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The Shell-Button Industry

No buttons were used in Japan during the Edo period (1615–1868). They were introduced into Japan after its isolation policy was abandoned. Relatively recent studies referring to the early phase of shell-button production in Japan include a joint report by the Small and Medium Enterprises Agency and the National Council for Regional Survey Agencies and a work by Miyake Jun'ichiro.[1] Both are laborious analyses of the situation after World War I, respectively in Osaka City and in the Kawachi area. The latter, in particular, even discusses the industry's connection with the parasitic landowning system in farm villages and raises a number of notable points. Miyake nevertheless relied almost solely on an early Showa survey by the municipal government of Osaka for information on the process of the transplantation and establishment of shell-button production.[2] As a result, partly because of the limitations of the Osaka City survey, his understanding of production in the early phase was hampered.

However, when I was allowed to search for literature in the stack room of the Osaka Municipal University library, I was fortunate enough to find a manuscript, seemingly by the son of someone involved in shell-button manufacturing, and a number of other pieces of literature that presumably had been prepared as supporting materials for the survey.[3] Relying on the information they contain, in section 1 I will look at the establishment of shell-button production in Japan, which began in the Meiji period, and its characteristic features. Section 2 discusses how the managers of shell-button production became managers and how their emergence changed the subsequent mode of production. Section 3 identifies the production process after World War I and the kind of management and technique that were responsible for each stage of the process. Finally, section 4 focuses on the historical fact that part of the production process proliferated as a rural industry.

1. Establishment of the Shell-Button Industry

Introduction and Beginning of Production

Shell-button production in Japan began at about the end of the 1870s. Demand for the product had already been gradually increasing since around the Meiji Restoration, reflecting the switch to the Western military system and the shift of court attire to the Western style. Moreover, because of the high prices of shell buttons, attempts had been made to produce them by handicraft using traditional files, whetstones, and knives. What deserves note is that in this phase no new production technology was introduced into shell-button manufacturing, though it was a transplanted industry. The producers, having "imported finished buttons as their only clue," undertook the task of creating something close to the models.[4]

Their efforts achieved some worthwhile results and progress. The shaping process with a whetstone was somewhat improved in efficiency by fixing shell pieces with glue and "surfacing" two pieces at a time. Further, they devised a method by which indentations were made in a steel plate and shell pieces were placed and glued in the indentations to even their thicknesses. For boring holes into the buttons, they used gimlets (*maigiri*), which looked like ancient tools for making fire.[5]

The invention of the *kantosen*, resembling a present-day hand-turned drill for use in woodcraft, by Arita Rimpei in 1879 greatly contributed to making the products uniform and to raising the efficiency of the cutting and rough-shaping processes, which had used knives and files. The *kantosen* had a cylindrical bit with needles arranged along its circumference and fastened with wire. Presumably, with its "chest-rest" at the top pressed against the craftsman's chest, the drill was turned by hand to cut out buttons one by one. Each craftsman could cut about 500 buttons a day, but perfect cutting was impossible with the *kantosen* alone; supplementary twisting with scissors or pliers was necessary. To round off the roughly cut buttons, they had to be put into a sake bottle together with whetstone sand and shaken for many hours by a specialized "bottle shaker."[6]

Improvements were slowly made. The *kantosen* was formed into a box shape, dispensing with the need to press it directly against the craftsman's chest, and a receptacle for shells was provided in the same box. Rubber packing, whose elasticity would eject the cut-out piece when the drill was removed, was inserted inside the head of the cutting drill. The improved *kantosen* is illustrated in figure 1. Other production inventions were the *ichibodai* (also known as the *yagendai*) and the *kubomedai* for decorating the button surface. The former was used for making an oval-shaped indentation to make the *ichibo*-type button or triplicating such a dent at 60-degree lags to make what was known as a maple-leaf pattern. The *kubomedai* was used to create a concave shape by shaving the button surface.

The craftsmen promoted these improvements to match their product quality as close as possible to that of the imported buttons. They seem to have

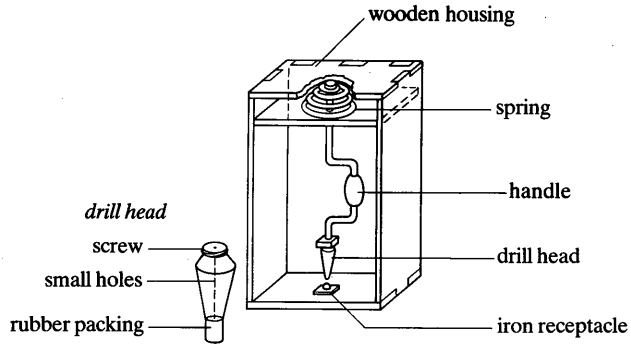

Fig. 1. An improved version of the *kantosen*

Note: This diagram is based on an old drawing left by Kobayashi Tsunetaro and on advisory comments given by Miyamoto Jun'ichi in February 1978.

made the most of the gloss of Japanese pearl-oyster shells by increasing the inclination of the button surface. Improvements in production were achieved almost instantaneously by putting together the ideas of craftsmen while relying on the existing domestic system of technology. Arita Rimpei is believed to have made such efforts in collaboration with blacksmiths with Western skills. The head of the *kantosen* at the beginning is said to have consisted of a simple array of needles; it was improved by a roll of iron sheet sharpened on the edge. The bit of the *kubomedai* consisted of the edge of a kitchen knife.

During the early years, the shell buttons produced were washed in water before being shipping out, but later they were boiled in water to which a small quantity of ash was added to almost completely remove the glue that had stuck to the buttons during the production process.[7] Sasaki Hidetaro devised a treatment with plum blossom oil to eliminate the powdery layer that was formed on the surface. The effect of this treatment lasted for only six months, so craftsmen devised a further remedy, which was to apply a sort of wax coating.[8]

Progress of Adaptations

The improvement efforts described so far led to such phenomena in the shell-button industry as described in the following:

Thus the nation's shell-button manufacturing industry, mainly based in Osaka, gradually and steadily developed and achieved further progress as Mr. Winkler from Germany imported foreign-made shell-button machines in 1890.

Winkler, master of House No. 85 (today No. 100) in the Kobe Settlement, learning about the abundance of abalone and pearl-oysters in Japan, thought of the profitability

of shell-button manufacturing. In 1890 he set up a secret factory at Onohama, Kobe, recruited workers from far and wide, equipped the factory with 200 lathes (made by Miyanaga Works in Hyogo), 48 drilling machines, and 20 holing bases (both imported from abroad) and started to manufacture buttons from abalone and conch shells. He invited Kikuzawa Eikichi, Sasaki Hidetaro, and Ishida Ryunosuke from Osaka and trained hundreds of workers. However, only two or three of the imported machines were used, and they adopted traditional machines devised in Japan for most of the work. For boring holes, *maigiri* were used rather than imported machines. Later on . . . a button craftsman was invited . . . from Germany to improve the manufacturing process, but the imported machines still proved unsuitable for practical use because of the high prices of their accessories, which were expendables. . . .[9]

Many of the transplanted industries that later became representative of urban-based SMIs – such as those producing knitted fabrics and brushes – at first came into being under modern systems of factory management, but were disbanded, reorganized, and re-established to achieve reasonable growth. Compared with those industries, shell-button manufacturing was accomplished on a very small scale, deserving no such denomination as an "important export item" or a "growth industry."[10] In this sector, however, well before the introduction of the factory production system, new needs were being quickly met by the adaptation of traditional techniques to such an extent that the economy of scale of a large factory having "hundreds of workers" could be undermined. Yet the effective technological advance attained in this case was only as much as a labour-intensive industry could attain with the abundant cheap labour that was available. Fundamental technological innovation, which could immediately surpass the standards of advanced nations, was never intended. Untiring efforts were nevertheless continued for further technical improvement.[11]

The existing drill bit of the *kantosen* was replaced by one made of steel in the 1880s, and there emerged specialized manufacturer-distributors, including Miyao Tokusaburo (Kumezo). In 1891 Ono Takematsu of Kobe tried a friction polishing method, putting buttons together with sawdust and water in a rotating cask driven by a water-wheel. This was a predecessor of what later came to be known as the *kasha* or *gasha*.

Machines brought in by German merchants were accepted in typically Japanese ways. The machines, including power-driven drilling machines (for cutting out buttons from shells), grinding machines, and hole-boring machines, were converted in Japan within a few years into unique and yet simple substitutes.

When a sundries merchant from Tennoji, Osaka, frequenting House No. 85, saw the imported drilling machine in 1891, he understood its mechanism so easily that he could quickly work out a hand-turned version. Two years later, Okada Yoshiaki, a shell-button manufacturer in Kobe, completed a treadled drilling machine. The rotary saws found in many farm villages during the Taisho period were improved versions of his invention.

Nawata Hisataro invented in Osaka in 1892 a foot-driven grinding machine

using a lathe. An original Japanese power-driven automatic grinding machine was created by the end of the Meiji period.

Okamoto Minematsu developed a machine with which four holes could be bored into a button at the same time, dispensing with the purely manual work of holding the button with pliers in one hand and working a *maigiri* with the other. His machine contributed to the improvement of products whose holes previously had a bad reputation of being too uneven for machine sewing.

Overcoming a Technical Bottle-neck

Thanks to these developments, the output of shell buttons significantly increased. Though data for mid-Meiji years are unavailable, imports of raw material shells in 1896 totalled ¥30,818 according to the Monthly Tables of Foreign Trade Statistics published by the Ministry of Finance. Exports, for which no prior data are available either, in the same year stood at ¥174,425, far surpassing the total sum of ¥76,616 of imported buttons and the figure cited above for raw material imports. These data suggest the rapid growth of the shell-button industry. It was not until 1902 that shell-button exports constituted a separate statistical item. Their value in that year was ¥119,088, about equal to the ¥99,367 total of button imports and the ¥22,743 of imported raw shells (see figure 2).

However, the growth of production ran into a problem. Though domestically regarded as finished, unbleached buttons were nothing more than "semifinished products" by the standards of advanced nations, and "a greater part of the profit was monopolized by foreigners, as their Japanese manufacturers remained ignorant of the bleaching technique."[12] A particularly large part of the Japanese output was bought by Germans, who not only sent their purchases to Germany for bleaching and dyeing but also bleached and further processed them in Japan in German-managed factories – including one run by Winkler – for "export" as German products. While German craftsmen employed to work in those factories in Japan "drifted" from one factory to another in Osaka Prefecture to engage in polishing work, which required skill, "unskilled workers" were employed for the bleaching and finishing processes to "keep the technology secret." Not unexpectedly, these workers allegedly were paid "high wages."[13]

Even this bottle-neck was overcome, however, as Nishihara Matazaemon, a manufacturer in Osaka, developed a bleaching process shortly after the turn of the century. Reading an Official Gazette report on an invention concerning bleaching by an engineer of the Ministry of Agriculture and Commerce, Nishihara applied the new technique to shell buttons. At about the same time, a German craftsman who had settled in Osaka Prefecture made known his polishing process using hydrochloric acid, and by 1906 "some manufacturers even invented a dyeing method, which had been considered extremely difficult," so that manufacturers proudly declared that their products came "to be finally accepted in the world market, expressly labelled as Japanese-made shell buttons."[14]

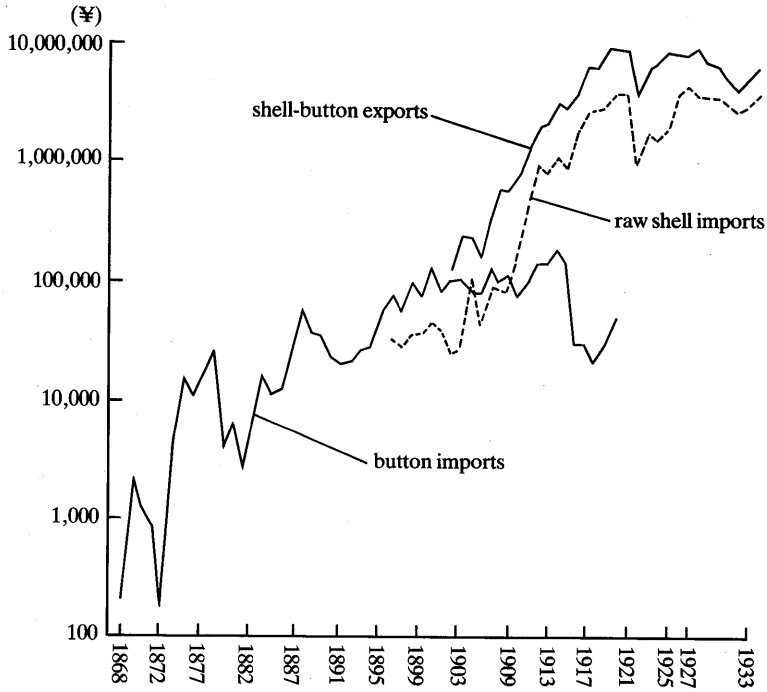

Fig. 2. Shell-button exports, 1868–1933

Sources: Ministry of Finance, Tax Bureau, *Dai Nippon gaikoku bōeki Meiji gannen yori dō nijūgonen ni itaru taishōhyō* (Tables of foreign trade of Greater Japan, 1868–1892) (Tokyo, 1893); Idem, *Dai Nippon gaikoku bōeki geppyō* (Monthly tables of foreign trade) (Tokyo, 1928–1934); and Toyo Keizai Shinposha, *Nihon bōeki seiran* (Handbook on Japan's foreign trade) (Tokyo, Toyo Keizai Shinposha, 1935).

2. Transition of the Mode of Production in the Meiji Period

Leadership of Foreign Merchants and A New System

The Japanese shell-button industry, established and centred in Osaka City by the 1880s, began as a "small-scale handicraft industry" dominated by wholesalers. Although a survey by the municipal government of Osaka cites the name of Nakamura Gisuke as the pioneer of shell-button production,[15] he solidified his business basis not as a small producer but as a merchant, as references to him in another piece of literature suggest,[16] and probably the craftsmen and their families receiving advance payments from him were mainly engaged in manufacturing.

The production of shell buttons, like that of many other consumer goods introduced to Japan in and after the late Tokugawa years, was handicapped from its very beginning. Given a poor domestic market, its growth had to

inevitably rely on exports. Moreover, its raw material needs, though sufficiently met by locally available shells such as abalone and conches at the beginning, came to be mainly satisfied by imported shells, above all button shells (known as *takasegai*), early in the twentieth century.[17] Button manufacturers had to attempt to expand production while suffering from the pressures of foreign merchants, primarily based in Kobe, both in the import of raw materials and in the export of their products.

Because of these limitations, shell-button production in the Meiji period seems to have been characterized by the domination of producers through advance payments by foreign merchants, who controlled both the import of raw materials and the export of semi-finished products, and by the domestic commercial capital linked to them. Japanese merchants who tried to import raw materials for themselves and thereby dominate the production process of shell buttons as capitalists required considerable financial resources of their own.[18]

In his settlement of export accounts with a Japanese button producer, a Chinese merchant would knock 2 per cent off the sum payable to the producer, or an Indian merchant would deduct even 5 per cent, and tentatively pay 70 to 80 per cent of the remainder. If there was a promissory note to be set off against the balance, the producer's receipt could be much smaller. Moreover, it was not unusual for the foreign merchant to pay only a part of the balance for no convincing reason but the pretext that there was a complaint about the exported product or that it differed from the sample.

Producers were especially hard hit by wild rises in raw material prices. As shells became good objects of speculation, their prices often soared steeply and, even in a phase of relative stability, fluctuated daily. As a result, button manufacturers suffered from greater swings of raw material prices than of product prices, and this circumstance made them the more vulnerable to domination by merchants.

Although it was an historical characteristic of merchants to bind producers with advance payments while, on the other hand, accumulating capital relying on the traditional distribution process, in which low productivity contributed to wild price fluctuations, it did have a complex impact on the process of production and induced its reorganization in a specific way. Their practice of *nobetorihiki*, which could be considered a version of transaction by advance payment, invited a mushrooming of petty producers.

The impact did not stop there. The mushrooming of petty manufacturers led to the disbanding of factories employing 50 to 60 craftsmen, which had constituted the mainstay of shell-button production in the late 1890s. While the number of workers per shop rapidly shrank during the late Meiji years, that of shops quickly increased (see table 1). Corresponding trends existed in Osaka City, though other kinds of buttons, such as metallic ones, were also produced (see table 2). These trends suggest the spreading reorganization of production throughout the button manufacturing industry, not only within its shell-button subsector. Referring to this tendency, Miyake Jun'ichiro pointed out, "The price of raw material shells, which accounted for more than half of the total production cost of shell buttons, exhibited wild fluctuations reflect-

Table 1. Indexes of shell-button production in Osaka Prefecture, 1902–1927

Year	Factories	Workers	Workers/factory
1902	5	315	63
1904	9	426	47
1908	48	985	20
1912	188	1,310	7
1915	257	2,273	9
1917	527	4,388	8
1919	512	3,391	6
1921	332	1,927	6
1923	345	1,534	4
1925	293	1,538	5
1927	278	1,557	5

Source: Osaka Prefectural Office, *Osaka-fu tōkeisho* (Statistical report of Osaka Prefecture) (Osaka; see reports for years 1903–1928).

Table 2. Button manufacturing factories in Osaka City, classified by work-force size, 1904–1923

	Number of workers				
Year	1–9	10–49	50–99	100–199	200 or more
1904	17	7	0	0	1
1906	22	8	0	0	1
1908	23	11	4	0	0
1910	67	9	3	1	0
1912	66	14	2	0	0
1914	81	20	1	0	0
1918	281	15	2	0	0
1921	115	5	1	0	0
1923	129	1	1	0	0

Source: Osaka Municipal Office, *Osaka-shi tōkeisho* (Statistical report of Osaka City) (Osaka; see reports for years 1905–1924).
Note: The statistics cover all types of button production, though the entries for 1921 and 1923 refer only to metal and shell-button factories because of the limited data available.

ing importers' speculations, and thereby posed a serious threat to the management of enterprises relying on craftsmanship."[19]

Reorganization of Manufacturers and Merchants

It was toward the end of the Meiji period that shell-button manufacturers and merchants began a move to organize their trade association. The first applica-

Table 3. Business backgrounds of promoters of the Japan Shell-Button Manufacturers and Merchants Association

Promoter	Year of founding business	Business lines at founding	Business lines in 1906
Nawata Hisataro	1883	Shell-button manufacture	Concurrently distribution
Masuda Tanezo	1890	Shell-button manufacture	Concurrently manufacture of accessory metal fittings and paper boxes
Ishikawa Mokichi	1901	Shell-button manufacture	Manufacture and brokerage
Ishida Genjiro	1887	Shell-button manufacture	Manufacture, distribution, and brokerage
Nakagawa Shimpei	1898	Shell-button manufacture	Same as at founding
Kanetsuki Nisaburo	1886	Shell-button manufacture	Same as at founding
Fujii Heitaro	1896	Shell-button manufacture	Same as at founding
Takada Otohachi	1890	Shell-button manufacture	Same as at founding
Nagano Tadami	1896	Shell-button manufacture	Same as at founding
Sasaki Hidetaro	1890	Shell-button manufacture	Same as at founding
Miyao Kumezo	1894	Manufacture of drill bits for use in shell-button production	Shell-button manufacture and brokerage
Syogaki Unosuke	1891	Shell-button manufacture	Same as at founding
Aoyagi Masayoshi	1889	Shell-button manufacture	Same as at founding
Nishihara Matazaemon	1897	Shell-button manufacture	Concurrently brokerage

Source: Ishii Rokujiro, ed., *Nihon Kai Botan Dōgyō Kumiai enkaku-shi* (History of the Japan Shell-Button Manufacturers and Merchants Association) (Osaka, Nihon Kai Botan Dogyo Kumiai, 1931), pp. 102–106, 115–118, 321, 442.
Note: As far as possible, the lines of business are stated following the statements in the above source.

tion for the approval of such an association was filed in October 1906, and the authorization to establish one was given on 17 January 1908.

At the end of the application were stated the brief personal histories of the applicants (see table 3). Most applicants began their careers in the 1890s in

shell-button production, though not as managers. Many of them had been craftsmen at Arita's factory. Except such managers as Aoyagi Masayoshi, who had been much more a merchant than craftsman, most of them had presumably started as either employed or master craftsmen. Though not listed in this particular document, the names of Ishida Ryunosuke, Ishida Teisaburo, and Matsuo Saburo, all former employees of Arita, are found in the list of participants in the first general meeting of the Japan Shell-Button Manufacturers and Merchants Association held in January 1907.[20]

Nawata Hisataro, the inventor of the foot-driven boring machine, is likely to have begun his career as a master craftsman, always curious about new tools and new devices, and so is Nishihara Matazaemon, who developed the bleaching technique. Onishi Uhyoe, who became the general chairman of the association in 1921, had been engaged in the cutting of raw materials and improved the drill bit.[21]

Simultaneously with this trend, a peculiar phenomenon developed during these years; namely, some producers began to have a merchant-like function, such as that of "dealer" or "broker" (see table 3). Miyao Kumezo, who began the manufacture of drill bits for cutting buttons out of shells, must have been a reasonably talented blacksmith. He became such an able broker that he later came to be known in the industry as the "father of the brokers."[22]

More conspicuous was a recurring trend represented by merchants such as Aoyagi Masayoshi, who was engaged in production as the manager of Toyo Shell-Button Works at the time of the founding of the trade association. In 1913 he became general manager of the Japan Shell-Button Auction Society, and was referred to in a 1918 survey as a representative "broker and intermediary" in Kobe.[23]

These references to certain personalities in the industry may give the impression that the listing "shell-button manufacturer" in the History of the Japan Shell-Button Manufacturers and Merchants Association was perhaps inexact or inaccurate, but let me go into more detail. To look at the personal history of Syogaki Unosuke (table 3), he started his business in Osaka in 1891 and thereafter changed his place of operations as many as six times in 14 years, at one time moving to Okinawa.[24]

Similarly, Nagano Tadami had an operation going in Ehime Prefecture for a time, and Nishihara Matazaemon operated a factory in Okayama, and Onishi Uhyoe returned to Osaka after being engaged in business activities for some time in Okinawa. What enabled them to move from one place to another so easily? A key factor to the reorganization of the industry that shell manufacturers in those days were called upon to undertake is revealed quite clearly in the following description:

> In Osaka, a "manufacturer" essentially meant a person who could supply whatever quantity of goods by placing orders with various craftsmen. He didn't have to operate a factory for himself. It was the business of processors to buy machinery and make something or other on a piecework basis. Manufacturers were sometimes called

"manufacturer-wholesalers" . . . as if they could have made the same goods more cheaply.[25]

Some of the co-promoters of the trade association had somewhat different occupational backgrounds. Yet many of them had started as immediate producers in wholesaler-dominated manufactories or family workshops of their own. Already in this period, their character was beginning to change. In what pattern were the immediate producers present, and what happened to the previous wholesale merchants?

3. Mode of Production after World War I

Production Process of Shell Buttons

During the earlier Meiji years when shell buttons were produced in the home workshops of master craftsmen, the production process was simple, and the variety of means of production was accordingly limited. However, after World War I, the process became more complex (see figure 3), and came to differ with the type of raw material. Let us take a general look here at the production process of shell buttons from *takasegai* (the button shell), which constituted the main raw material.

Kuriba (cutting)

At this stage, buttons of prescribed sizes were cut out of the raw material with a drilling machine. The drilling machine was either power- or foot-

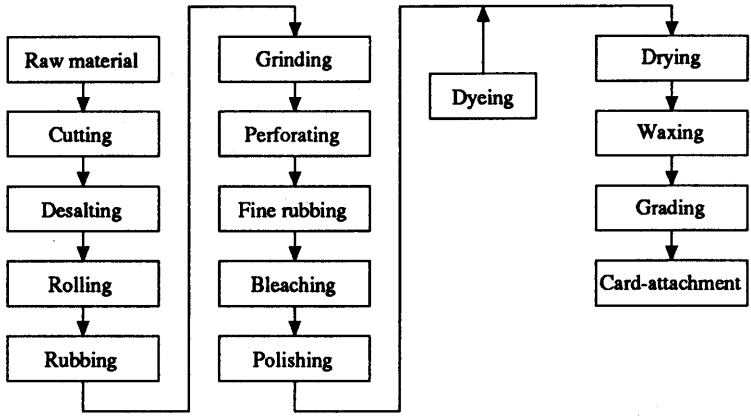

Fig. 3. Production process of flat buttons from *takasegai*

Source: Osaka Municipal Office, Department of Industry, *Osaka no botan kōgyō* (The button industry in Osaka), Osaka City Industry Series, vol. 5 (Osaka, 1930), p. 55.

driven and, as will be described in further detail below, the latter was extensively used in rural areas even after World War I. The size of the buttons to be cut out could be varied by changing the drill bit, but it was usually fixed for each shop.

White powdery shavings flew off as buttons were cut out of shells, and the craftsmen's clothes would soon look as if covered with volcanic ash. The shop was filled with white dust and a foul smell, it is reported. It seems that, in the Taisho period, an average craftsman would cut out 3,500 bigger or 6,000 smaller buttons a day.[26]

Shiotori (desalting)

Being made from natural marine products, roughly cut-out shell buttons had to be treated with hydrochloric acid to smooth their surface to some extent and remove the milky white external tissue known as *shio* (salt). In Japan, however, as the buttons were cut out exactly to their desired sizes with no margins for further processing, their side faces would not be allowed to come into contact with the chemical and therefore were protected with a mixture of tallow, paraffin, and machine oil while the exposed parts were treated with hydrochloric acid. This necessitated the extra work of not only protecting but also picking up the buttons afterwards one by one out of the paraffiin-based guard with a needle and boiling them to remove the wax. This procedure nevertheless had the advantage of preventing minor flaws, if any, on the side surface from adversely affecting the subsequent processing.[27]

Rolling

As the roughly cut-out buttons were uneven in thickness, they were sorted with a revolving roll. This procedure, like the preceding desalting, became common after World War I.

Suriba (rubbing)

At this stage, both the right and wrong faces of buttons were smoothed. Traditional whetstones had been used for this purpose during the Meiji period, but after World War I, U.S.-imported carborundum had become available for extensive use. The rubbing machine, either power- or foot-driven, had carborundum fitted to the tip of its rotating shaft. The faces of the shell button, held fast with an *oshiki* (pressing tool), were finished to flatness with this machine. As this procedure was completed in an instant, an average craftsman could rub off 16,000 to 35,000 relatively small buttons a day. Specific types of button, however, had to be smoothed by particularly skilled personnel.

Hikiba (grinding)

Buttons were now decorated with patterns on the surface by the use of a grinding machine. Sometimes 100 different patterns were reportedly used in a shop. The power- or foot-driven grinding machine revolved the button held fast against the shaft and brought the grinding edge into contact with the

button to engrave the desired pattern. Only a few kinds of edge were available to engrave a vast diversity of patterns, and the craftsman had a large number of buttons to process every day. He is said to have worked on 10,000 to 12,000 smaller buttons a day on average.

Some kinds of button, however, were manually processed with small knives. After World War I, some complex patterns came to be engraved with power-driven machines specifically intended for the purpose.

Perforating

This procedure was to make thread holes in the buttons. If the button had only one thread hole hidden behind, the hole had to be laterally made through a projection on the wrong side of the button. This was sometimes done with a specially designed "back-holing" machine, but it was not unusual for an ordinary perforating machine to be used for opening single holes as well. For ordinary buttons, a perforating machine was used equipped with one, two, or four drill bits according to the required number of holes, and the button, again held fast by an *oshiki*, was pressed against the revolving drill bit or bits. This procedure also was instantaneous, and the craftsman usually had to finish 15,000 to 20,000 smaller buttons a day if he wanted to earn an average daily wage.

Kashamigaki (fine rubbing)

This step was taken to remove flaws that had been made on the button surface during the earlier processes and to smooth it. The buttons were put into a large cask with water and sand, or sometimes only with water, and the cask was rotated by either mechanical or manual power. This stirring procedure took three to five hours. Sometimes rice bran was put in to remove the foam that emerged.

Bleaching

The bleaching procedure was called either *hyohaku* or *sarashi*. It was intended to remove the brown pigments, which natural shells usually contained, and to reinforce the effect of the following polishing step. This was indispensable for securing orders from the West, the export market for Japanese-made shell buttons. Before this process was developed, there had been no other alternative for their manufacturers than to sell their buttons as semi-finished goods to resident foreign merchants. Bleaching was mainly done with hydrogen peroxide obtained by mixing sodium peroxide and sulphuric acid. Buttons were put in this mixture, tightly sealed in a container, and kept at a temperature of 50° to 60°C. From the late Meiji to Taisho years, this process is said to have often taken a full week, though 48 hours were sufficient for small and thin buttons. The proper quantities of the chemicals and the required duration varied with the type of button and were top secrets of each factory; outsiders were forbidden even to enter the bleaching shop.[28] The mixture was usually renewed every 24 hours.

Polishing

Like the bleaching method, this also was a top secret for button producers. A mixture of hydrochloric acid and nitric acid, maintained at or around 60°C for nearly an hour, seems to have been used for this purpose. The proper mixing ratio of the acids, quantities, temperature, and duration of treatment were kept strictly secret and required much practice to learn. The bleached buttons were cleaned of the acid mixture, followed by alternate repetition of cooling with cold water and removal of the chemical.

Drying

The bleached buttons were dried with sawdust or by a dehydrating machine or by the combined use of both. Before World War I drying in the sun was not uncommon.

Waxing

Buttons were put in a cask together with waxed rice husks or coarse sawdust, and the cask was rotated for 10 minutes to stir its contents. The gloss of button shells, which somewhat resembled that of cat's-eyes, was further refined by this process.

Grading

The finished shell buttons were classified, by the degree of flaws, into Grade 1, Grade 2, Grade 3, and two intermediate grades (between 1 and 2 and between 2 and 3). As it had a direct bearing on product prices, the producer was particularly careful to sort the buttons, and it was not rare for the factory owner himself to do it alone, thinking, "I cannot afford to leave this to anybody else."[29] Only the best two grades were exported, and Grade 3 products, commonly called inferior goods, were marketed domestically.

Card-attachment

The general practice was to sew shell buttons onto a piece of cardboard covered with aluminium foil or tin foil, though varying with the instruction of the customer. Each card held two or three dozen or one gross of buttons. This process relied extensively mostly on the sideline work of women in farm families.

The foregoing outlines the production process of shell buttons from *takasegai*. In Japan, however, the raw materials of shell buttons were not limited to *takasegai*, and the processing method varied with the type of shell. There were 29 different shapes and 22 sizes of buttons to be made from 13 types of shell, in other words, more than 8,000 different combinations.

The problem was that the difficulties involved in the production of so many different kinds of buttons, each in so small a quantity, were overcome in Japan not by the use of more sophisticated, multi-purpose means of production but by relying on complex manual operations and the long working hours and cheap labour of small producers. The division of labour progressed

in the direction of separation among the small producers, known as *kako-ya*, or processors, each taking charge of one subdivision of the process or another, instead of the development of the manufacturing system into a modern factory operation.

Reorganization of the Production Process

Shell-button production after World War I was typically organized more or less by the type of shell (see figure 4). A peculiar way of division of labour was established in which a separate subsector of industry existed for each stage of the production process.[30] The division of labour in a factory spread outward and production established itself and even expanded while – as already seen in the case of the German-owned factory – causing integrated factory management to decline.

Those who played the major role in the production of shell buttons were commonly known as *seizoka* (manufacturers) or *botan-ya* (button makers). In some cases, they bought raw shells directly from a raw materials dealer and cut them into buttons in their own workshops, but usually they bought roughly cut buttons processed by small independent producers known as *kiji-ya* (raw material cutters). Whereas the process in which the cutting function had become independent will be described in the next section, *kiji-ya* could sell their products to *seizoka* either directly or through a broker. *Kiji-ya* often relied on brokers when selling to a distant customer.[31]

Beyond the cutting stage, the flow of shells was rather complex. The *seizoka* might job out further processing to a processor known as *kuro-ya*, who would usually complete the desalting, rubbing, and grinding and return the processed shells to the *seizoka*. If the *seizoka* opted not to rely on a *kuro-ya*, his shells might be successively worked on by a *shiotori-ya* (desalter), *chinsuri-ya* (job rubber), and *chimbiki-ya* (job grinder), and then returned to the *seizoka* or sent to the shop of a *senko-ya* (hole borer) before coming back. If the *seizoka* had no perforating machine of his own, he had to depend on a *senko-ya* for boring the holes.

In another instance, the shells supplied by a *kiji-ya* would reach their buyer, a *seizoka*, only after they had been processed by a *kuro-ya* and *senko-ya*. If the account had been settled between the seller and the buyer when the commodity was handed over from one to the other, they would have been independent entrepreneurs in the usual sense of the term. However, each processor in these cases, instead of earning his profit by deducting the cost of raw materials from the sales proceeds, received from the *seizoka* "wages" according to the quantity of piece-work he had done.[32] It was possible for the *seizoka* not only to do nothing in his own workshop while the raw material shells were processed until the perforation stage, but even to be kept from seeing the shells all that while. Nevertheless, the *seizoka* placed all the orders and made all other arrangements. Producers other than *seizoka* were called *kako-ya* (processors).

Perhaps characteristically for shell-button production, almost all *seizoka*

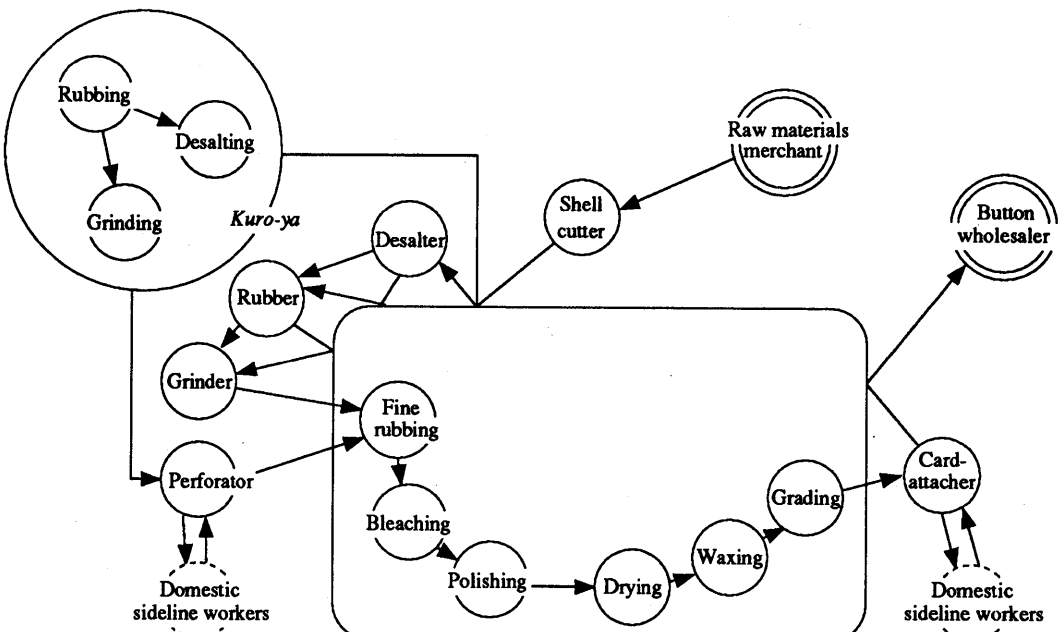

Fig. 4. Organization of shell-button production from *takasegai*

Sources: Osaka Municipal Office, *Osaka no botan kōgyō*; interviews in Kashiwara City, Osaka Prefecture.

commonly took charge of certain steps: *kashamigaki*, bleaching, polishing, waxing, and grading. It was only natural for *seizoka* to grade their products for themselves, because it was not only a function directly affecting the product prices but also a key factor in the transactions of *seizoka* with their clients, wholesalers or foreign traders. Most of the product lines of urban-based Japanese SMIs comprised mainly consumer items and were intended for export. Export deals were mostly done through foreign trading houses. Even in the early Showa years, 60 per cent of shell-button exports were shipped out through foreign trading firms, which required the goods they handled to be scrupulously checked in their inspection room. Since the *seizoka*'s own grading had an important bearing on the final pricing, their screening was extremely strict, though in a somewhat peculiar way. They frequently intended their screening to be "stricter" than that of the foreign merchants. The same held true with the production of other goods.

The four other steps, especially bleaching, had somewhat different implications from that of grading. They were the areas kept strictly secret by *seizoka*, and other *kako-ya* were prohibited even from entering the workshop. Previously, German merchants had been able to treat Japanese small producers as subcontractors for the fabrication of semi-finished goods and earn large profits because they alone had been capable of taking charge of some vital processing steps, including bleaching and finishing. Similarly, in later years, *seizoka* attempted to maintain their dominance over *kako-ya* by keeping their monopoly of these processes. It has further to be noted that most of the *seizoka* had formerly been small producers no different from the *kako-ya*. The technical secrets in these four steps seem to have consisted not only in what chemicals should be used and how much, but also in the very method of stirring in a rotating cask.[33]

This concrete technical basis on which *seizoka*'s dominance over *kako-ya* was established gave a peculiar characteristic to this dominance, not shared by other urban-based SMIs, and this characteristic had a pre-modern element. For instance, a *kako-ya* could not order from any *seizoka* other than his regular client unless specifically permitted by his own *seizoka*; the *seizoka*'s approval was also required when the *kako-ya* wantd to hire or fire an employee.[34]

This peculiarity was reflected in the relationship between *seizoka* and *kako-ya* and their employees as well. The Japan Shell-Button Manufacturers and Merchants Association, founded in the late Meiji period, still prescribed expressly in its articles of incorporation in the 1920s that no worker should transfer to another place of work in the same trade without the consent of his or her current employer. There also were many other prohibitions, and it was stipulated that a list of violators should be circulated among fellow traders.

Despite this vertical alignment of the employer and the employed, the latter were not so strictly prevented from separating themselves from the former as small producers.[35] During World War I, most of the machines and tools could be bought for around ¥50 per unit. Considering the average monthly income of about ¥30 for a skilled worker, the initial cost of starting a button-making business does not seem to have been prohibitively high.

Table 4. Membership of the Japan Shell-Button Manufacturers and Merchants Association in Osaka Prefecture, 1927–1929

Year	Category 1 (manufacturers)	Category 2 (distributors)	Total
1927	126	96	227
1928	170	109	279
1929	196	111	307

Source: Osaka Municipal Office, Department of Industry, *Osaka no botan kōgyō* (The button industry in Osaka), Osaka City Industry Series vol. 5 (1930), p. 27.

Starting their own businesses nevertheless did not necessarily mean upward social mobility for the individual workers who dared do so. The *seizoka* and also small producers constituted a social stratum that could greatly prosper and greatly decline; despite their apparent stability, their economic footing was extremely precarious. Furthermore, even their place in the shell-button industry itself was insecure. To illustrate their insecurity, the number of *seizoka* in Hyogo Prefecture decreased by 12, from 87 in 1917 to 75 by 1918, while that of shell-button dealers in the same prefecture increased significantly, from 20 to 37 over the same period. Most of the new starters allegedly were "producers turned dealers and apprentice shop clerks having become independent entrepreneurs" (see table 4).[36]

Since some *seizoka* were manufacturers while others were distributors, it is difficult to analyse the circumstances of their shifts in further detail, but it can be confirmed at least that the increment of *seizoka* and, presumably, brokers was mainly attributable to the "independence of workers" as entrepreneurs.[37] It was exceptional for *kako-ya* to be admitted into the trade association.[38] Starting from the workshops of shell-button production, some became *seizoka*, but many others became petty processors. As the mode of production centring on *seizoka* was not firmly established, there was much room for brokers to act as intermediaries, and it was not unusual for *kako-ya* to become brokers or *seizoka*. While *seizoka* were thus obliged to suffer from competition in the market with intermediaries and brokers, many of whom had been their fellow traders, they were not fully relieved of their traditional connections with wholesaler-capalists either. The shell-button industry itself was a newly emerging sector, and the control by wholesale merchants remained vague in character.

As mentioned earlier, the Japan Shell-Button Manufacturers and Merchants Association was formed in 1907, and formally established in January 1908. Its core membership consisted of those who had started as small producers and later took on the character of merchant capitalists. In 1910, however, there was a proposal for partial modification of its organization to establish "co-operative relations with distributors." The membership then was divided into one section of manufacturers and one of distributors, but

most members were *seizoka* and many belonged to both sections. More notably, 10 new members joined the association at the time of this reorganization. They were all wholesale merchants, who had nothing to do with production as such.

More than 70 per cent of the membership comprised "manufacturer-distributors." They could be registered as both manufacturer and distributor and because of their double registration, they were able, it has been argued, to establish strong influence in the association. But if such influence existed, there would have been no need to invite the 10 new members. This argument also ignores the fact that the *seizoka* listed included wholesale merchants who used their dominant position in distribution to concurrently operate their own factories (Aoyagi Masayoshi, for instance), and the special breed of *seizoka* earlier referred to in this section. When the board was reshuffled a month afterwards on 26 September, Aoyagi was elected president of the association; Nawata Hisataro, who had been vice-president since its very beginning, and Ota Sosuke, a new member of the association, became vice-presidents. Ota succeeded Aoyagi as president in 1915.[39]

In the mean time, traditional wholesaler-capitalists were obliged to curtail their sphere of activities. As they were plagued by the massive production of substandard goods, a downswing of prices, wild fluctuations of raw material prices, and intervention by speculators, they quickly lost interest in handling raw shells. This tendency had already been seen since the late Meiji years. Relying on foreign trading firms for the import of raw materials saved them the trouble of coping with price fluctuations. This trend further intensified during World War I. According to records in and after that period, product wholesalers became differentiated from raw material wholesalers. In those years, almost 70 per cent of the roughly cut shells used by *seizoka* were supplied by "shell cutters," and a little more than 20 per cent came through brokers. Moreover, supply, unlike in the past, did not involve advance payments or credit accommodation by the wholesalers but was merely a matter of transaction of goods.[40]

However, there remains some doubt about the view that these facts indicated a shift of the initiative in shell-button production to *seizoka*, who had become "virtual industrial capitalists," with wholesaler-capitalists having "transferred to the position of intermediaries," because those often referred to by the broad term of *seizoka* included both former small producers who had been successful enough to have their own safety valves or to be able to pass on their contradictions to someone else and wholesalers who concurrently were manufacturers. Inferring from other sectors, out of the two groups, it was the latter that seemed to have a more stable basis and a greater scale of business, partly because wholesalers were financially superior and had greater control of the market and also because what induced them to sever their complex relations with *seizoka* presumably was their own intention to avert the risk that resulted from wild fluctuations in the wartime market and intensified competition.

Merchant capitalists would participate fully in the production process

usually when the products were intended for the domestic market, because domestic marketing was less susceptible than foreign trade to cyclical fluctuations, and it was possible to achieve stable domestic market conditions, which constituted a requisite for factory management on an integrated production basis. In this context, it was an ironic but in a sense natural outcome that integrated production established itself earlier in Tokyo, where the output grew gradually to meet the slow and steady expansion of domestic demand, than in Osaka, where the production volume was far greater, primarily to satisfy export needs.

A button factory founded on the outskirts of Tokyo by a certain sundries merchant who was already operating a stable factory production system in late Meiji years is said to have enjoyed the patronage of "government offices, military establishments, schools, companies and factories." Its stability seems to suggest that *seizoka* or *seizo-don'ya* (manufacturer-wholesalers) who made no attempt to shift to integrated production had to remain in a correspondingly less stable state so far as they depended upon the foreign market.

4. Trend toward Rural Industry and Problems Involved

Relocation of the Production Process

The shell-button industry was established by taking on a unique organizational form of decentralized production, and production by subcontracting *kako-ya* was based above all on their labour-intensive, poorly paid work. These circumstances, however, would come into conflict with the rising costs of living and land rents in urban areas. As stated in a 1929 report by the prefectural government of Osaka,[41] the shell-button production belt where *kako-ya* operated began to shift toward the peripheries of cities.

Especially in rural areas in and around Osaka City, a broad range of sideline jobs came to be established in virtually every village, and the output of this secondary work began to surpass even that of the main occupation, agriculture.[42] This had already happened in Ikuno Village, Higashinari County, in the 1910s (see table 5). This differs from the circumstances of other farm villages,[43] and presents a particularly striking contrast with the situation in Iwate Prefecture, one of Japan's underdeveloped provinces.[44]

Shell-button production began in the rural parts of Osaka Prefecture in the 1890s. Apart from the earlier cited reference to "a certain Miyano," the following instances are on record. Syogaki Unosuke, who launched a *seizogyo* (manufacturing business) in Osaka in 1891, had set up factories in two villages in Shiki County by 1895 and in 1897 consolidated them with another in Kashiwara. The merged factory had 39 male and 2 female workers in 1901 and 37 men and 5 women in 1902.[45] As it is said to have been a fairly large factory, employing 50 to 60 workers at the beginning, its work-force seems to have declined. Fujii Heitaro, who started business in Osaka City in 1896,

Table 5. Analysis of sideline work in Ikuno Village, Higashinari County, Osaka Prefecture in early Taisho

	Lines of business	Gross income per annum (¥)
Main occupation	Agriculture	65,114
Sideline work	Manufacture of lenses for glasses	52,800
	Poultry raising	10,735
	Manufacture of paper cords for tying hair	2,500
	Mirror manufacture	800
	Textile wrapping paper manufacture	2,000
	Paper slate manufacture	100

Source: Osaka Prefectural Office, Home Affairs Department, *Nōka fukugyō seiseki-hin tenrankai hōkoku* (Report on exhibition of sideline work products of farm families) (Osaka, 1915), p. 97.

moved his factory to Mikimoto Village, Naka Kawachi County, in 1904. It was comparable in scale to Syogaki's.[46]

These factories followed a track deviating somewhat from the usual course of industrial capitalists, who would normally raise the proportion of fixed capital to win competition in the market using greater productivity and seek production on a further expanded scale, taking advantage of that victory. What the owners of the shell-button factories did was completely different. They let their employees successively become independent. Syogaki did not actually close down his factory in Yuge Village, but he gave "guidance" so that "local people could continue to run the factory of semifinished products," and he retired to Kashiwara. In 1902 he let Kobayashi Kahei, who had learned production skills at Syogaki's factory, open his own shell-button factory. In 1904 Syogaki closed down his own factory and went to Okinawa to engage in button production from locally available *tamagai* shells, using the labour of inmates at the Naha Prison; in 1905 he stopped production in Okinawa because of a shortage of raw materials and returned to Kashiwara.[47] His new factory's work-force was much smaller than before.[48]

Many more shell-button factories were opened in the Kashiwara area on a smaller scale. Factories starting in late Meiji employed "only seven or eight workers each." Some factories had five or even fewer workers.[49] This decline in scale of shell-button factories continued and created sideline work on a large scale for farm families in the surrounding area. Taisho Village, Naka Kawachi County, is one example: "after the Russo-Japanese War, along with a sharp rise of exports, the number of farmers engaged [in shell-button production] increased," and in the early Taisho years 200 people from 110 households, out of a total of 400 farm households in the village, were engaged therein, reportedly earning a "total income" of ¥10,000.[50] In

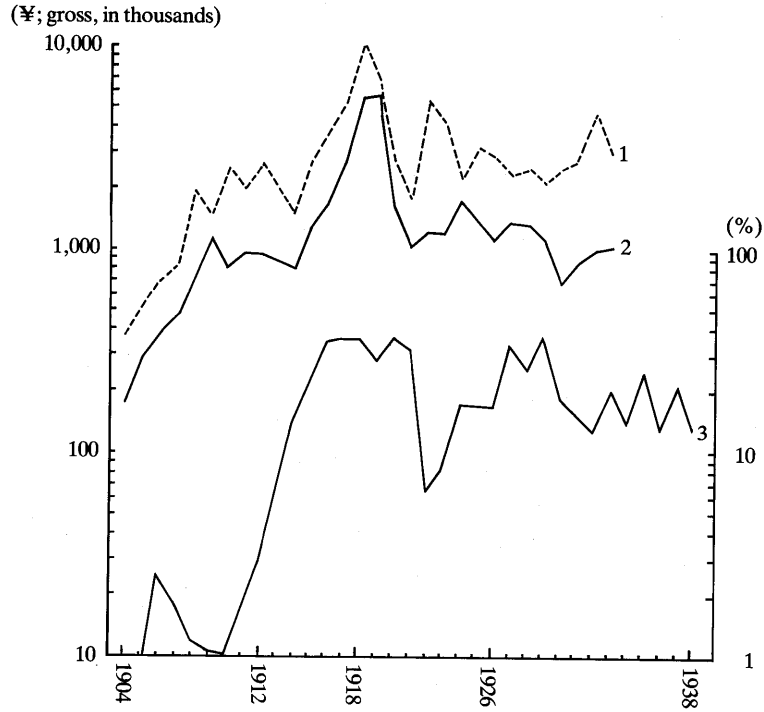

Fig. 5. Shell-button production in Osaka Prefecture, 1904–1938

Source: Yearly editions of *Osaka-fu tōkeisho* (Statistical report of Osaka Prefecture).
Notes:
1. Output (gross).
2. Value (¥).
3. Proportion of combined output of three Kawachi counties to total of Osaka City and the three counties.

Minami Kawachi County, women of farm families in almost every village were engaged in part of shell production as sideline work at home, according to a local newspaper report.

The share of the Kawachi region in the total shell-button output of Osaka Prefecture registered a steep rise. Comparing its proportion to the combined output of Osaka City and three Kawachi counties, Kawachi's share rose from 0.3 per cent in 1904 to 2.5 per cent by 1906, 2.9 per cent by 1912, 14.2 per cent in 1914, and 35 per cent during World War I. The three counties' combined volume in 1904 increased 57-fold in 1912, 177-fold in 1914, and more than 3,000-fold in 1918. This dramatic expansion was achieved without the introduction of any new elements in the production system of small factories

assisted by farmers doing sideline jobs, which depended almost wholly on manual work. The decentralization of processing functions and the vertical relations of production constituted the basis on which the founders of shell-button production in the region accumulated their capital. Their purpose was not to sustain and expand the "operation of factories" but rather to provide training to immediate producers. This is why Syogaki sometimes closed down his factories. Some of those immediate producers, including Tani Kamejiro, who became "independent" relatively early, were able to rise to the status of *seizoka*.

Limitation and Problems of Marginal Suppliers

As *seizoka* and *kako-ya* emerged, the former controlling the latter in the putting-out system, shell-button production spread and expanded in the rural areas of Osaka Prefecture centring in the Kawachi region. This development, however, did not merely repeat the "decentralization of processing functions" that had previously taken place in Osaka City, because the farm villagers and rural producers were confined to the position of marginal suppliers from the outset and never overcame that limitation.

This circumstance was vividly reflected in the trend of production volume immediately after World War I. For all of Osaka Prefecture, the devastating effect of the post-war depression was significant. In 1919, even though the value of output was greater than in the year before, the volume sharply fell off; volume in 1920 corresponded to only 25 per cent of the peak volume, and its value dropped to less than 30 per cent of the past high. The most serious consequence of this recession befell the Kawachi counties. Osaka City and the Kawachi counties were the two main shell-button production centres in the prefecture. The counties' share in the combined city-counties output fell from 35.0 per cent in 1918 to 28.0 per cent by 1919 to 6.4 per cent by 1922. Thus they were obliged to bear a predominant part of the burden. Manufacturers in Osaka City continued steady production at the sacrifice of their fellow traders in the rural areas.

There was another factor accountable for this steep decline. Most of the manufacturing activities relying on sideline work by farmers used outdated means of production. Not only were farmers' production skills inferior, but their products were much lower in quality.[51] It was only natural that the export of inferior goods, exploiting the abnormal wartime situation, would have its consequence sooner or later. It is unfair, however, to condemn in the same way the immediate producers, *seizoka*, and export traders. Immediate producers were too poorly informed to be able to see very far ahead; they tended to buy out-of-date tools,[52] were interested in these products, which looked completely new to them, and worked hard, mobilizing the labour of their family members, including children. *Seizoka* avoided as much as possible investing in fixed assets and indulged themselves in speculative deals in the distribution process; export traders capitalized on the wartime boom to its maximum.

Decentralization and Rural Industrialization

Shell-button production in the Kawachi counties began to recover in the early Showa years. The process of recovery disclosed clearly the contradictions of the decentralization of processing functions.

As regards production in this region after World War I, many small producers began specializing solely in the rough cutting of shells. A report by the Osaka prefectural government states that shell cutters, who had purchased obsolete machines in the 1910s and operated treadle machines, were moving to farm villages in Naka Kawachi and Minami Kawachi counties.[53] There were 41 such households, altogether 200 men, engaged in the cutting process according to the report.

By 1910 the direct relationship between small producers and *seizoka* or previous wholesale merchants had been severed. During the Meiji period, the two had been bound in a relationship of interdependence. The jobbing out of the cutting process to subcontractors by Onishi Uhyoe, who had succeeded in improving the drill bit of the cutting machine, is said to have heralded decentralization in the shell-button industry. In that stage, *seizoka* were in a position to supply raw materials. After World War I, however, it was commonplace for shell cutters to buy raw shells from specialized suppliers with their own funds on a cash-payment basis. Moreover, their products were mostly sold to brokers instead of going directly to *seizoka*.[54]

One may interpret this change as meaning that the small producers had emerged from their position as marginal suppliers of intermediate products and relieved themselves from the confinement of the traditional putting-out system as independent entrepreneurs in a specific stage of processing. But this was not the case. Before settling on any conclusion, we have to see how the aforementioned brokers had come into being. The following account on the Kawachi region in the Taisho period is relevant.

> In those days, some grape farmers from Taiheiji and Hirano in Katashita Village placed drilling machines in a part of their yards and began cutting shell buttons. The semi-finished shell buttons were sold by a certain Sakaguchi, who opened a market in his own house. *Seizoka* came to the market from not only nearby areas but also Osaka, Kawachi, and Izumi. The largest number of buyers came from around Tennoji in Osaka.[55]

This merchant, Sakaguchi Yoshimatsu, had been a small-factory owner. Taking advantage of the weakening of traditional merchant-capitalists' control of the supply of raw materials, which had resulted from the wild fluctuations of raw shell and cut-shell prices during the Russo-Japanese War and World War I, he rose to the status of *seizoka* and intermediary merchant. Meanwhile, there was a growing trend among manufacturers to undertake raw material purchases in pursuit of extra profit. When business was good, they were able to earn considerable profits by speculation.[56] *Seizoka* in Osaka had to go to Kawachi villages to buy cut shells, and sometimes they were

obliged to make concessions to the demands of the local people. The deals were made in cash.

During the period of post-war recession, the brokers' position settled down. Now they had to deliver products to *seizoka*, and it became a common practice to settle the accounts with "checks dated 15 days to a month ahead." The stratum of *seizoka* began to quickly disappear in the Kawachi region. In 1934 there were 104 merchants and *seizoka* who had control over the region in their capacity as wholesaler-capitalists, but all of them were residents of Kobe or Osaka; none lived in any part of Kawachi. Perhaps some of the urban residents had come from the rural region, but most were operating as cut-shell brokers or the like, holding intermediate positions in the organizational network of merchant-capitalists' control over small producers. Their last resort in their pursuit of a rise in social status was speculation, which promised them the possibility of making a fortune overnight. Not a few of them – including Sakaguchi among others – were eventually so hard hit that they were no longer allowed to stay even at the bottom of the shell-button industry. And there were many other similar instances.[57]

There was not the warm generosity of a feudal society that would allow the farmers turned *kako-ya* or brokers from the Kawachi region to exist as such as long as they stayed within the bounds of their status. What interested urban *seizoka* was the cheap labour available in the rural areas. If its availability was doubtful, they would not hestiate to shift their targets to somewhere else.

> Shell-button manufacturing originated in the Tennoji-cho area in Osaka City, but as the city developed, house rents, workers' wages and other costs rose to cause financial difficulties to the manufacturers, who therefore gradually moved out to farm villages in Osaka Prefecture, trained farmers in the neighborhood in the art of button making and began manufacturing there. . . . However, even in those villages, wages have steadily risen recently, almost reaching their level in the Tennoji-cho area, so that manufacturers have finally moved to Isoki County, Nara Prefecture, where wages are much lower, and started production there. Their businesses have grown so rapidly that the center of shell-button production now seems to have shifted to this region.[58]

By the early Showa years, 60 per cent of cut shells used by *seizoka* in Osaka were supplied from Nara Prefecture, and as much as 48 per cent were bought directly and not through brokers. The following statement is about shell cutters, whose work-force normally averaged no more than five persons per household:

> Today shell cutters in the prefecture have deviated from the nature of their business as sideline work and employ many workers, so that they can no longer compete with their fellow traders in the Yamato region and are always pressed hard to pay higher wages. They will inevitably suffer a gradual decline; therefore, they must reorganize themselves and, at the initiative of manufacturers, bring together small-scale shell cutters who rely on the labour of their own family members.[59]

Kako-ya other than shell cutters were more responsive to this bureaucratic way of thinking, but this point will be discussed later. Most small producers in rural villages were not allowed even to undergo the capitalistic disintegration of the peasantry and were eventually incorporated into the bottom stratum of urban SMIs. But there were other difficulties confronting the shell cutters.

Superficially, they seemed more independent than other *kako-ya*, but even their independence left much room for the logic of merchant capital to work. Raw shell prices fluctuated wildly, business relationships were unstable, and the quality of imported raw shells was unpredictable. Some reports pointed out that inferior materials were often mixed in. By slightly relaxing their exclusive control over immediate producers, wholesale merchants and *seizo-ka* were able to pass these risks – which could be sometimes fatal – to shell cutters and cut-shell brokers. They were also able to effectively utilize those seemingly independent shell cutters in rural villages to reduce their fund-raising needs and to buffer the impacts of business cycles.

The Relationship between Processors and Workers

Finally let us take a look at various *kako-ya*. When the shell-cutting function was quickly leaving the Kawachi region for Nara, Wakayama, and even Shikoku, it was difficult for other processors to survive without undergoing reorganization.

Their reorganization was characterized by the effort of each *kako-ya* to extensively organize around him farmers' sideline jobs, typically done at home and involving family members. Hole borers, for instance, began by directly employing female workers but soon changed their system to rely on piece-workers working at home.[60] In Kokubu Village, Minami Kawachi County, there were four hole borers, who had their own small factories, and 50 women worked under them as "domestic workers."[61] Card-attachment was initially directly subcontracted out by *seizoka* to domestic workers, but by the early Showa years card-attachment intermediaries emerged who specialized in the mobilization of domestic sideline labourers. In Kokubu Village, the number of "women and children" engaged in this manual work reached 200.[62]

In this way, more *kako-ya* left the immediate production process and became brokers, tightening their external control on individual domestic workers. Thus the pre-modern order of the production system penetrated into the class of immediate producers and was reproduced in an even more exaggerated and stringent form. In the case of hole boring, nearly one-half of the wages were taken by the intermediary, and if a single button was broken during the boring process, the subcontractor would lose his or her wages for 40 to 50 buttons in compensation for the broken one. Thus, although the wages were shared half and half between the master and the subcontractor, the latter had to bear the whole risk of compensation for any broken button. Moreover, an unwritten law was in effect that anyone once shut out of the

shell-button industry would never be employed by any other hole borer.[63] Similar tendencies were found in other processing functions as well.

In this manner, immediate producers themselves constituted a vertically aligned, small hierarchy for greater use of domestic labour, and this hierarchy served as the basis for the expansion of shell production in the rural areas of Osaka Prefecture.