin) is applied with cotton - wool thinly, and the article is set to dry for 24 hours. The whole surface is then smeared over with Yoshino - nobe lacquer {Yoshino lacquer and camphor) on a piece of cotton wool, and wiped

off again with soft paper. The reason is that it is less trouble to smear over the whole surface thinly, and it is, moreover, not necessary to give a thick coat of lacquer to the decorated part, as the gold - dust has been very thinly applied. It is set to dry for 12 hours, and ground smooth with camellia - charcoal, and polished with powdered whetstone and oil on the point of the finger. The fine lines are then drawn with a rats' hair brush charged with Shitamaki lacquer, and sprinkled with gold - dust (Goku - mijin) from a brush {Kebo), and the article is set to dry for 12 hours.

The whole is again smeared with Yoshino-nobe lacquer and carefully wiped off again with paper, and set to dry for 12 hours. The article is then polished with powdered whetstone and oil on the point of the finger; and a second application of Yoshino-nobe lacquer with a little water, wiped off with soft paper, set to dry for 12 hours, and finally polished off with deer's horn ashes and oil on the finger, finishes the operation.

Should it be required to make any dark spots or lines, such as birds' eyes, or to draw human hair, etc. or other shading, this is done last of all with Kuma, "bear" lacquer, Jo-hana, and lampblack.

More Common Kind Of Flat Gold - Lacquer Painting

Instead of tracing the design in roasted lacquer, it is done with a mixture of powdered Tonoko add water, and the impression is transferred to the articles with the whalebone spatula as before. The reason for only using Tono-ko instead of lacquer is that the ground - work being inferior, it cannot be ground or smoothed afterwards, and the edges of the pattern would not be clean, nor stand out clear, should any lacquer get smeared outside the tracing - line. The outline is then filled in with Shitamaki-nobe lacquer with a coarse hares' - hair brush, and the article is set to dry for 20 minutes, or till a thin skin has formed on the lacquer, and then the half - dry surface is wiped over with cotton - wool charged with Keshi - fiin, the finest gold - powder, and set to dry for 5 or 6 hours. The whole surface is then smeared with Yoshino - nobe lacquer, which is carefully wiped off again with soft paper, and the article is set to dry for 1/2 day. The surface is then rubbed over gently with deer's - horn ashes and soft paper, to give it a polish, and to get rid of any of the last coat of Yoshino-nobe lacquer.

The fine lines are now drawn with a fine hare's-hair brush charged with Shitamaki-nobe lacquer, and the article is set to dry for 20 minutes or so; then Keshi - fun is applied with cotton - wool, and again set to dry for 5 or 6 hours. No further process takes place.

(C) Taki - Makiye (Raised Gold Lacquer)

The ground - work may be either black or coloured lacquer, Nashiji (pear basis of gold - dust), or the plain wood. The outlines of the pattern are transferred to the surface of the article in the same manner as in Togi-dashi, or "flat lacquer." The outline is then painted over with Shitamaki lacquer, and this is covered with powdered camellia - charcoal. If the outside is to be higher than the inside, a broad margin is painted and covered - with charcoal powder, leaving the centre untouched, and vice versa; if the centre is to be higher, a faint line only is painted outside, and the inside is given a thickish coating, which is sprinkled with the charcoal - dust, and the article is set to dry for 12 hours. When taken out of the press, it is well dusted to get rid of any loose charcoal - powder, and is also washed, using a brush made of human hair (Hake) to clean out all the crevices and bring out the lines, etc. Some Yoshino-nobe, or "branch lacquer," with camphor, is now rubbed on with a piece of cotton - wool, and carefully wiped off with soft paper, and the article is set to dry for 12 hours.

The raised parts are next carefully ground smooth with a piece of Magnolia charcoal, and a second coat of Yoshino-nobe, or of "branch lacquer," is applied as before, and dried. If a well - raised pattern is required, 1, 2, or even 3 coats of Sabi (" branch lacquer " and Tono - ko) are applied, the outside edges being painted with a brush of deer's hair (Menso), and the

inside lacquer applied with a small Sabi spatula, the article being set to dry after each application for 12 hours. For coarser work, it is then ground smooth with a white whetstone, and for finer work with a yellow whetstone. Over this some "branch lacquer," mixed with camphor, is rubbed with cotton - wool and wiped off with soft paper, and the article is set to dry for 12 hours.

If the pattern is not to be very high, the operations described in the last paragraph are omitted. A coating of Taka-maki lacquer is now given, the outside edges being carefully drawn with a rats' - hair brush, and the inside of the pattern filled in with a hares' - hair brush, and the article is set to dry for 36 to 48 hours. When taken out of the press, the surface is ground smooth with Magnolia charcoal, and then partly polished with camellia - charcoal on a cotton cloth. A little oil is now rubbed on, and a further polishing takes place with powdered "whetstone" on a cloth. Next, " branch lacquer " is rubbed over the raised parts with cotton - wool and wiped off with soft paper, and the article is set to dry for 12 hours. It is next polished with deer's- horn ashes and a little rape-seed or sesamum oil applied on the point of the finger. Up to this point the formation of the pattern whether mountains, waves, trees, men, birds, or animals, has been gradually completed.

If small squares of gold - foil (known as Kiri kane), or of coloured shell, are used in producing the pattern, they are now applied one by one on the point of a bamboo stick (Hirame fude), the spot where they are to be affixed having been smeared with a little Rose lacquer to make them adhere. When all that is required has been affixed, a piece of soft bibulous paper is spread over the freshly done parts and pressed very carefully with the finger.

This is to get rid of as much as possible of the Rose lacquer that is not covered by the gold squares; the article is set to dry for 12 hours, and then the portion where the gold has been applied is gently polished with a little camellia - charcoal on the point of the finger, to get rid of the remainder of the Rose lacquer. Shell patterns, and the coarser kinds of gold - dust that may be required, are applied in the same manner. The finer kinds of gold - dust are applied next over a coat of Shitamaki lacquer, and the article is set to dry for 12 hours.

The remaining processes of polishing, drying, etc, are the ' same as in first - class "flat gold" lacquer.

For making raised - lacquer patterns on plain wood the whole surface is covered with tin - foil, stuck on with rice - paste, to keep the wood quite clean, and then the place only where the pattern is to come is cut out. In making all high - class lacquer, the edges of every article are pasted over with tin - foil to prevent their being rubbed or injured by the workman, and the same' is done over each portion as it is finished.

The above is the ordinary method of making best raised lacquer, but from a glance at specimens it will be seen that there are such innumerable modifications of one process or another, according to the object to be produced, that it is manifestly impossible to do more than give the above cursory sketch. Nearly every piece of good lacquer made exhibits a specimen of each kind, viz., Nashiji, Toga - daski, Hira-makiye, and Taka-makiye.

More Common Kind Of Flat Gold - Lacquer Painting. Part 2

In making raised lacquer on inferior articles, the methods do not vary much from the good kinds; the work is merely less carefully executed. The saving is in the quantity and quality of the gold - dust used, and the absence of minute after - work, or in the use of silver and tin instead of gold-dust. In the very cheapest kinds, burnt tin - dust is used instead of charcoal over the first coat of Shitamaki, This is burnished bright, and over it a thin coating of lacquer and gold - dust is applied. At first it looks well, but loses its colour in a year or two. By using tin - powder the same height is attained in 1 coat that would necessitate at least 3 coats of

lacquer and charcoal - dust. This kind of Work is, however, only used for cheap articles for foreign export, and has been quite lately introduced.

(D) Lacquering On Metal

For lacquering on iron or copper, brass or silver, the metal is smoothed and polished, and then given a coating of "crude lacquer" or "black lacquer" the article is put over a charcoal fire, and the lacquer is burnt on to the metal till all smoke ceases to escape. The fire must not be too fierce, and the metal must not be allowed to get red - hot, or the lacquer turns to ashes.

After the lacquer has burnt quite hard, the surface is rubbed smooth with Lagerstraemia charcoal; these operations are repeated 3 or 4 times, till a good foundation of lacquer has been obtained. Then the same operations exactly are repeated as in making best "black lacquer," Togi-dashi, "flat gold lacquer," or "raised gold lacquer," only that the lacquer is burnt dry over the fire instead of being dried in the press. The lacquer is thus rendered quite hard and very durable. After the first 2 or 3 coats have been burnt on, the subsequent drying processes can be carried on in the damp press, should it be so desired.

In winter, or when any article is required in a hurry, the workmen sometimes put a charcoal fire in the press, over which a pan of hot water is placed. The steam which is thus generated helps to dry the lacquer in an hour or two, which would take 24 hours to harden ordinarily, but the lacquer thus dealt with loses its strength, and is never very hard. "Black lacquer" turns a rusty brown, the colouring virtue of the iron being apparently lost, and therefore this plan is never adopted for good work, and in second - rate work only for under - coats.

Nashiji (Pear Basis)

This style of ornamentation, occupying an intermediate position between plain and ornamental lacquer, is treated of last. Till the opening of Japan to foreign trade, it was in the hands of workers in gold lacquer, but now for the most part, all Nashiji on articles intended for exportation is applied by workers in plain lacquer. In making best Nashiji, as in Togi - dashi, the first 22 processes are identical with Honji (Class I.). A coating of Hose is applied, and the gold - dust is sprinkled over the surface through one or other of the bamboo tubes, according to the fineness required. The article is set to dry in the press for 48 hours, and is then given a coating of pure transparent varnish. This is set to dry for 3 or 4 days, when it is roughly ground with Magnolia charcoal, and a second coat of transparent lacquer is given.

The article is set to dry for 48 hours, and then ground with Magnolia charcoal till a perfectly smooth surface is obtained. Transparent lacquer is then applied with a piece of cotton - wool, and wiped off again with soft paper, and the article is set to dry for 24 hours. It is then polished with a mixture of Tono - ko and camellia charcoal powder and a little oil.

Next, a coating of Yoshino lacquer is given, and wiped off with paper; the article is set to dry for 12 hours, and then it is polished with deer's-horn ashes and oil. This is repeated 3 times to finish the article.

The same processes are gone through when using silver instead of gold dust.

For cheap qualities, tin - dust is used, and the powder is scattered on glue immediately above a coating of Kanji (whiting and glue). When the article is dry, it is burnished with To - kusa (Equisetwri), and as soon as it presents a bright surface a coating of pure transparent lacquer, with gamboge, is given to it. It is set to dry for a day in the press, and ground with Magnolia charcoal. Over this a coating of Shu - urushi (transparent varnish containing oil) is applied, and another drying for 24 hours completes the process. (J. J. Quin.)

The best lacquered wares are dear on the spot. The Japanese are great connoisseurs of the art, and will not scruple to give prices, which make European bidders draw back. The lacquer itself is comparatively high - priced. Its collection entails the expenditure of a good deal of time and trouble; the culture of the trees that furnish it is not properly understood or systematically carried out. In the province of Toshino, 375 gr. is considered a fair yield for a well - grown tree. In the districts frequented by foreigners, the current prices of the several sorts of lacquer were (1875) as below:

Per lb.

KI-urushi-red lacquer, as it comes from the tree	2s. 6d.- 31. 6d
Seshime lacquer, for ground coats	2s 3d.
Ro-iro-urnshl - best black Japanese lacquer	4s 8d.
Red lacquer mixed with cinnabar	5s. Od.
Nashiji lacquer lor sprink-ling with gold-leaf	6s. 3d.
Haku-oh'to-urushi - golden lacquer	5s 9d.

Dr. Wagener doubts whether Japanese lacquer could be advantageously used to any extent in European domestic architecture and cabinet - work. The process of lacquering is far more tedious and elaborate than graining, varnishing, and other decorative processes used in Europe. The labour required would be greatly increased by its application to cabinet - work of European design in place of similar object! of Japanese model. Labour, too, is much dearer in Europe.

In Japan, the weekly wages of a good lacquerer do not exceed 3s. to 3s. The hardnew, durability, and brilliant metallic hues of these lacquers render them suitable for ornamenting fancy goods of all kinds in wood, paper, glass, porcelain, etc, a purpose for which they are very extensively employed in Japan. (Honats.f. d. Orient.)

The following details were communicated to 'La Mature' by the Japanese Commissioners at the Paris Exhibition, the accompanying illustrations (Fig. 134) being copied from a Japanese treatise on the subject written by Igarashi in 1570.

More Common Kind Of Flat Gold - Lacquer Painting. Part 3

Objects in lacquered wood ornamented with paintings are termed in Japanese Makiye, a word which signifies powdered or lacquered painting. The material best adapted for the work is kiruki, the wood of a species of pine botanically termed *Retinispora abtusa*. The piece having received the desired form is plunged for an instant in boiling water, then wiped, and dried in the shade. It is next covered with lacquer - the word is here employed in the sense of varnish - and over this coating is sifted a layer of jisun, or unglazed pottery finely pulverized.

Another powder is made of a, schistose stone (tonoko), which is mixed with jisun to form kiriko. This is diluted with lac varnish by means of a wooden spatula termed urushi hera (a). When the mass is perfectly homogeneous, the spatula is employed to lay it on as a groundwork on the object, which is then enclosed in a case, probably to protect it from dust, etc., and left quiet for 1 1/2 days - in summer and somewhat longer in winter. Then with a piece of the schist the entire surface is rubbed smooth.

A new paste of powdered schist and seshime (a kind of lac) without jisun is now prepared and applied, dried, and polished as before. Then the whole is rubbed with a wad of cotton soaked with lac, and carefully wiped with very fine paper, softened by long crushing in the hands. The object is next again enclosed and left to rest for 1/2 day. Still another preparation is then made, composed of a different kind of lac - nuritate - urushi and shoyen, or soot produced by the burning of pine knots rich in rosin. This is intimately mixed and filtered through paper.

Into the mixture a fiat brush, such as is shown in 6, is dipped, and with this implement the object is covered with a smooth coating; Another drying of 2 days duration; succeeded by polishing with Honoki charcoal, follows.

These preliminary operations constitute the shita nuri or sub - lacquering. The intermediate stage (naka nuri) consists simply in repeating the preceding painting with the soot mixture. Then begins the uranuri, or surface lacquering.

The object is first covered with koero urushi a very fine and brilliant varnish, greenish black in hue and purified by filtration. When, dry, polishing by charcoal follows, and rubbing with schist is continued until not the least inequality on the surface is perceptible. At this point the schist powder is diluted with oil, and this is used as a polish until the surface becomes brilliant.

Now, on very thin closely made paper, the design, which is to appear on the object is sketched. To transfer the marks to the work, a peculiar varnish called yaki - urushi, or burned lac, is employed, made as follows:

A band of paper is rolled in tube form c, an end being left unwound. A very small quantity of the seshime - urushi is placed on this end, and heated quickly to effervescence - adding a very little red oxide of iron and camphor, the whole is carefully mixed and filtered. The varnish thus prepared warm does not become dry and friable. The paper, painted side up, is now attached to the object and - rubbed with a whalebone spatula. This causes the lines to be transferred to the prepared surface. A bit of tow is then used to dust on tin in powder, and the excess of the latter is removed by a very soft pencil.

Painting the design is done with a lac called shitamichi urushi.: This is a mixture of seshime - urushi 1/16 part, nashyi urushi 4/10 a small quantity of red oxide of iron of intensely red colour, and a little camphor. This is mixed and filtered 4 times; the more frequent the filtering the purer the material. The latter is then placed in a shallow cup /, and covered with a piece of permeable paper, which comes in contact with its surface and prevents its hardening by contact with the air.

The varnish thus prepared is "laid on by means of a very fine pencil g, which is composed of rats' hair. The little finger is placed on the side of the object, so that the brush is held vertically and only the tip used. When this work is terminated, the design is covered with a priming powder by means of the brush shown in and the object is returned to its case to rest. This last powder consists of Honoki. charcoal, mixed with 3/10 sulphur. The whole is pulverized in a mortar and sifted through silk. On the next day, rubbing with seshime – urushi mixed with camphor, and another polishing with schist, follow.

"Rust finish" is the name given to the operation which produces the relief work for the figures. A mixture of seshime and schist powder is made pasty and applied with a spatula.

The portions not designed to stand in relief are removed with a brush. After drying, the low and raised portions are carefully polished with pieces of green schist, cut in forms, either prismatic, conoidal, or cylindrical. The operation described at the end of the last paragraph is then repeated. On the next day, a soot varnish is made, and applied with a rats' hair brush.

After another 1 1/2 days, a charcoal polishing succeeds, the charcoal being first rubbed smoothly on pieces of schist, and then applied. More polishing with schist powder and a rubbing with oil precede the painting of the lowered parts, for which purpose the seshime varnish, mixed with oxide of iron and camphor, is again used.

The designs are next painted with a rats' - tail pencil I, dipped in filtered oxide of iron, seshime varnish. Then, if, for instance, a peony is to be represented, 2 kinds of gold powder and a gold scale (yasuriko) are used for branches and stem. To represent rocks and stones, pieces of metal flaked, and made of still another kind of gold powder (hanako), are employed.

How these metallic preparations are made will be described farther on. Having thus ornamented the work, 1 1/2 days' rest is allowed, at the end of which time the rats' - tail brush is used to apply to the more delicate shades yosheno - urushi varnish, camphorated and filtered. Polishing with Camellia japonica charcoal follows; and this is a most delicate operation, requiring the longest practice, for there is constant danger of rubbing off the thin layer of metal. A little schist powder is scraped from a tender piece of the stone mixed with oil, and applied to the painting with the finger - tip, to produce a polish. The operation of gilding, etc, is then repeated, and then with a wad of tow the appropriate metallic colours for the objects depicted are applied.

Next comes covering with yosheno - urushi varnish, wiping with cotton and paper, polishing with shikido (another schist) and oil, another application of camphorated varnish, then of the same mingled with water, another drying, and then a final polishing with powdered horn. The object is now uniformly brilliant, and the gold portions are finished.

To prepare the kirikane, or cut metal, a leaf of the same is spread upon a cylinder of bamboo and covered with paper. Then, by means of a razor, a number of fine equal bands are cut, a margin on each side being left intact. The leaf and paper are then turned so that the strips occupy a position perpendicular to that which they had at first. Carrying the razor in the former direction around the bamboo, the squares of metal leaf are detached and fall into a blackened saucer. To pick up the pieces, a small stick of willow is used, slightly moistened with saliva. Gold, copper, and silver are treated in this way.

The depolishing consists in removing the polish on certain parts of the object where portions of the design to be painted in colours fall. This is done by rubbing with Honoki charcoal powder, followed by retouching with the rats' - tail pencil. In the latter operation a cup of buffalo horn is used, which is retained on the thumb by a cord. This cup contains a lacquer, seshime varnish, and iron oxide, filtered 5 times through paper. Then the proper powder to give the colour is placed in a goose - quill at the end of which is a very fine sieve, through which the powder is shaken in clouds over the wet lacquered part, the excess being removed with a soft brush. The object is then left to dry.

The powders and leaves of metal used are always in harmony with the subject. To paint a river, for example, the shores are boldly traced with the rats' - hair pencil, using the point to indicate the water. Then with the feather a certain coloured gold powder is sifted on, then a powder of different colour, and, finally, here and there fragments of gold - leaf are inserted.

For a black ground a smoke - black varnish is used, and the gilded parts are covered with a transparent varnish. After 5 or 6 days' drying, the black parts are slowly polished with powdered Honoki charcoal, then the gold is polished with camellia charcoal, then with horn powder, then rubbed with a wet cloth, then with a dry one. The piece thus prepared is covered with black varnish again, the design is rubbed and dried, and the piece is put away for the night. Next day schist powder and oil are applied, and more rubbing with paper is done.

On the following day the finger is the rubbing instrument, and another polishing with horn powder finishes the operation.

A grey groundwork is applied after the sub and intermediate lacquering above described is finished, the parts being previously depolished by the goose - feather apparatus, held as shown and rubbed gently on the surface, so as to scatter the metallic powder. The white flakes called shiroq - irshi are gently passed over the parts thus gilded. Nashyi - urushi varnish mixed with camphor is then laid thinly on; polishing with camellia charcoal follows, then drying, and then another coat of varnish; after another drying, a number of small prisms of camellia charcoal are polished on schist wrapped in paper, and are rubbed over the surface till the groundwork shows. Then follows a series of varnishing and horn - powder polishing similar to that already described.

Seshime (Branch Lacquer)

This kind is obtained from the branches of the trees as described above; but the yield is only 1 per cent. in comparison with other lacquer. As however, in working, the proportion of nearly 90 Percent is required, the lacquer manufacturers sell a mixture which is stated to be a compound of true branch lacquer, the best crude lacquer, ura - me and tome lacquer, funori (seaweed jelly), sweet potatoes grated fine; the whole coloured as may be necessary with soot.

The proportions in which these materials are used cannot be ascertained, and indeed each manufacturer uses his own special mixture, but the extraneous additions are believed not to injure the quality of the whole. True branch lacquer becomes extremely hard when once dry, but used alone will not dry under some 20 days; so that now, when time is an object, the pure sap is but little used.

Previous to the revolution of 1868, branch lacquer of a very superior quality, and which would dry quickly, was obtained by using the young shoots, which sprouted yearly from the roots after the trees had been cut down. This kind was called Ki-seshime (crude branch), and was made under directions of the Government, who received it as taxes; but the practice has been discontinued of late. The price of pure branch lacquer is, owing to the difficulty in drying, only 70 Per cent. of ordinary good lacquer.

Ro-Urushi (Black Lacquer)

This is made by adding to crude or branch lacquer about 5 Percent of the tooth dye (haguro) used by women, a liquor formed by boiling iron filings in rice vinegar, and exposing it to the sun for several days, stirring the mixture frequently till it becomes a deep black.

In preparing all lacquer - from the crude lacquer to the various mixtures - the principal object is to get rid of the water that exudes from the tree with the sap. To effect this, it is exposed in broad flat wooden dishes, and stirred in the sun. This, however, alone will not cause the original water to evaporate, so from time to time - ordinarily about 3 times in the day - a small portion of clean water is stirred in, say 1 Percent each time, for 2 or 3 days, according to the heat of the sun. All the water then evaporates together. No lacquer will dry until this process has been gone through. If the lacquer is old - i.e., has been tapped a long time before using - it is much more difficult to dry. In such a case, a portion of fresh lacquer is added to the old by wholesale dealers or else the manufacturers, instead of water, sometimes mix sake (rice beer) or alcohol to "quicken" it.

A very remarkable property of lacquer should be mentioned. If crude lacquer, which is originally of the colour and consistency of cream, is exposed to the sun for a few days without adding water, it loses its creamy colour, and becomes quite black, or nearly so, but also becomes thinner and transparent, or rather translucent, as can be seen when it is smeared on a white board. It will not now, however, dry if applied to an article, even if kept a month or more in the damp press. But if water is mixed with the lacquer which has thus been exposed and become black, it at once loses its black colour and transparency, and becomes

again of a creamy colour, though slightly darker, as if some coffee had been added, than at first.

After evaporating this water, it can then be used like any ordinary lacquer, either alone or in mixtures, and will dry in the damp press, during which process it again turns black. What lacquer - workers have found their greatest stumbling - block is the difficulty of obtaining a clear, transparent varnish.

What is called transparent varnish is really black to the eye, and requires grinding and polishing after application before it presents a brilliant surface, becoming also much lighter after a little time. It would be a new era in the manufacture of lacquer - ware if a method could be discovered of rendering the lacquer varnish perfectly clear and light - coloured, when so desired, without depriving it of its drying qualities, and also if colours could be used with it other than those hereafter mentioned. -