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THE ROOFS OF TRADITIONAL FARM HOUSES IN JAPAN

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INTRODUCTION

Traditional Japanese dwelling houses, as we know them from those preserved, were formed in feudal society and in accordance with this fact can be divided into two main groups. A) The group of dwelling houses of the ruling classes, i. e. residences of the Imperial family, the family of the military ruler *shōgun* and other members of the higher and lower nobility. This group of dwelling houses was architectonically based upon the *shinden-zukuri*[1] and *shoin-zukuri*[2]. B) The group of dwelling houses of the common subject people, of the inhabitants of both town and countryside. In Japanese these traditional houses of the common people are called *minka*[3]. There are again two kinds of *minka:* the *machiya* are dwelling houses of the town inhabitants, such as craftsmen and traders and *nōka* are the houses of farmers. There are considerable differences between *machiya* and *nōka,* in the construction corresponding with the different functional requirements upon the house and in the use of material (roof covering, for example, were mostly tiles in the town and in the country thatch).

The strict and solicitous conservation of social and economic differences between the ruling and subject classes of Japanese feudal society seems to indicate that the dividing line between group A) and B) is absolutely unambiguous. This, however, is not entirely so. Problems with classifying them arise in some cases with the houses of the provincial samurai, that is members of the lower military nobility, who lived in the country and whose

source of livelihood was agriculture. In times of peace (and from the beginning of the 17th century peace prevailed for two and a half centuries) they went only occasionally to town or the princely seat of their fief, so as to fulfil their duties as vassals in the form of various services. Otherwise they lived entirely surrounded by their rural environment, which influenced them strongly, although they themselves obviously did not work in the fields. From their peasant surroundings they acquired also the way of building their houses, at the same time, however, their dwellings preserved certain features of residences of the nobility: greater spaciousness, a garden which, in some cases, was even surrounded by a low stone-wall and so on. A specimen of such an edifice see on photo No. 1. Equally questionable is, under what category some roadside inns, *honjin*[4], should be placed.

Another mutual influence between the two groups A) and B) arose quite consciously in the 16th century when the dwellings of the common people attracted the attention of the *chajin,* the masters of the tea ceremony. Avoidance of all splendour, return to simple natural beauty, those were the principles of the surroundings in which the tea ceremony should be held. And they were just the farm houses with their moss-grown beauty and natural material which became the model for *chashitsu* architecture (houses for the tea ceremony). The builders of the *chashitsu* were the first to accord aesthetic values to common people's dwellings and by the application of these values to houses of the ruling classes broke through the rigidity and formality of their architecture. In modern times too, mainly from the 2nd decade of this century, interest not only of ethnographers turned to *minka,* but also that of architects, who sought in *minka* inspiration for their creations.

Minka and particularly farm-houses *nōka,* were always built of materials most easily accessible. And in the Japanese countryside this material was timber, straw, bamboo, clay and various vegetable materials. Naturally the extent to which they were used changed according to region. On the island of Kyūshū bamboo was used in abundance, in the mountainous regions with the great wealth of timber, roofs were covered with shingles, in fertile districts with straw and thatch, in regions where there was a lack of timber the walls were covered with clay and so on. The supporting construction of the house as well as the truss was, how-

ever, always made of timber. Pillars and beams were ingeniously fitted together without the use of a single nail. At the most the carpenters helped themselves by binding the beams with ropes from vegetable material. The consequent use of natural materials, processed by hand and what is more, not dyed in any way, contributed to the perfect harmonizing of Japanese peasant houses with the surrounding landscape, which they did not disturb but rather supplemented. Natural conditions were used intentionally, for some of the supporting main pillars an already standing rooted dry tree woud be used, some beams or columns would be left in the natural crooked condition, unworked, so as to give a natural impression and the surrounding scene with a brook or wood was set into a garden and so on. The oldest traditional farm houses preserved are roughly 350 years old and as all wooden buildings they have had to undergo several reconstructions and repairs in the humid Japanese climate. The basic pillars for the construction are, however, still the original ones, as they cannot be replaced without risk. This fact shows the great experience and thoroughness with which old Japanese carpenters chose the material for the skeleton of their building.

The problems of the Japanese traditional *minka* dwellings are many and that is why in this article we want to limit ourselves exclusively to the roofs of *nōka,* the traditional houses of Japanese peasants.

FUNCTIONAL AND SYMBOLIC CHARACTER OF THE ROOF

The Japanese dwelling house — not only in the countryside — can generally be characterized as a roof supported by a timber skeleton, under which the living space changed through sliding walls, doors, and shutters according to the requirements of the inhabitants, according to the seasons of the year and according to the prevailing weather. The house can be entirely closed and isolated from the environment or, on the contrary, opened wide, so that the living space becomes an extension of nature surrounding the house. The interior and exterior of the house is not stably separated as in European houses, only the roof is really stable, supported by the basic pillars. This conception of the roof as the basis of the house seems to be testified by the characters of the term for roof *yane* [*ya* — house, *ne* — root, thus "root, basis of the house"].

Most of the traditional Japanese farm houses have very large roofs, so that from afar only the roof of the house is to be recognized in the landscape. The enormous roof-truss *(koyagumi)* sometimes conceals an attic *(yaneura)* so spacious that it can be divided into three storeys (see *gasshō-zukuri* houses phot. No. 7).

The large size of the roofs of Japanese peasant houses is stressed to a great extent by deeply overhanging eaves *(noki)* under which there is a space, *nokishita* (under the eaves), which is so characteristic of Japanese houses and which is covered and protected against the elements. This space is generally used as a veranda *(engawa, en)* or rather as a gallery (see phot. No. 3). The verandas are differently constructed in different regions according to climatic conditions. Some are built so that in times of bad weather wooden shutters *(amado)* can be put in, forming a continuous wall around the house. In this case the veranda is rather a part of the inner living space. Verandas called *nureen* (wet verandas) are however open and protected against rain and snow only by the eaves of the roof. In this case the *nokishita* space is rather part of the exterior. In the prefectures along the Japan Sea coast, where in winter snow falls are several metres deep, a porch of stamped earth called *tsuchien* is built around the wooden veranda and the sliding wooden shutters *amado* are placed only behind its outer circle. In this way the building is protected against snowstorms and snowdrifts and the *tsuchien* enables free movement around it. In this case the eaves are still much deeper than is usual. Just the space *nokishita* with the veranda played the greatest role in connecting the living space with surrounding nature because it was an extention of the interior towards outside and, vice versa, an extension of the exterior into the house. In some regions the roofed space around the house is obtained or enlarged by additional eaves called *hisashi,* usually covered by different roofing material (see phot. No. 1, 14).

The attic *(yaneura)* was only exceptionally used as living space. It served (even in large families) mostly only as a storing space, corn-loft or as a room for breeding silk-worms. Therefore it usually had only a flooring of roughly hewn boards, not covered by mats and was dimly lit. From floor to floor one climbed either by very steep steps, somewhat resembling a ladder or by a tree-trunk with steps cut into it.

There are no chimneys on Japanese roofs. There used to be an open square fireplace *irori* in the flooring in the centre of the living room, above which a kettle of water, suspended on a hook from the ceiling was constantly boiling and in the kitchen *(daidokoro, kamaya, katte)* was an open clay stove *(kudo)* for cooking, but the smoke was not directed out. It found its own way into a smoke-outlet in the ridge or the gable of the roof through which it escaped (phot. No. 2). The house was, of course, full of smoke, but this also had its positive effect: beams and pillars of the house got black, but at the same time they were preserved by the smoke, so they did not absorb the damp and did not deteriorate.

The roofs of the traditional Japanese dwellings were, however, not built only from the functional point of view. The size, quality and decorativeness of the roof were also symbols of the status of the family occupying the house. The absolute majority of the traditional peasant houses which are preserved up to this day originated at the time of the Tokugawa period (1603 — 1867), particularly after the Genroku era (1688 — 1703); that is during a period of perfectly organized feudalism when every class and every single person had his status in society strictly defined. The borders between the classes were clear, fluctuation was out of the question. But also inside the classes there existed a firmly defined position of the individual with all his rights and obligations, right down to the lowest strata of society. That is why even in a small community social differences existed between the wealthy farmer and the tenant, between the farmer holding a public office (mayor) and the farmer, though of a good family and owning a certain property but holding no office etc. The house was the most important symbol of this social status and just the roof played the greatest role in the symbolism of the house.

The spaciousness of the building and the length of the ridge of the roof were decisive, which also had a practical side because house tax, *munebessen* or *munewakezeni,* was paid according to the length of the ridge and the number of independent buildings. The depth of the thatching and the quality of the covering in general, the height of the floor, the distance between the pillars of the main construction and, last but not least, the kind and number of roof-ornaments also played a role. At a glance

at the roofs of the houses in a village it was possible to distinguish the first families in the village and the ranks in the social status of the others. It was impossible to misuse the symbols, the codes of the various fiefs prescribed exactly what kind of roof ornaments a person would be allowed to have. Only later, towards the end of the 18th and the beginning of the 19th century, when the disintegration of the feudal society and the mixing of classes sets in in Japan, did these symbols lose their real meaning and the architecture of the house was determined mainly by the economic possibilities of the owner. Some of the ornaments, originally reserved only for certain groups of farmers, began to be applied generally and developed sometimes in regional pecularities, characteristic for farm architecture in the various localities.

ROOF ORNAMENTS

In feudal times the number of roof ornaments *(munekazari)*, their shape, size and execution symbolized the family status of the house-owner. The ornaments were mainly placed on the ridge of roof, on the gable or on a small ornamental gable over the main entrance.

The ridge of the roof *(mune)* was the top of the thatching, the peak of the whole house and great care was devoted to the way it was made. The ridge ornaments not only adorned the house but also strengthened it and insulated it against rain water leaking through. The material used for ridge ornaments was timber, bamboo, straw, tiles and, in some cases, even clay. The ornamental ridge is named by various dialectical expressions in the different regions. The most common is the term *gushi,* widely used in the whole Tōhoku and Chūbu region, then *ugushi* (Chiba), *igushi* (Shizuoka), *ogoshi* (Chiba), *uzusu* (Isles of Izu), *goshin, ugusu* and the like. They are most frequently made of bamboo poles placed along the ridge (see phot. No. 6, 9), and fixed to the thatching by "stitching" them with so called *warabinawa* (i. e. a cord of twisted *warabi*[5] fern roots). Sometimes bundles of straw or *kaya* grass are placed crosswise over them (see phot. No. 1). This kind of roof ornaments is called *harioi* or *hariosae* and has also a practical purpose: it prevents water leaking in along the *warabinawa* cords which are laced through the thatching. Widespread are little wooden roofs, which partly or entirely cover

the ridge (see phot. No. 5). There are very many variations of these, the best known being the type with the little raised roof in the centre (see phot. No. 12). This type is called *hakomune* (box-like ridge). On some houses the beams of the ornamental ridge gracefully extend beyond the roof and form the characteristic decorative *toribusuma* (birds rest) (see phot. No. 11, 12).

The most effective and also most typical ridge ornaments of Japanese thatched farm-houses are perhaps the beams placed crosswise straddling the ridge of the roof and appropriately called "rider" *(umanori).* In some regions they are, however, also called "crows" *(karasu).* For examples see phot. No. 13, 14.

On houses in the *honmune-zukuri* style in the Nagano prefecture special decorations called "sparrow's dance" *(suzume odori)* (see pict. No. 1) were hoisted on the houses of persons holding an official function. This type of decoration exists also in the prefecture of Niigata but there they are called "scarecrow" *(karasu odoshi).* Type a) really resembles a bird with wings wide spread, but the other decorations are only of geometrical shapes.

Another group of decorations placed on the ridge or gables had magical purpose. They originated from fear of fire and their main meaning was to ward off fire from the house. For this reason they all had some connection with water. We find most often a character for "water" on the gable of farm houses (see phot. No. 13), on larger buildings in the surroundings of Nara and Kyōto, which have at least part of the roof covered with ceramic tiles, we find figures of fish or sea-waves in the ridge tiles.

Apart from characters for "water" in the function of a magic sign we can also find characters of the name of the house-owner or his family-crest on some dwellings, but these cases are very rare among *nōka.*

ROOFING

The traditional Japanese farm-houses have their roofs covered either with thatch, shingles or ceramic or stone tiles. The tile-covered roofs *(kawarabuki-yane)* were an exception with farm-houses, they were much more characteristic of *machiya,* town houses *minka.* We find then mainly in the region of Nara and Kyōto on farm-houses but even there they were combined

with thatch. Tiles *(kawara),* particularly ceramic ones, were, of course, a much more costly covering than shingles or thatch and this fact alone explains why they were used so little in the village. Another condition was also that there should be a ceramic kiln not too far away from where they could be obtained, and these were found mainly in central and western Japan. Neither are tiles originally a genuine Japanese roof covering material, they reached the Japanese isles from China with the arrival of Buddhism in the 6th century, since when they began to be used on roofs of Buddhist temples and aristocratic houses. However, the development of temple and palace architecture took an entirely different course than the development of dwellings for the common people, and therefore we cannot deal in more detail with ceramic tiles in this article.

Shingle roofs *(itaya, itabuki-yane, kokerabuki-yane)* were characteristic for mountain regions abundant in suitable timber and with infrequent typhoons, because shingles are the most unsuitable roofing for typhoon regions. The wood of the *hinoki* tree (a sort of Japanese cypress)[6] was considered to be the best quality material for shingles *(kokera, kokeraita, yaneita),* also the wood of the coniferous tree *maki*[7] was widely used. Shingles in form of an elongated oblong were split very thinly and were nailed onto boards covering the roof with bamboo nails, reminiscent of cobblers' pegs. In comparison with thatched roofs, however, shingle roofs did not give a very decorative impression, they were the least durable and dangerous during typhoons. Ridge ornaments on shingle roofs were very simple. Today one rarely comes across the traditional shingle farm-houses.

The most customary roofing of traditional farm buildings is thatching. *Kaya*[8] grass is considered to be the best quality material for thatching, but for the thatching of agricultural buildings such as stables, barns and the like, straw is also used. Straw thatch, however, gives a more untidy impression than *kaya* does. In some regions *yoshi*[9] reeds are also used for thatching, sometimes the material is combined: for example, the lower layer of thatch is made of *yoshi* and the upper of *kaya.* Thatched roofs are called *kusa-yane* (grass roof) in Japanese, otherwise expressions directly specifying the material with which the roofs is covered are used: *warabuki-yane* (roof covered with straw), *kayabuki-yane* (roof covered with *kaya*) and so on.

The thatch is piled onto the skeleton of the roof (it must be sufficiently dense) in huge masses. The higher the layer of thatch, the more important was the position of the house and the family in the village, and therefore thatching of representative houses was in some parts of the roof nearly a metre thick. The material for thatching is very thoroughly combed, so that all grass stalks lie in one direction, and then it is beaten with a special wooden mallet into a compact and straight mass. Thatching of exemplary quality can be seen on phot. No. 1 and 9. Thatch of well-made thatched roofing is usually reinforced on the edge of the roof, thus forming a graceful elevation of the curve (phot. 9) and stressing the impression of the thickness of the roofing. The edges of the thatching are carefully trimmed and shaped with special big scissors. Before the thatch settles down it is usually made form with bamboo poles, fastened over the whole roof and later removed. The quality of the whole roofs is judged by the quality of the finishing works. Poor peasants cover their roofs themselves by mutual collective help[10] but the wealthier families have their houses covered by professionals because to achieve symmetrical and perfectly smooth shape of a thatched roof requires much craft, skill and experience.

In time moss and lichen gets a hold on the ridges of old thatched roofs giving them a particular natural beauty, so much valued in Japan. Apart from that, however, there was the custom in some parts of Japan (for example, in the Kantō region) even to plant small flowers on the ridges of the thatched roofs, the colour of the blooms contrasting most beautifully with the thatch (see phot. No. 2).

A well-made thatched roof of *kaya* lasts for a long time. But as a rule thatching is redone every twenty to twenty-five years, while in between it must be repaired and maintained. Straw thatched roofs on agricultural buildings are repaired as needed by the peasants themselves whenever they have enough straw (see phot. No. 17).

BASIC SHAPES OF ROOFS

The outer shapes of the roofs of Japanese traditional farmhouses can be divided into three basic forms.

1. *Yosemune* (literally "converging ridge"), see pict. No. 2. The roofing covers all four sides of the roof sloping from the

ridge. Sometimes this shape of roof is also called *shichū-zukuri* (four-slant style). It is the simplest and at the same time the most common form of roof to be seen all over Japan. In olden times, however, it was typical for eastern Japan (the border line between Japan's western and eastern culture is as a rule considered to be the ridge of the Japanese Alps in the north and the Mikawa bay in the south of Honshū island), so that it used to be called *azumaya* (eastern house). Besides these, farm buildings such as barns, store houses, stables and the like usually have this kind of roof, even if the main dwelling house *(honya)* has a roof of a different shape. Examples of roofs *yosemune* see phot. No. 4, 5, 6.

2. *Kirizuma* (literally "cut off gable"), see pict. No. 3. The roofing covers two opposite slopes of the roof, which are parallel with the ridge whereas the vertical triangular gables *(tsuma)* are either wooden or of walls smoothed over with clay. In some regions this shape of roof is called *kirihafu* (cut off gable). This shape of roof is the least widespread in the Japanese contryside, it is found mostly on traditional buildings in Central Japan (Gifu, Toyama, Nagano, Yamanashi), at Hokuriku (Ishikawa) and around the towns of Nara and Kyōto. For example of roofs in the *kirizuma* shape see phot. No. 7, 8, 12.

3. *Irimoya* (literally "inserted roof"), see pict. No. 4. This shape is a combination of both previous types of roofs. In the upper part of the roof the gable side on both ends of the ridge is cut vertically, downwards it continues like *yosemune.* Houses with roofs in the shape of *irimoya* were considered to be more representative and of better quality than those in the *yosemune* shape, therefore we find this shape on dwellings of wealthier families. In various parts of the country *irimoya* differs in details, depth of cutting of the gable, angle of cutting and so on. See phot. No. 2, 1, 9, 13, 14.

Climatic conditions (hot climate, typhoons, deep snow) and differences in the way of farming (horse breeding, silkworm breeding) gave rise to a whole series of variations of these three basic roof forms, so that every region of Japan has its own typical roof of farm-houses. Most of the regional types of farm-houses became stabilized as they are known today in the form from the Tokugawa times, roughly from the beginning of the 17th to

the end of the 18th century but it is probable that the beginning of their differentiation goes back to the previous centuries.

REGIONAL TYPES OF TRADITIONAL FARM-HOUSES

Were we to go into details we would find a large number of the most varied types of traditional farm-houses but we shall limit ourselves to the most frequently represented and the most characteristic.

A) *Magariya* (literally "bent house") see pict. No. 5. It is a building with an "L"-shaped ground plan and a roof of the *yosemune* (but sometimes we find also the *irimoya* roof) shape. It is characteristic for the Tōhoku region, especially for the Iwate prefecture, always so famous for horse breeding as well as for the Akita and Aomori prefectures. One wing of the house (usually the shorter arm of the "L" groundplan) is always the stable for horses *(umaya)* in this type of house. The fact that the inhabitants all lived under one roof with the horse shows what important place the horse had in the husbandry and indicates that they wanted to have it always under supervision. Between the roof of the living part of the building *(honya)* and that of the stable there is usually a visible difference in the quality of the thatch and the roof ornaments.

B) *Chūmon-zukuri* (type of house with a centre gate), see pict. No. 6. This type of house widespread in the northern part of the Japan Sea coast (Akita, Yamagata, Niigata) is similar to the *magariya* house because it, too, has an "L"-shaped ground plan. The protruding wing of the house where in *magariya* the stable used to be is called *chūmon* (centre gate) but with the *chūmon-zukuri* there is usually also the entrance into the house and the WC as well as the stable. Some houses have two *chūmon* and the house takes the form of an "U". In this case it is called *ryōchūmon-zukuri* (with a double centre gate). For several months thick layers of snow fall in the prefectures near the Japan Sea and it is assumed that just this fact played an important role in the origin of *chūmon-zukuri* type. The *chūmon* strengthens and stabilizes the whole edifice so that it can better support the weight of the snow. It is also not the custom in the country to place the WC in the main building but its position in the *chūmon* enables easy access to it in winter too and at the same time it is separated from the living quarters. The roofs of

the *chūmon-zukuri* houses are usually in the *yosemune* shape but on some houses only the roof of the main living wing *(honya)* is in the *yosemune* shape, whereas the *chūmon* roof is of *kirizuma* or *irimoya* shape.

The following four types originated with the breeding of silkworms. The breeding of silkworms was mainly concentrated in the mountain regions of Central Japan. The silkworm is very delicate and sensitive to the slightest atmospheric change. It dies or develops badly in unsuitable humidity, light or air-stream. It thus demands a lot of care and specially suitable surroundings. In peasant families where the silkworm was bred every failure in its breeding meant a family disaster and irretrievable loss and therefore almost the whole life in the house turned around silkworm breeding. Special space, usually attic rooms, which in size were often quite out of proportion with the living rooms, had to be reserved for the silkworm. Heat rose from the downstairs to the worm and by various adaptions to the shape of the roof the required light and ventilation was also achieved. Since the end of World War II silk production lost its importance and therefore there was a remarkable decrease in the number of peasant families occupied in silkworm breeding; nevertheless the architecture of farm buildings adapted for silkworm breeding is still to be seen.

C) *Kabuto-zukuri* (the helmet-shaped house), see pict. No. 7. One of the examples of adjusting the roof in the basic *yosemune* shape. The lower part of the gable of the roof *(tsuma)* appears to be cut off and so an opening is made for the access of air and light. The gable of a house so adapted strongly resembles a helmet *(kabuto)* worn by the old Japanese warriors whence this style of house got its name. Houses of this type are mainly to be found in the Saitama, Nagano and Yamanashi prefectures.

D) *Kiriotoshi-yane* (house with the cut off roof), see pict. No. 8. Basically this is a house adapted in the same way as *kabuto-zukuri* with the difference that the roof is not cut off on the gable side but on part of the roof parallel with the ridge *(hira)*. We find this type of houses in the foothills of the Japanese Alps in the Gumma and Nagano prefectures as well as in Saitama. For examples see phot. No. 11 and 12. A peculiarity of these houses is that from the side and the rear view they give the impression of ground-floor buildings with a bulky roof and

only from the front it is evident that they are one-storey houses. The first floor was either used entirely as space for silkworm breeding or also partly as living space.

E) *Tsukiageyane-zukuri* (the house with the raised roof), see pict. No. 9. Contrary to the previous two types of houses, this type belongs to the group of the *kirizuma* basic roof shape. It is characteristic for the central lowland in the Yamanashi prefecture and is noted for a strip looking as if cut out from the middle part of the thatched roof and raised while keeping the same angle of slope as the roof. This elevated part of the roof, too, is mostly covered with thatch, sometimes, however, with shingles and in recent times often with tiles. The space under the elevated roof was used for silkworm breeding. In some cases the space under the raised roof is divided into two storeys so that the house is two-storeyed in its central part.

F) *Dashigeta-zukuri* (house with protruding longitudinal beams), see pict. No. 10. Also this type of house falls into the *kirizuma* basic roof shape. The roof is usually covered with shingles, sometimes reinforced by stones being placed on the shingles *(ishioki-yane).* In modern times shingles are often substituted by tiles. The first floor, originally intended for breeding silkworms, is characterized by either an open or closed built-on gallery made of beams running parallel with the ridge *(keta),* which are laid upon elevated cross-beams *(hari)* and protruding from the front of the house, so that the space under the gallery forms a veranda. This type of house is fairly wide-spread in the Saitama, Gumma and Nagano prefectures.

G) *Gasshō-zukuri* (house in the folded-palms shape), see pict. No. 11. These are imposing houses typical of both the high mountain regions of Hida in the borderland of the Gifu and Toyama prefectures but mainly of the upper and middle reaches of the Shōkawa river. Under their thatched roofs of basic *kirizuma* shape there are two to three storeys, formerly used for breeding of silkworms, for storing agricultural implements and the like. The edge of the roof on the gable side is ornamented with a fringe of straw bundles (see phot. No. 7). Whereas the shape of the previous four types of houses was decisively influenced by silkworm breeding, several other factors played a role in the shaping of the *gasshō-zukuri* houses: 1) climatic conditions — the roof has a very steep slope, to prevent snow

massing on it; 2) silkworm breeding — making use of the large attic; 3) insufficient ground in the narrow mountain valleys — the buildings were pushed upwards; this factor is closely connected with yet another: 4) the family system — the custom of several branches and generations of the families living together. In mountain districts where there was lack of arable land the younger sons could not get a share of the ground, could not get independent and establish a side branch of the family *(bunke)*. Even after having founded their own family they remained in the house of their birth and lived with the main branch of the family *(honke)*, represented by grandfather, father and the oldest son. That is why *gasshō-zukuri* buildings are such enormous dimensions. But even under such conditions the attic *(yaneura)* was never a living space. This was exclusively concentrated on the ground-floor. There are certain differences between the *gasshō-zukuri* on the upper and the middle reaches of the river Shōkawa. Whereas along the upper reaches the house entrance is situated on the side wall of the house *(hira)*, along the middle reaches of the river it is situated on the gable side of the house *(tsuma)*.

H) *Honmune-zukuri* (houses with the right ridge), see pict. No. 12. These are shingle-covered houses with *kirizuma* shaped roofs. These are very gently sloping roofs and cover houses of a roughly square ground-plan. The gables are usually patched up with clay and ornamented with a rib of beams. On the gable side the roof protrudes quite far over the wall of the house. This imposing type of houses is characteristic for the surroundings of the town of Matsumoto in the Nagano prefecture (see phot. No. 14). Originally only farmers holding a public office were allowed to build this type of house during the Tokugawa era. On the roofs of houses of especially influential families there was an impressive roof-ornament *suzume odori* (see pict. No. 1). The entrance to the majority of the houses is on the gable side but some of them are on the broad side. These are called *yadoya-zukuri* (inn-style house) in that region[11].

I) *Yamato-zukuri* (Yamato style house), see pict. No. 13. Yamato is the old name for the region around the town of Nara, which is the original cradle of Japanese culture. The houses *yamato-zukuri* are typical just of that region although they are also to be found in neighbouring prefectures (Ōsaka for example).

They are houses with *kirizuma* shaped roofs on which thatch covering is usually combined with ceramic tiles. The roof of the main dwelling building is higher than those of the adjacent buildings. *Yamato-zukuri* is an imposing type of house evoking rather an urban impression. Its characteristic feature is that the whole husbandry forms a closed unit with the courtyard in the centre. The house is entered by the gate, the yard is surrounded from all four sides by residential and farm buildings and partly by a wall as it is usual in Chinese houses. It is believed that farm buildings of the *yamato-zukuri* type do indeed bear characteristics of Chinese architecture because Nara, as the capital in the years 710 — 782, was built according to the Chinese model in rectangular blocks with straight streets, and therefore the surrounding regions, too, could preserve certain elements of Chinese architecture. *Yamato-zukuri* is sometimes also called *takabei-zukuri* (houses with a high wall)[12].

J) *Shihōbuta-zukuri* (houses brimmed on all four sides), see pict. No. 14. This is a thatched house with roof in the shape of *yosemune,* with a porch *hisashi* all round (mostly covered with ceramic tiles) so that the roof looks as if it has a brim, a lapel *(futa)* around it. Houses of that type are found along the coast of the Inland Sea of Japan (Setonaikai), mainly in the northern part of the isle of Shikoku. In the local dialects the porch around the house is called *odare, ge* or *obuta.* For example of *shihōbuta-zukuri* see phot. No. 5, the house on the right.

K) *Kagiya-zukuri* (the corner-shaped house), see pict. No. 15. The main thatched ridge of the roof *(ōmune),* in the basic shape of *yosemune,* forms, similar to *magariya* and *chūmon-zukuri,* the design of the letter "L" but in reality the house has a rectangular or square ground-plan because the corner formed by both wings of the main ridge of the house is covered by a small low tile or shingle roof. Houses of this type are widespread on Kyūshū island, especially in the lowland region of the Saga prefecture. This type of house is also sometimes called *kagimune-zukuri* (house with the bent ridge).

L) *Kudo-zukuri* (house in the shape of a clay fire-place), see pict. No. 16. We find *kudo-zukuri* in the same region as *kagiya-zukuri* which is mainly in the Saga prefecture, and both types are obviously related. *Kudo* is the Japanese expression for open clay fire-place of "U" shape, as it was once used in all

farm-houses. The main ridge of the roof in the *yosemune* shape forms the shape of a "U"; between both outgoing wings there is a depression called *tani* (valley), covered with ceramic tiles and with ingeniously installed rain-pipes to drain off the rain-water running down from the main ridge of the roof into the "valley". *Kudo-zukuri* is obviously a more complicated form of *kagiya-zukuri.* However, far more complicated variations used to exist which can hardly ever be seen today. Out of superstition a complicated curbed roof shape *mitani-nanashigi* (i. e. three valleys and seven wings of the house, see pict. No. 17) was recommended to families of high social standing as a guarantee of luck and prosperity[13]. Several causes contributed to the origin of these very complicated roofs: one was the magical reason, another the practical. A complicated roof resists well the typhoons which are so frequent on Kyūshū. It is also assumed that originally different dwelling parts of the house and kitchen were built separately (as in other parts of Kyūshū, see later) and only during further development were they connected in the present curbed shape.

Both the following types of farm buildings are to be found in the southern half of Kyūshū island and the decisive factor for their shape was the hot climate. Both types are similar insofar as the main living part of the house *(honya)* and kitchen *(kamaya)* are separated from each other like independent buildings. The separation of the kitchen from the rooms is an obvious attempt to spare the living space unnecessary heat and steam coming from the kitchen and to keep it as cool as possible. T. Ogawa quotes, however, the opinion of Kunio Yanagida that the origin of these separated houses is much more complicated: for the Japanese fire was the symbol of the family and it was necessary to keep it pure. The purification being necessary in case of a death or a disease or even of a stranger's visit, it was much more convenient to keep the fire in a separate building and thus preserve its purity. Another reason for separate houses, according to K. Yanagida, could be technical, i. e. it was much easier to build small separated houses than one large building[14].

M) *Futamune-zukuri* (the house with two roof ridges), see pict. No. 18. A type of farm house common in the flat part of the Kumamoto prefecture. Two houses of the same type and roughly of the same size are built parallel to each other and closely at-

tached. A wooden, bamboo or ceramic gully for draining away the rain-water runs between the roofs. The space under it, i. e. between both houses, is used as a store room. The roofs of the houses are thatched and of the *yosemune* form. According to T. Itō it is known from the local register of house property from the 17th century that originally all parts of the house, the kitchen, living rooms, grand-parents' quarters, nursery, stable and Buddhist shrine, were built separately, as independent little houses[15].

N) *Futatsuya-zukuri* (double-house), see pict. No. 19. A variation of the previous type, characteristic for the Kagoshima prefecture and Ryūkyū islands. Two buildings with thatched roofs of the *yosemune* shape are erected near each other and connected sometimes with a wooden covered corridor. Contrary to the *futamune-zukuri,* where the houses are put parallel to each other, the *futatsuya-zukuri* are placed according liking. In local dialects it is called also *futatsue* or *futatsuze.*

O) *Dozō-zukuri* (houses in the style of a store-room with walls), see pict. No. 20. The only type of Japanese farm-house where all partitions are walls made of clay *(do). Dozō* are store-rooms with walls which were attached to town and country houses belonging to the wealthy. As the main building was made of timber and covered with thatch, wealthy people used to hide all their precious belongings in walled store-rooms which were erected a certain distance from the main house and as far as possible safeguarded against fire. (For example of *dozō* see phot. No. 5, white building with barred window next to house on the right). *Dozō-zukuri* is frequent in the Ōita prefecture on Kyūshū island, in local dialect it is called *igura-zukuri* (house in the style of habitable store-room)[16]. These are mainly single storey houses with thatched roof in the *kirizuma* shape.

After having enumerated the most characteristic farm-houses, as they were formed in the course of centuries in the various regions of Japan, the Hokkaidō and Ryūkyū islands are still left to be mentioned.

The island Hokkaidō was not systematically colonized and Japanized until the Meiji era (1868 — 1912). Up to that time it was inhabited mainly by the original population, the Ainu. The Japanese settlers brought the architecture of Japanese dwellings from their homeland to Hokkaidō adapting it only to the rougher climatic conditions of the island. This occurred during quite re-

cent times, at time of modernization of the country to western patterns, so no local types of the traditional Japanese peasant dwellings are to be found on Hokkaidō. However, before the arrival of the Japanese settlers Ainu dwellings existed; today these are unfortunately only artificially maintained in so-called Ainu villages near places where the last remnants of the Ainu inhabitants live, who are otherwise almost perfectly Japanized (see phot. No. 15).

Originally the Ainu were not tillers of the soil but hunters, therefore their houses cannot really be called farm-houses. The houses were much more primitive than Japanese farm-houses. Their "L"-shaped ground plan was similar to the *magariya* type of house. They were almost entirely reed-plaited and fixed to a simple wooden skeleton. The roofs were exclusively thatched and in the *yosemune* shape. The thatch, however, was put on differently to the Japanese thatching, i. e. corbiestepped. The smoke of the open fire escaped through a hole in the corner of the low ceiling. The house was very dark because windows in the true sense were non-existent. There were only openings in the walls and during strong wind, winter or when it rained they were covered either with wooden plates or reed curtains (see phot. No. 15). The social function of the Ainu house is now at an end from the historic point of view. The Ainu are already living a completely Japanese way of life.

The southern border of Japan is formed by the Ryūkyū islands. Since the end of World War II only their northern part belonged to Japan, the main archipelago with Okinawa was returned to Japan by the United States of America in 1972. I cannot judge the situation of traditional dwellings on Okinawa from my own experience and therefore confine myself only to farm houses on the archipelago of Amami.

Already E. S. Morse stated in his book "Japanese Houses and Their Surroundings", edited for the first time in 1886 (his reports on Ryūkyū, however, are from second hands) that houses of the Ryūkyūans are built entirely in Japanese style, i. e. with raised, mat-covered floors, sliding walls and so on. This is true for the dwellings of ordinary people, dwellings of the ruling classes show more Chinese influence (tiles)[17].

I can confirm from my visit to the Amami archipelago in 1967 that the farm-houses there hardly differ from *nōka* in Japan

proper. Bamboo is used abundantly and the buildings give a lighter and more modest impression which corresponds with the geographical latitude and economic situation on poor islands. The prevailing type of farm-houses is that of separated small houses, i. e. *futatsuya-zukuri.* Apart from thatched roofs in the *yosemune* shape, here, too, the modern pan-Japanese type of building with the use of modern material starts to prevail.

For centuries, however, an original type of store-house and barn *(kura)* exists on the Ryūkyū islands. These barns, called *takakura* (high barns), are basically pile-houses, consisting of a thatched roof resting on four strong pillars (see phot. No. 16 and 17). The storage space is in the roof itself and is accessible through a trap-door reached by a ladder. These special barns and store-houses have many advantages: neither mice, nor humidity, nor any unauthorized person can get at the grain or stored objects. The *takakura* does not stand directly near the house of the owner; the barns of all villagers stand in a group behind the village. Their roofs, in the shape of four-sided pyramid, are covered with straw thatching.

NŌKA TODAY

The existing traditional farm-houses (and all *minka*) can be divided into two groups:

a) The group of houses which no longer fulfil their social function, i. e. are unoccupied and preserved as significant cultural historic monuments in the various localities of Japan (see phot. No. 1, 7, 8). This group comprises, of course, the most imposing and best preserved and maintained houses. They are, however, no more than dead museum pieces, the historic social task of which is ended.

b) The group of houses still occupied and therefore living and still fulfilling their social function. Their condition differs according to the economic situation of the owner and according to his attitude to the cultural-historic value of the family dwelling. The best preserved *minka* dwellings belong to families which, in view of their social status and means of subsistence, need to emphasize the ancientness of the respective family. Thus in towns old business firms and craftsmen's families take the greatest care of their *machiya* because the ancientness of the family is a guarantee of the quality of the merchandise and

of good service and so it is necessary to maintain this symbol of ancientness — the house. Among the country *nōka* the oldest and best maintained buildings belong to families which in past generations had a high social status in the local community (descended from country samurai, held a public office) and still today take care to keep the good reputation of the family name, or to families of country folk craftsmen such as potters. With them, too, the number of generations dedicated to pottery production plays a role from the artistic and practical point of view and therefore they keep the house in its ancient state. Besides this "publicity" reason, a decisive role is also played by the cultural-aesthetical aspect (they appreciate the artistic and historic value of their family house and see that it is preserved) and an economic reason. To maintain a *minka* in its good original state requires considerable financial means and involves difficulties connected with obtaining the required material, as well as craftsmen who know the technique of the work. Only the change of several large rotten beams or the re-covering of a roof with good thatch is usually an extremely costly repair, because the once abundant timber is now very expensive and the grass material *kaya,* needed for the thatch, grows in very few places in Japan today and does not cover the requirements.

Many of the occupied traditional farm-houses are therefore of late losing their original aspect through various repairs, reconstruction and extensions, and adaptations to present times. The lack of thatching material is compensated by completely covering the roofs with tiles (we find whole villages newly covered with the same tiles of the same colour) or by various stop-gap measures as can be seen on phot. No. 14 and No. 5. Photo No. 14 shows a preserved roof in the original shape but entirely covered with metal sheets so as to prevent the thatch rotting and the rainwater seeping through. Only the front part of the house to the left on photo 5 is covered with *kaya* grass while the reverse side is covered with poorly executed, thin straw thatching. The house on the right has its roof covered with several layers of old thatching of whatever material was available that year.

The gradual disappearance of thatched roofs and of the traditional farm buildings at all, is, to a great extent caused by the fact that living under those conditions does not correspond with the cultural hygienic standard of today. Insufficient light, in-

adequate sanitation facilities at a time when electric appliances of all kinds are becoming a regular part in the life of a Japanese farmer, are compelling families to build lighter and brighter modern houses according to the town pattern, for which timber is still the basic material but in which plastics, glass, metal and ceramics are asserting themselves to a great extent. Wealthier country families build their houses in the pseudo-traditional style, influenced rather by the architecture of the traditional town-house than by that of the farm-house (see phot. No. 18).

The development shows the unsuitability of the traditional houses for life today and it may be expected that in connection with the rapid development and modernization of Japanese agriculture during the last ten years and in connection with the decrease in the size of the agricultural population, the traditional *nōka* houses will decline at a still faster rate.

Notes

1) *shinden-zukuri* (literally "house in the sleeping-room style") — type of dwelling house that developed during the Heian period (794 — 1192) and consisted in houses connected with covered galleries.

2) *shoin-zukuri* (literally "house in the study style") — type of dwelling house that began to develop from the mid-Muromachi period (1333 — 1573) and became stabilized in the Momoyama period (1573 — 1603). It had an entrance *genkan, tokonoma,* built-in shelves, a veranda etc. Modern Japanese residential architecture is all based upon *shoin-zukuri.*

3) *minka* (literally "house of the people") — according to Itō Teiji the combination of these two characters was known in China already at the time of the early Han dynasty (1st — 2nd century B. C.). We come across it in Japan at the turn of the Heian and Kamakura period (1182 — 1333). Then the expression *minya* was used with the same meaning. The word *minka* as an established term for traditional dwellings of the common people did not come into use until the 20th century when Japanese ethnography started to form itself as a science during the Taishō period (1912 — 1925). The term is difficult to translate into European languages (it does not mean dwelling of the common people built in recent times but only old, traditional-style dwelling), therefore it is most correct to use the Japanese term (Op. cit. p. 21).

4) *honjin* (literally "headquarters, main camp") — these stations were built during the Tokugawa period (1603 to 1867) along all main roads such as Tōkaidō, Kisokaidō, Kōshūkaidō etc. in order to give shelter to travelling members of the Imperial and *shōgun* family, the feudal lords and their retinue and government couriers. Although the required comfort was not forgotten, they were often built in the *minka* style, typical of the local region.

5) *warabi* — Pteridium aquilinum Kuhn.

6) *hinoki* — Chamaecyparis obtusa Endl.

7) *maki* — Podocarpus chinensis D. Don.

8) *kaya* — Miscanthus sinensis.

9) *yoshi* — Phragmites communis Trin.

10) In previous times mutual collective help existed as a matter of course among neighbours and relatives in the Japanese villages not only during the building of

a house but in all work that had to be finished quickly and required a lot of labour power. This collective self-help was called *yui* and was usual mainly at *taue* (the planting of rice seedlings in the fields).

11) Nihon no minka, p. 46.

12) Itō T., op. cit., p. 155.

13) Ibid., p. 156.

14) Ogawa T., p. 174 — 175.

15) Itō, p. 156.

16) Nihon no minka, p. 38.

17) Morse, pp. 340 — 343.

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1: Tokikuni-ke, the house of the Tokikuni family, Ishikawa prefecture, Notō peninsula, Sosogihama.

2: Detail of thatched roof of the *irimoya* shape. Tōkyō-to, Okutama, Mitake.

3: Detail of *nokishita* and veranda of a potter's house. Kagoshima prefecture, Higashi Ichiki, Miyama, Naeshirogawa.

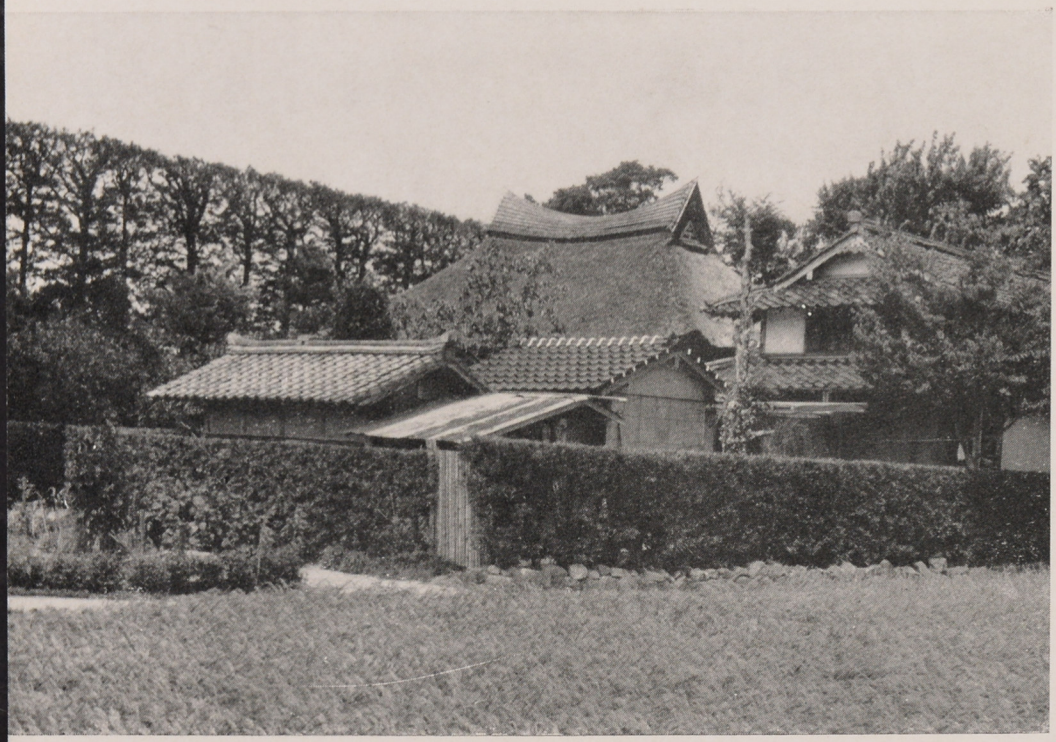
4: Farm-house with thatched roof in the *yosemune* shape. Fukuoka prefecture, Asakura-gun, Koishiwara.

5: Farm-houses with thatched roofs in the *yosemune* shape. Fukuoka prefecture, Asakura-gun, Koishiwara.

6: Simple farm-house (*yosemune* roof) with a sweep-well in the foreground. Ibaraki prefecture, Kasama.

7: Gable of a *gasshō-zukuri* type house. Roof in *kirizuma* shape. Wakayama-ke, house of the Wakayama family. It stood originally in the village of Shirakawa, dedicated by the Wakayama family as an ethnographic museum of the Hida region. Gifu prefecture, suburb of the town of Hida Takayama.

8: Side view of the roof of the *gasshō-zukuri* house from phot. No. 7.



9: Farm dwelling sheltered on the windward side by a high hedge. The main building is a beautiful example of an *irimoya* thatched roof. The local feature is the gracefully bent curve of the ridge. The adjacent extensions are modern. Shimane prefecture, Izumo, Hikawa.

10: Houses with *yosemune* shaped roofs, in the centre *kiriotoshi-yane*. The building on the extreme left is a *kura* (barn and store-house). In the front rice being dried after harvest. Nagano prefecture, Shinano Yotsuya, Shirouma-mura.

11: An interesting example of *kiriotoshi-yane.* Basically the roof is in the *yosemune* shape but from both ends of the ridge it slopes down in a shell shape. Decorative ridge of the *hakomune* type. Nagano prefecture, Azumi-gun, Azumi-mura.

12: Landscape with *honmune-zukuri* type houses, west of the town of Matsumoto, Nagano prefecture, Shimashima.

13: House with *irimoya* shaped roof, character for "water" *(mizu)* carved in the gable, ridge ornamented with a rider *(noriuma)*. Hyōgo prefecture, Tamba, Tachikui.

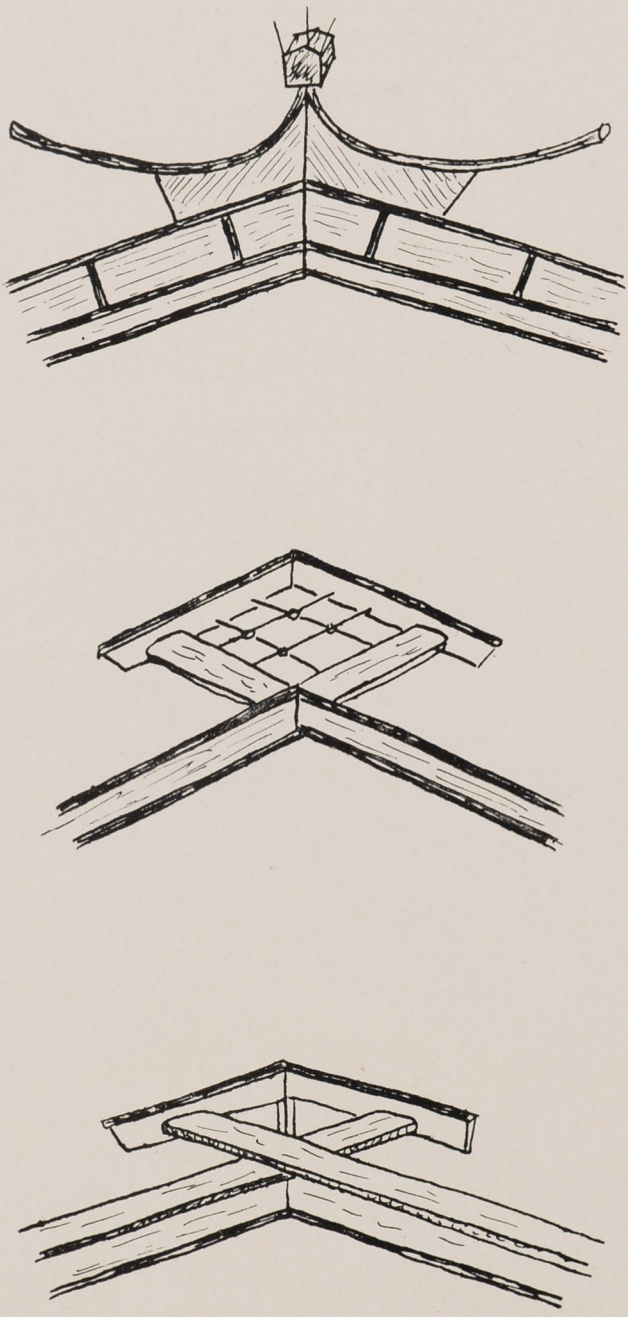
14: Thatched roof in the *irimoya* shape covered with sheet metal. The ridge decorated with rider *(noriuma)*. Hyōgo prefecture, Tamba, Tachikui.

15: Specimen of Ainu architecture in Ainu village. Hokkaidō, Shiraoi, Ainu-buraku.

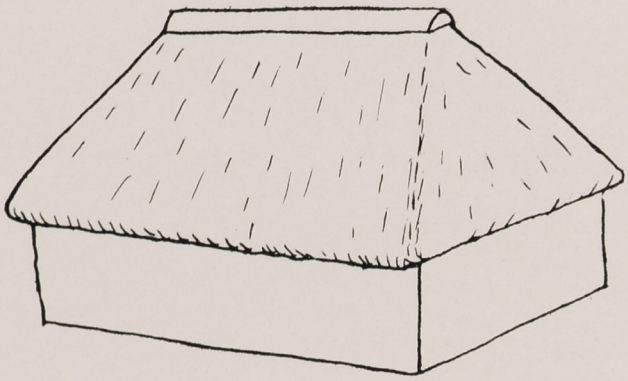
16: *Takakura* (high store-house), typical for the Ryūkyū islands. Kagoshima prefecture, archipelago Amami, Amami Ōshima, Yamato-mura.

17: Repair of straw thatching on *takakura.* Kagoshima prefecture, Amami Ōshima, Yamato-mura.

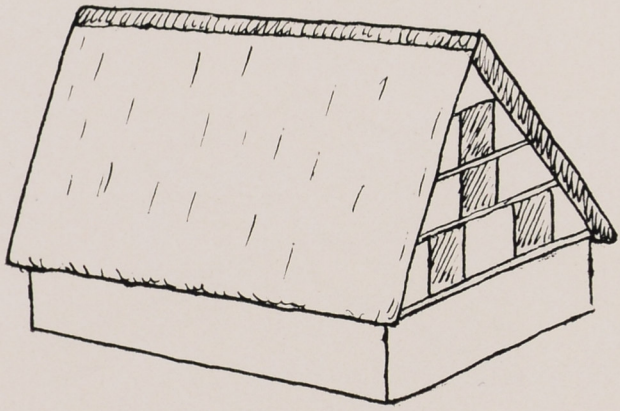
18: Imposing modern country house influenced by traditional town architecture *(machiya).* Shimane prefecture, Yatsuka-gun, Yakumo-mura, Iwasake.



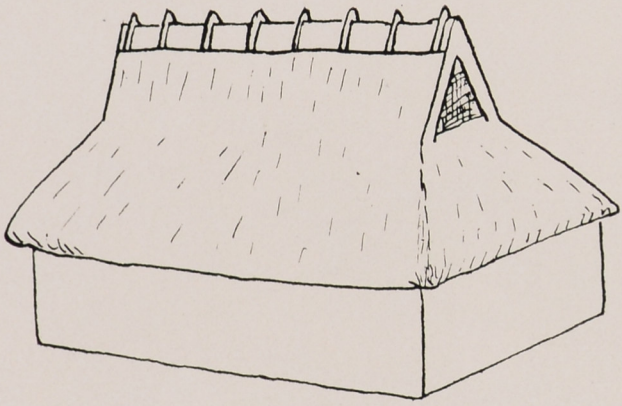
1: Roof ornaments of the *suzume odori* type.



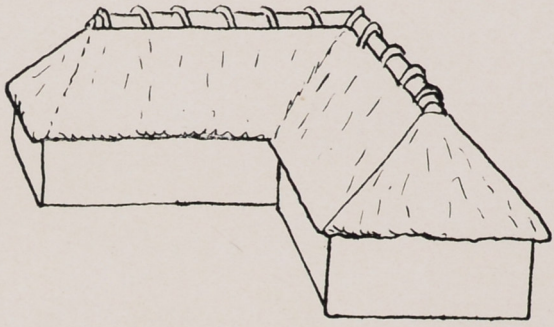
2: *Yosemune* roof.



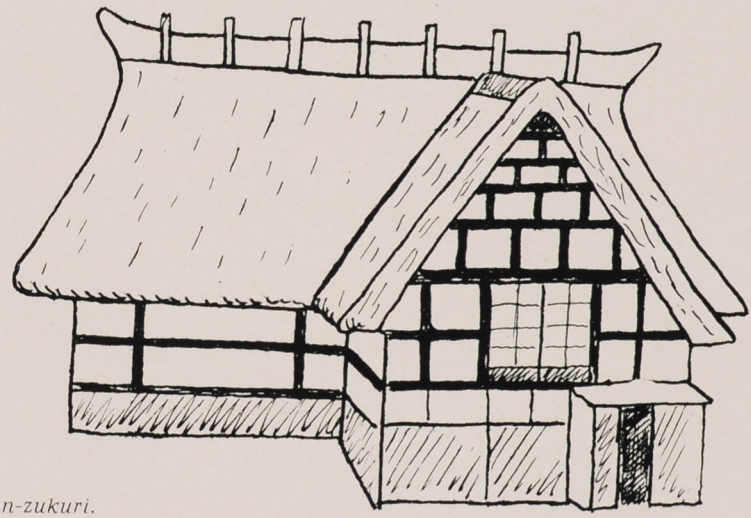
3: *Kirizuma* roof.



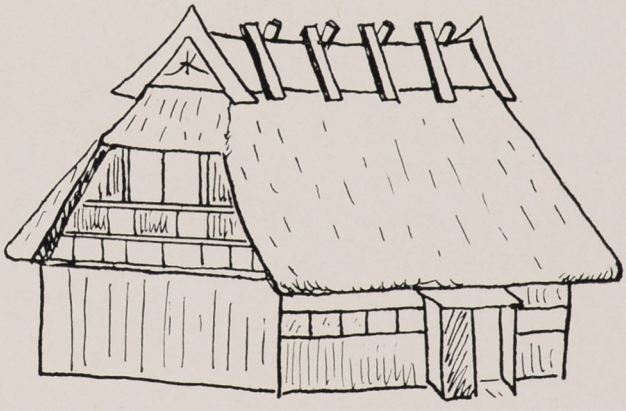
4: *Irimoya* roof.



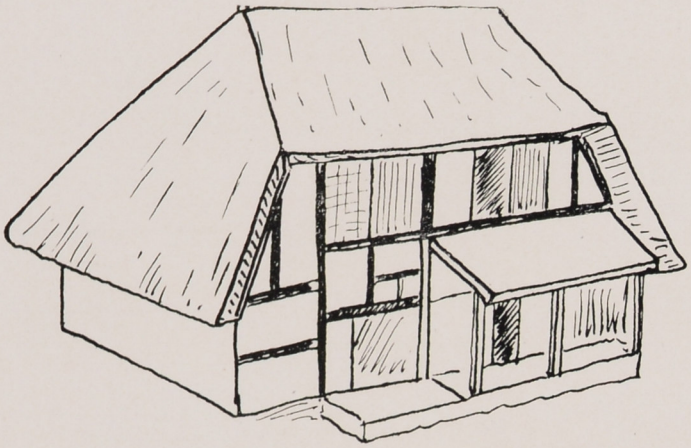
5: *Magariya.*



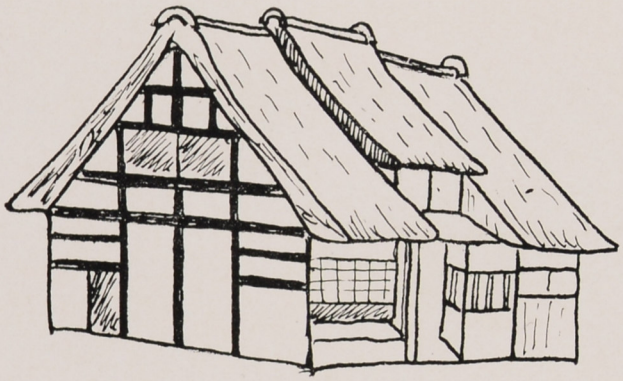
6: *Chūmon-zukuri.*



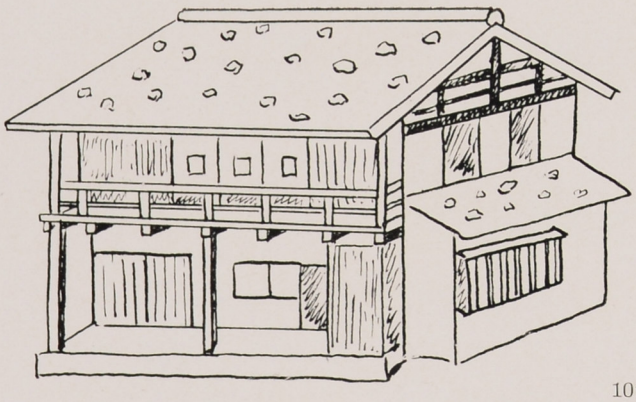
7: *Kabuto-zukuri.*



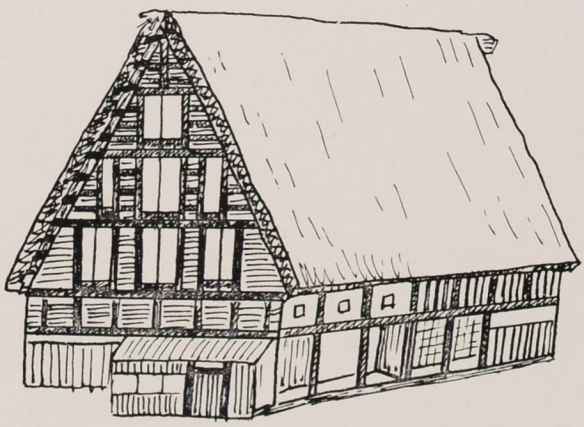
8: *Kiriotoshi-yane.*



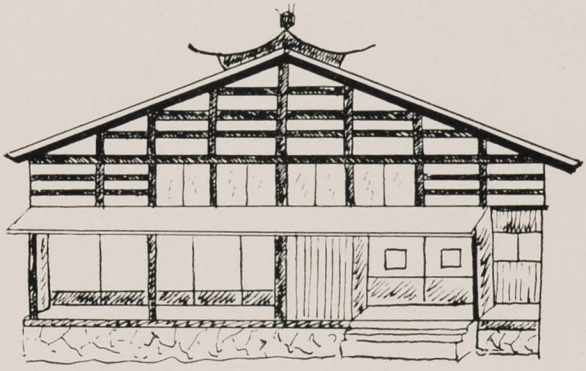
9: *Tsukiageyane-zukuri.*



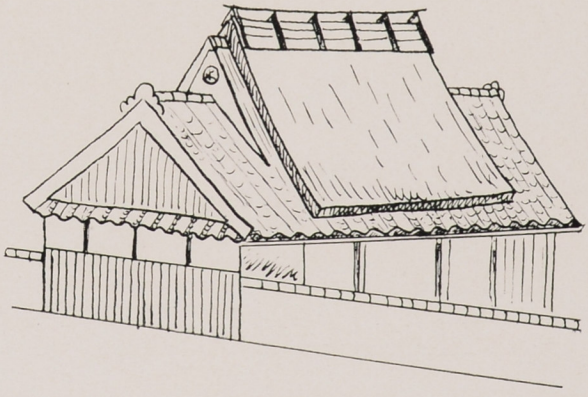
10: *Dashigeta-zukuri.*



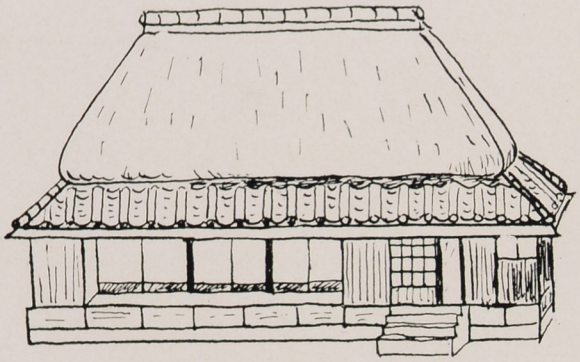
11: *Gasshō-zukuri.*



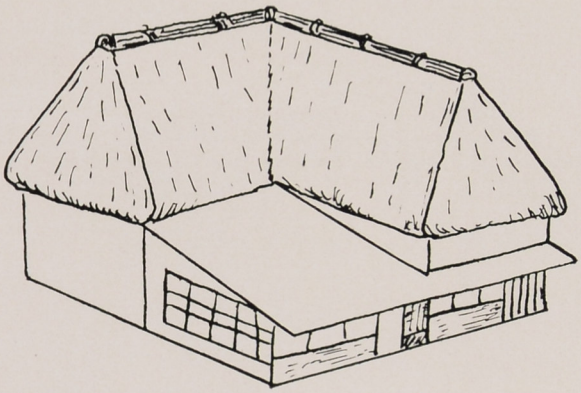
12: *Honmune-zukuri.*



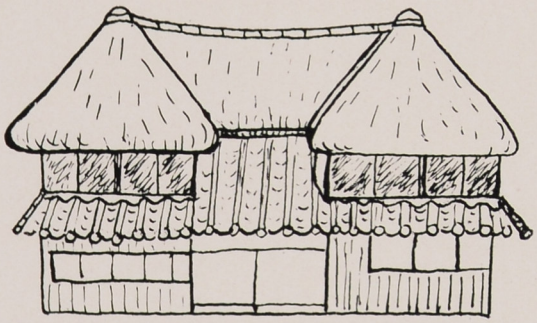
13: *Yamato-zukuri.*



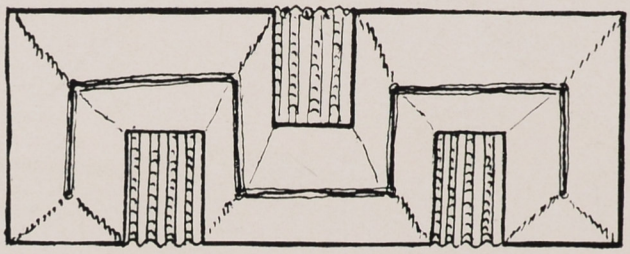
14: *Shihōbuta-zukuri.*



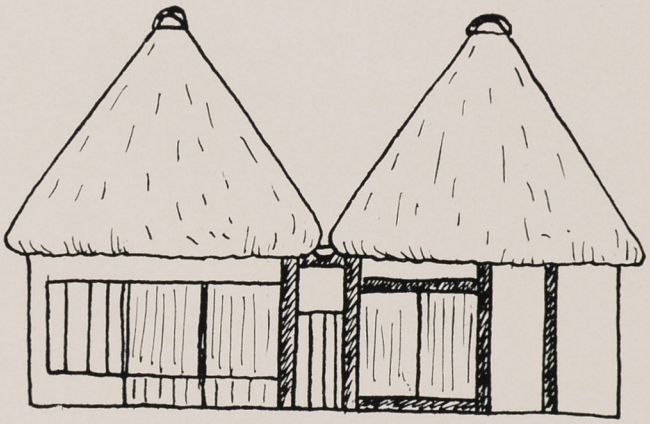
15: *Kagiya-zukuri.*



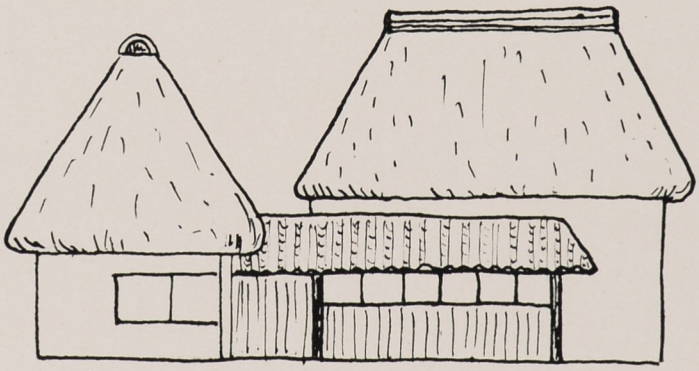
16: *Kudo-zukuri.*



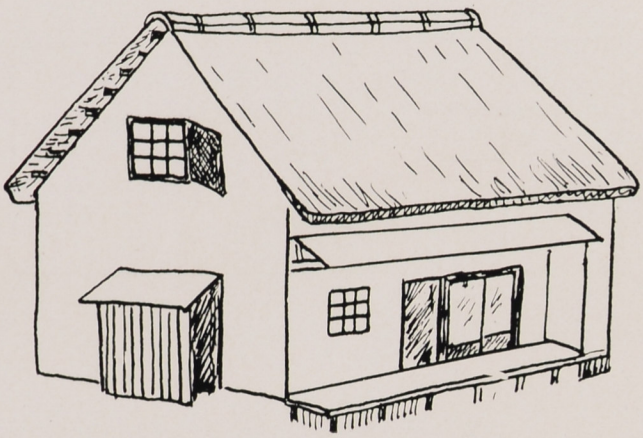
17: Scheme of *mitani-nanashigi* roof shape.



18: *Futamune-zukuri.*



19: *Futatsuya-zukuri.*



20: *Dozō-zukuri.*