

Emanuel Hauptmann

The Father of Japanese Cut Glass

Sally Haden

Abstract

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KEYWORDS Japan, kiriko, glass cutting, Bohemian glass engraver, Shinagawa glassworks, Emanuel Hauptmann

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On a spring day in 1881 a young Bohemian glass engraver stepped ashore in Japan, no doubt grateful to put his feet on land after six long weeks at sea sailing from Britain. Emanuel Hauptmann,¹ skilled in both glass engraving and cutting, was to stay in the country little more than a year, but in that short time gave instruction which laid the foundation for today's Japanese cut-glass industry. He was one of a small team of British glassmakers who had been invited by the Meiji government of Japan to help with its modernisation programme, advising, assisting and teaching in Tokyo at a glassworks specially created to bring modern western-style glassmaking to the nation. Today, nearly one hundred and forty years later, Emanuel Hauptmann is thought of by some as the 'father' of cut glass in Japan. This is his story, and the story of the origins of Japanese cut glass.

It is possible that Emanuel's first view of the factory where he had come to work was from the train as he travelled up from Yokohama, disembarking at Shinagawa just before Tokyo. Although the buildings would not have surprised him because he had grown up surrounded by glassmaking, the factory would have been an impressive sight from the carriage. It was situated proudly beside Japan's first railway line, only recently opened, and it had grown rapidly since being founded in 1873 with just one furnace.

Begun as a private Japanese window glass factory, then nationalised in 1876, the Shinagawa glassworks had been home to three British glassmakers already. Like Emanuel, each had been invited on a time-limited contract to give instruction to Japanese glassmakers and, after 1876, to advise on the expansion of the facility for all types of modern, western-style glassmaking. By 1881 the factory was training Japanese workers in the manufacture of glass for domestic, scientific, industrial and transportation uses, and attempting to make the country's first window glass. Its purpose was nothing short of bringing the Japanese glass industry to birth.

A revolution in glass

The country's desire to modernise had been triggered by the forced opening of its doors in the 1850s after over two hundred years of self-imposed isolation from the outside world. The cultural, technological and economic revolutions that had taken place in the West during that period had almost completely passed Japan by, although some knowledge of the advances had trickled in through strictly limited trade with outsiders, particularly the Dutch, using the tiny port of Dejima at Nagasaki. Luxury European goods were imported during the Edo period (1603-1868), including various types of fine glassware which became known as *giyaman*. This Japanese term was derived from the Dutch word for diamond, *diamant*, probably because of the prominence of Dutch glass

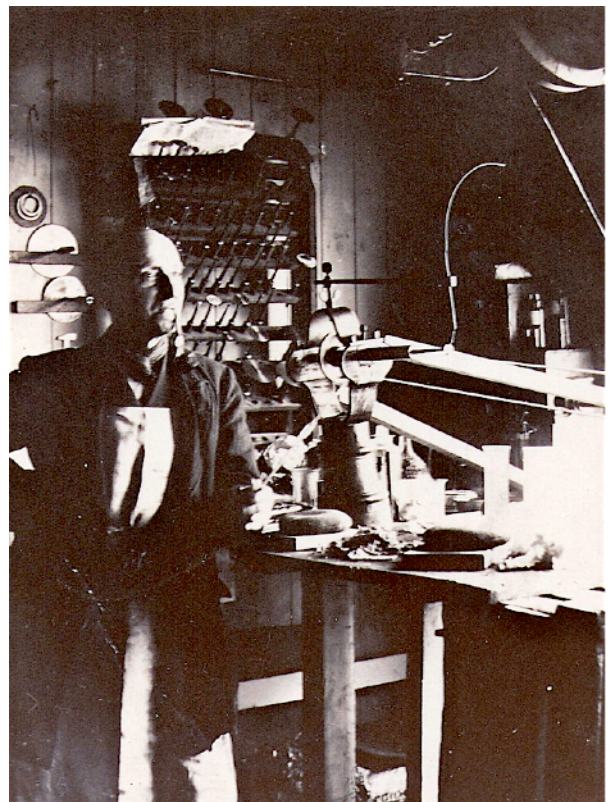


Fig.1 : Emanuel Hauptmann (1848-1924) in his glass engraving workshop in England, circa 1904. Courtesy of the Hauptmann family.



Fig.2 : The Shinagawa glassworks beside Japan's first railway line, c.1881. Photograph album 'Collection of Japanese Views'. Courtesy of Ms Beniko Ozawa.

engraving in the seventeenth and eighteenth centuries. Items of Dutch engraved glass entering Japan in the early Edo period would have been made using diamond-tipped tools that were hand-held.²

Later imports included cut glass, produced by holding the glass to large revolving wheels, and glass that was engraved by means of small revolving copper wheels. *Giyaman* of all types was much sought after by wealthy people, treasured in specially crafted boxes and passed down through generations.

In Japan glass had traditionally been thought of as too delicate and precious a material to be used for general purposes, so its manufacture had been limited to small workshops scattered across the country. Although imitation of western glass began early in the Edo period, there was little interest in glass amongst the general population; it was neither affordable, practical nor available in any quantity. But it was a different matter when western countries began to enter Japan, displaying their power and industrial advances. Steam engines, the telegraph, banking systems and other marvels quickly convinced the Japanese to set about modernisation and transform many of their old crafts into western-style industries. Japanese glass underwent a revolution.

Turning to the West

Turning to the West for expertise, and Britain in particular, Japan sought glassmakers to help establish the country's first truly western-style, industrial glass factory. The Shinagawa site was selected, building began, and in 1874 the first of the four British craftsmen arrived. Thomas Walton (1833-1897) was a manager and instructor at Shinagawa for four years from 1874 to 1878, Elijah Skidmore (1836-1886) was there from 1877 to 1881 as a crucible maker, and James Speed (1834-1908) took up the post of head craftsman and manager in 1879.³ For almost four years Speed supported the development of various types of glass as the factory diversified. Last on the scene was Emanuel Hauptmann, engaged to teach Japanese craftsmen what he knew best, western-style glass engraving and cutting.

By 1881 when Emanuel set his trainees to work at Shinagawa, the production of Japanese-made cut and engraved glass in the western fashion had already begun. For most Japanese people, genuine imported *giyaman* was too expensive and so glassmakers had been busy making



Fig. 3 : Edo-kiriko goblet with stem. Transparent, colourless lead glass. Unknown maker, c.1860-1910. 174 mm height. Courtesy of Horiguchi Kiriko Inc.

copies. However, they seem to have worked entirely by hand, using metal bars in a linear movement to grind the facets. Western glass historians find this very surprising because of the ubiquitous use of rotating equipment for glass cutting in the West since at least the eighteenth century, but Japanese research rejects the possibility of rotating wheels for cutting before the Shinagawa glassworks.⁴ Distinctive styles had evolved in different regions, a leading one being Edo-kiriko, said to have been started in 1834 by Kyubei Kagaya in Tokyo, when the city was still known as Edo. *Kiriko* means ‘facet’; kiriko glass in Japan is cut glass.

But Emanuel’s workshop was the first place in Japan to offer instruction in cutting and wheel-engraving direct from the West, with equipment and materials that had been imported from there. Moreover, the general ethos at this pioneering glassworks was industrial, with all the requirements of industry: a division of labour, mass production and a range of products aimed at the general population. This was a factory, not a collection of individual craft workshops. It was in this way that Emanuel’s instruction at Shinagawa was so important, creating the basis for today’s tableware industry and the specialised craft of kiriko.

Becoming a Bohemian glass decorator

Emanuel Hauptmann was born in 1848 in Strobnitz,⁵ a village on the forested southern border of Bohemia. His father was the youngest of three brothers all born in Wolfersdorf,⁶ a village typical of the northern Bohemian forests centred on Steinschönau and Haida.⁷ Both areas were very important for glassmaking and it was common for families to supplement their farming income by decorating glass at home for the towns’ glass factories. It has been estimated that in the late nineteenth century in the northern area, there were over two thousand establishments for glass decoration, and eight thousand people worked from home.⁸ Although it is not known where Emanuel and his uncles, Ignaz Hauptmann (1816-1887) and Franz Hauptmann (1818-1893), undertook their apprenticeships, they are likely to have entered the Bohemian glass industry in or near their birth places.



Fig.4 : Bohemian glass beaker, 1848. Clear glass overlaid with red. Cut base and copper-wheel engraved depiction of the Three Fates. Courtesy of Wikimedia Commons.

Bohemian glass from these areas, and nearby European districts, had been popular across Europe since traders began to carry it far and wide in the mid-seventeenth century. Its jewel-like qualities, brilliant colours and highly artistic cutting, engraving, gilding and enamelling made it very attractive. Large schools for the decoration of glass sprang up and it was routine at the end of training for a craftsman to travel abroad as a journeyman before he could take his place as a master at home.⁹ Traders, who operated within long-established European or international networks for the export of Bohemian glass, were often skilled glass decorators and might spend long periods in foreign countries where they would embellish glass on the spot according to local requirements and fashion. Sometimes they remained abroad, setting up in business as both traders and craftsmen, and teaching local people.

The Bohemians in Edinburgh

It was very much in this tradition that in about 1840 Emanuel’s uncle Ignaz Hauptmann left home for Edinburgh, Scotland, where he settled and formed a business, supported subsequently by Franz and other family members. Bohemian glass was about to become a craze in Britain and the Hauptmanns formed a bridge for

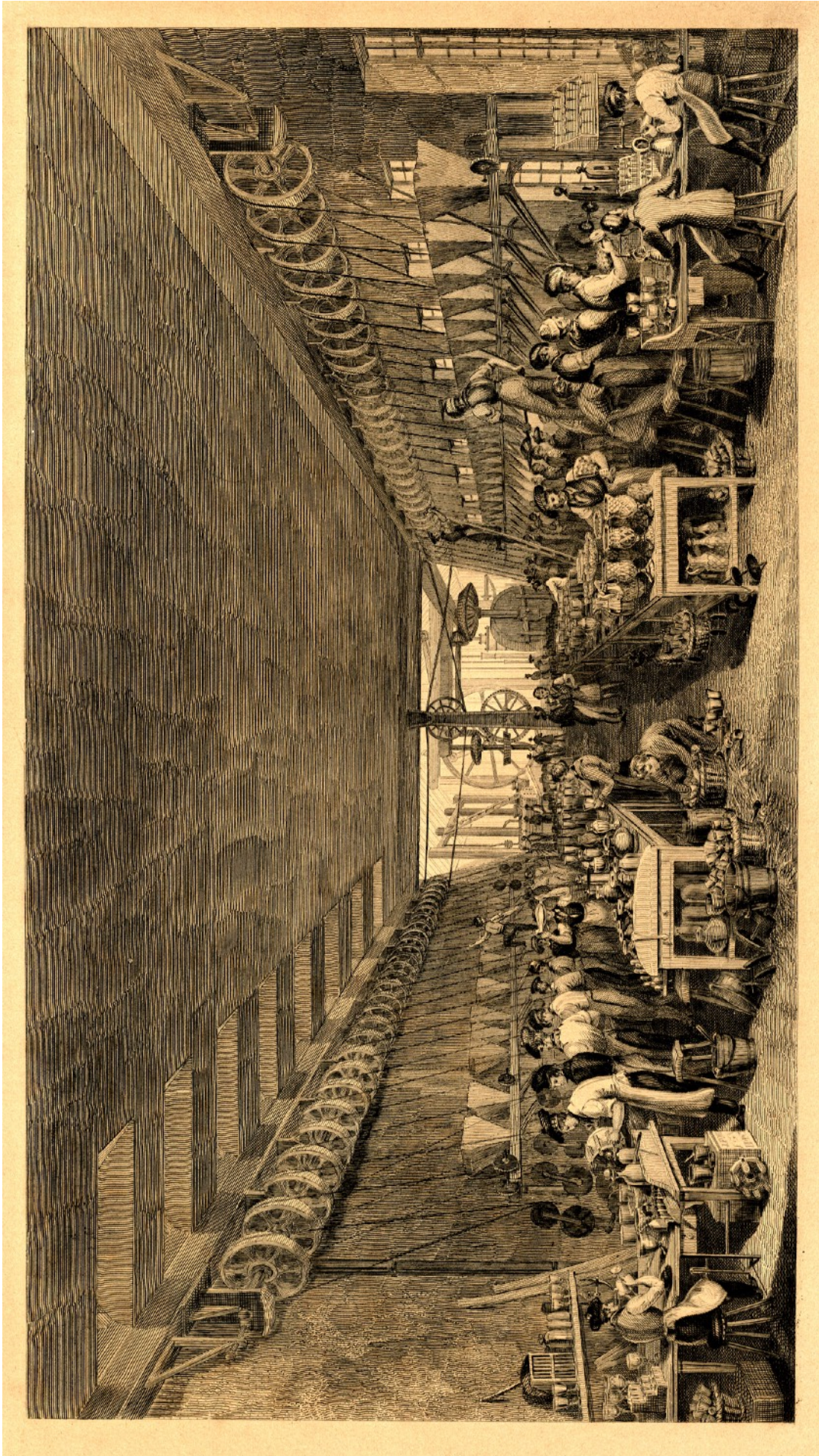


Fig. 5 : Glass decorating workshop at Holyrood glassworks, Edinburgh, depicted in 1834, but probably built by 1820. A single steam engine at the far end powered two rotating shafts, one on each side of the workshop. Each shaft turned twenty cutting lathes. Reproduced with the kind permission of The City of Edinburgh Museums and Galleries, The Museum of Edinburgh, and a private lender to the Museum of Edinburgh.

dozens of young Bohemian wheel-engravers to enter the country through the port of Leith, near Edinburgh. They could earn a great deal more in western Europe than back home.¹⁰ Several stayed in Edinburgh while others moved further afield, to wherever fine glassmaking was already well established, for example Glasgow, Newcastle-Upon-Tyne, Stourbridge, Dublin or America. London, as a centre for the making and trading of high-quality craft goods, was its own magnet for Bohemian glass craftsmen who often arrived there directly from their home country. During the eighteenth century and up to mid-nineteenth century, Bohemian glass traders and decorators could be found in the major cities of every continent.¹¹

The decoration of glass is a cold-working process, carried out on items after they have been formed and annealed at a factory. This made it possible for cutters and engravers to operate away from the site of manufacture if they chose to do so, either in their own homes or in dedicated businesses. They could buy blanks,¹² decorate and sell them onwards themselves, or act as sub-contractors for factories. Until the Industrial Revolution, their equipment was inexpensive because it was simple and required little power – a lathe mechanism powered by hand, foot or water was enough. But once steam power was applied to cutting everything changed.

Western-style cutting and engraving

The great potential of steam-power for glass decoration was understood early in the nineteenth century at a leading Scottish glassworks. Even at the outset of steam technology at the end of the eighteenth century, a single engine could power several glass-cutting lathes simultaneously. Such a system was expensive to install, but in 1818 a forward-thinking glass manufacturer named William Ford leased a steam engine of about five horse power ‘for driving machinery for cutting crystal’ in his Edinburgh factory near Holyrood Palace. At that date his glassworks had a ‘complete and exclusive cutting and engraving house and apparatus’.¹³ His workshop may have been the one depicted in an engraving of 1834 (Fig.5), which his nephew John Ford upgraded in about 1836. It was large and advanced for its time, allowing up to forty glass cutters to work together.

By using this system, like other glassworks across Britain and Ireland, the Holyrood glassworks was able to turn out extensive quantities of fine, sparkling table and decorative ware. Regency glass, as it became known, was very popular and sold well at home and abroad. It was from such British and Irish workshops that some Japanese *giyaman* came.

But where were the engravers at Holyrood glassworks? Glass in the Bohemian style was a very important product then, and yet the workshop had a proportion of only one wheel-engraver to ten cutters (Fig.6). In fact, by the middle of the century, large glassworks like Holyrood sent most engraving work out to Bohemians in their own premises, some of which were small domestic settings, while others were full-scale businesses. In 1848 Hauptmann & Co. was established by Ignaz Hauptmann, becoming a substantial business which lasted almost forty years, engraving for Holyrood and other glass manufacturers.



Fig.6 : Detail of glass decorating workshop at Holyrood glassworks, Edinburgh, depicted in 1834, but probably built by 1820. In this workshop the proportion of engravers to cutters was just one to ten. The engraver is using his foot to power the treadle mechanism. Reproduced with the kind permission of The City of Edinburgh Museums and Galleries, The Museum of Edinburgh, and a private lender to the Museum of Edinburgh.

The Hauptmanns were, however, far more than just engravers for factories. Following in the ways of Bohemian glassmakers back home, they also acquired blanks to decorate and sell on, and were fully equipped to cut, engrave or paint in whatever style retail shops or individual customers desired. In 1853-54 Ignaz Hauptmann was listed as ‘glass engraver and glass cutter’ in an Edinburgh directory,¹⁴ and in 1881, as well as an engraving room and a painting workshop, Hauptman & Co. had a cutting room with thirteen units powered by a large steam engine.¹⁵

Amongst the many Bohemian engravers in the West, a few were very artistic and able to depict magnificent scenery, nature, portraits or classical subjects using their fine copper wheel. They are justifiably renowned for their work. Their fame has, however, left the impression that all Bohemian glass decorators only engraved. In fact, in Britain at least, many of them seem to have adapted to circumstances in order to stay in employment or business, doing not only engraving but whatever form of glass decoration was required. Ignaz Hauptmann appears to have been skilled in both wheel-engraving and cutting.

This was Emanuel Hauptmann’s background. When he took a ship to Scotland as a young man some time in the 1860s to join his uncles, Bohemian glassmaking methods and culture were second nature to him. He had grown up in a country known worldwide for its centuries of fine glass manufacturing and trading, its craftsmen settling abroad and giving instruction locally in whatever skills were required. His first movements in Scotland are obscure but almost certainly he started out working for his uncles, where he would have seen cutting, if he did not do it himself. Then in about 1870, he took a job as a wheel-engraver in Glasgow where he married an English woman and moved south with his young family to settle and work in Newcastle-Upon-Tyne and nearby Gateshead in England.¹⁶ By the time he went to Japan in 1881, Emanuel Hauptmann was familiar with both Bohemian and British glassmaking, well-travelled and knowledgeable about various kinds of glass decoration.

At Shinagawa

Although the central purpose of the Shinagawa glassworks remained the same from its foundation in 1873 to its closure under British technological influence ten years later—the introduction of all types of modern western-style glassmaking into Japan—the emphasis shifted between different products. After starting with Walton, who set up furnaces and taught window glass making, and with Skidmore, who showed how to make crucibles for glass melting, Shinagawa glassworks was nationalised in 1876. At that point, the goal became to make, and instruct in the making of common tableware, bottles, items for domestic, street and transportation lighting, and glass for the pharmaceutical and chemical industries.¹⁷ In addition, the factory was to continue trying to make window glass, a very difficult technology to introduce outside the West. When James Speed started his term in 1879, various metallic oxides and equipment for mould-blowing and pressing were imported from England, and finally attention was turned to glass decoration.

Japanese records show that at some point between 1880 and early 1881, glass decorating materials were ordered from England.¹⁸ Although it is not known exactly when these items arrived, kiriko was already established in Japan by this date, as described above, and glass cutters had been working at the Shinagawa factory before Emanuel Hauptmann started.¹⁹ Also, items of cut glass were included in a display of the factory’s produce at Japan’s Second Industrial Exposition, which opened just before Emanuel’s arrival. Therefore it is possible that eager kiriko makers pressured the management to provide training and that James Speed supervised a workshop ahead of Emanuel’s arrival in May 1881.

What might glass decorating in that workshop have looked like between about 1880 and 1883? We can only speculate, but before delivery of the specialised wheels from England, any cutting that was done may have been performed in the Japanese way: laborious carving with hand-held iron bars. But once the equipment arrived, cutting was done by *Te-mawashi*, meaning by the hand-rotation method.²⁰ This is likely to have been



Fig.7 : Glass cutting workshop at Horiguchi Glass Inc., Tokyo, mid-twentieth century, with several lathes driven by one electric motor. The equipment and layout here is very similar to the original British cutting workshop design of the nineteenth century. Courtesy of Horiguchi Kiriko Inc.

where someone, perhaps a trainee, powered the lathe by turning a large wheel by hand. The large wheel was connected by a belt to a horizontal shaft set in a frame, where the cutting or polishing wheel was mounted onto the shaft. The glass was incised, ground or polished by being held to the appropriate wheel as it revolved. Wheel-engraving was probably powered by foot-treadle mechanisms on the two imported engraving lathes.

Steam-powered technology was very new in Japan at the time and probably too expensive for the Shinagawa glassworks before 1883,²¹ but veterans adopted it as soon as it became affordable. By the end of the century copies of the British steam-powered cutting workshop began to appear in Japan. If in 1894 any English, Scottish or Irish glass cutter had entered the cutting workshop of Takijiro Iwaki, one of Emanuel's trainees, they would have felt quite at home amongst the steam-driven machinery.²² The layout—a series of deep wooden troughs and large belt-driven lathes turned by a single rotating shaft—was the standard design for cutting workshops in both Britain and Japan until the middle of the twentieth century, even after the source of power for the central rotating shaft changed from steam to electricity. More than a hundred years separate the cutting premises at Holyrood in Scotland using steam-power (Fig.5) and Horiguchi Glass in Tokyo using electricity (Fig.7) but the similarity of layout and cutting equipment demonstrates the importance of British technological influence on Japanese glass decoration, through the Shinagawa glassworks.

But it was the introduction at Shinagawa of big cutting wheels on a rotating lathe, together with wheel-engraving, that was the crucial first step for Japan towards western-style glass decoration. These tools enabled cutting and engraving trainees to experience much faster, deeper, more efficient and more elaborate ways of working, under Emanuel Hauptmann's instruction. It is not known precisely how many trained at Shinagawa before the factory closed in 1883, but Yamaguchi (1993) has identified about twenty men who went on from there to become Edo-kiriko makers, almost all of them working at least once at Iwaki Glass, a substantial company founded in 1883 by Shinagawa veteran Takijiro Iwaki.



Fig.8 : Vase of transparent lead glass with purple overlay. Ichio Horiguchi, 1937. 303mm height. Yarai pattern (bamboo palisade). Courtesy of Horiguchi Kiriko Inc.

Edo-kiriko today

Japanese artisans are very proud of their training lineage and some of today's kiriko makers can trace their instruction from Emanuel Hauptmann in a direct line of descent, from master to apprentice. For example, Tokumatsu Ōhashi (1873-1951) learned from Emanuel²³ and when he became a master cutter, he trained Kikuichiro Kobayashi. Kobayashi was the founder of two lines: one through his son Hideo and the other through another family member, Ichio Horiguchi. Both the Kobayashi and Horiguchi families formed companies in Tokyo which continue today: *Kobayashi Glass Kogeisyo* was founded in 1917, *Horiguchi Glass* in 1921 and *Horiguchi Kiriko Inc.* in 2008. The latter was set up by Toru Horiguchi. In the Horiguchi lineage, Ichio Horiguchi was Shūseki the First, Tomio Suda was Shūseki the Second, and Toru Horiguchi is known as Shūseki the Third.

Edo-kiriko is very much alive in modern times. It was classified as a traditional craft of Tokyo in 1985, then as a national traditional craft in 2002, and has been defined as glass made manually, using mostly rotating tools and produced in a specific area of the suburbs of

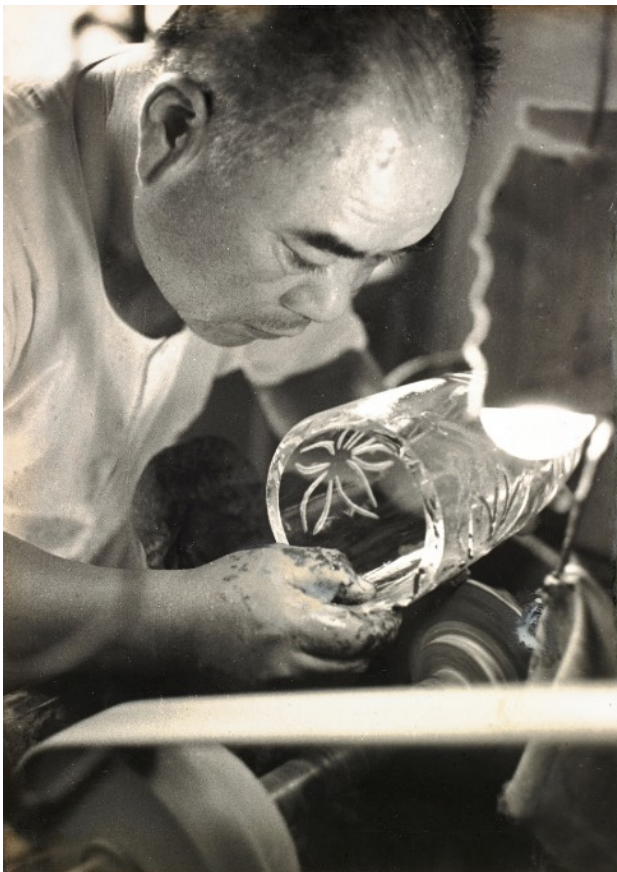


Fig.9 : Ichio Horiguchi (1912-1983), apprentice of Kikuichiro Kobayashi and founder of Horiguchi Glass. Photographed 1960s-70s. Courtesy of Horiguchi Kiriko Inc.



Fig.10 : Transparent, colourless lead glass bowl. Kikuichiro Kobayashi. 1963. 220mm width x 120mm height. Uroko Mon (Fish scales pattern). Courtesy of Horiguchi Kiriko Inc.



Fig.11 : *Tokusen-sakazuki* thirty glass set. Horiguchi Kiriko. 2013. Courtesy of Horiguchi Kiriko Inc.

Tokyo. The Edo-kiriko Cooperative Association website currently lists 52 union members and says there are about a hundred craftsmen in Tokyo,²⁴ but kiriko is also made in Kagoshima and elsewhere in Japan.

Conclusion

In October 1882, Emanuel Hauptmann returned home to his family in Gateshead, England, where he worked as a glass engraver until he died in 1924. The Shinagawa glassworks was closed and put up for sale by the government in 1883, largely because the manufacture of window glass—the only product that would have made it viable—had not succeeded. It was a challenging technology to transfer; the first successful Japanese window glass was not achieved until about 1910, in Osaka. The factory was reopened later as a privately-owned glassworks, with German technology, but by then all four of the British men were back in England. Walton had left in 1878, and Speed and Skidmore went from Shinagawa to work elsewhere in Japan for a while before also returning to Britain.

Japanese records describe the four men as ‘experts’ in the field of glassmaking, but from the British point of view they were ordinary craftsmen. When they arrived back home, they had to take whatever glass work was available and accept that their time in the limelight was over. Although within the Japanese glass industry today they are still remembered and acknowledged, hardly any British ‘experts’ who assisted Japan in its great modernisation programme were ever acknowledged at home in Britain, and very few were publicly honoured in Japan. However, the four had earned far more than would have been possible in Britain and undoubtedly had a fascinating time. No personal accounts of their experience have survived, but perhaps Emanuel Hauptmann, at least, was very proud of his work in Japan. As a Bohemian glass engraver, it was a chance for him to follow in his country’s and his family’s footsteps, transmitting the skills of glass decoration to foreign places.



Fig.12 : Toru Horiguchi (1976 -). Master of Traditional Crafts (Edo Kiriko) and Board Member of Edo Kiriko Cooperative. Toru inherited his master Tomio Suda's title and succeeded to the position of 'Shuseki (III)'. Courtesy of Horiguchi Kiriko Inc.



Fig.13 : *Sanagi*. Vase by Toru Horiguchi, 2011. Soda-lime glass, 120mm width x 162mm height. Courtesy of Horiguchi Kiriko Inc.

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My thanks go also to Akiko Inoue Osumi, who uncovered the historical significance of the Shinagawa glassworks for Japanese glassmaking and for Edo-Kiriko. I am indebted to her for my first and, to date, only photograph of James Speed, my ancestor, who was one of Emanuel Hauptmann's fellow craftsmen at Shinagawa.

It has been a pleasure to work with Toru Horiguchi, Edo-Kiriko artisan. He has continually inspired and helped me since my first visit to Japan in 2016, as has Ritsuo Yoshioka, owner of the Japan Uranium Glass Collectors Club. Ritsuo's interest in the subject and his willingness to answer my questions have been invaluable.

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About the author

Sally Haden is a history writer and private researcher specialising in Victorian and Japanese glassmaking, and the great-granddaughter of James Speed in this article. Her involvement in glassmaking history began in 2005 when she and her brother Donald Haden began to look into the family's industrial past. Together they produced a book (Haden, Donald. *A Bumpy Ride: One Hundred and Fifty Years of Haden Manufacturing in the West Midlands*, 2015, Aspect Design, Malvern), while Sally wrote several articles for The Glass Society in the UK, and collaborated in research and writing with Japanese and other experts for publication in different countries. More of her work is available at www.WhoMadeThatGlass.com.

¹ 'Emanuel' and 'Hauptmann' can be spelled various ways. Because Emanuel Hauptmann was born in a country where the prevailing language was German at the time, the Germanic spelling of his name has been used here - one m in Emanuel and two n's in Hauptmann. This spelling is confirmed by his Bohemian birth record, and also by the name 'Hauptmann' engraved on a piece of glass held by his family.

² Sugie, 1950

³ James Speed was the author's [great-grandfather](#).

⁴ This is a matter of some controversy amongst glass historians internationally. For further information: www.pressglas-korrespondenz.de/aktuelles/pdf/pk-2016-2w-yoshioka-japan-glasindustrie-1890.pdf (22 March 2021)

⁵ Now Horní Stropnice, Czech Republic

⁶ Now Volfartice in the Česká Lípa district, Czech Republic

⁷ Now Kamenický Šenov and Nový Bor respectively, Czech Republic

⁸ Polak, 1975, p.193

⁹ Polak, 1975, p.107

¹⁰ Another wheel-engraver from Bohemia, JHB Millar, was also a conduit for the migration of Bohemian artisans. Hajdamach, 1991, p.159. Although Millar arrived in Edinburgh ten years after Ignaz Hauptmann, by the 1860s his business was comparable in size to Hauptman & Co.

¹¹ Polak, 1975, p.107

¹² 'Blanks' were items of glass made by a glassworks that were left blank for decoration to be added.

¹³ Turnbull, 2017, p.37. This Edinburgh glassworks had various names through its history. Shortly after William Ford's death in 1819, it was known as the *Mid-Lothian Glass Works*, under John Ford in partnership with William Bailey. From 1835 when John Ford took sole ownership, until its final closure in 1904, it was known generally as *Holyrood Flint Glass Works*.

¹⁴ Edinburgh and Leith Post Office Directory, 1853-54, Trade section

¹⁵ Bankruptcy papers dated 18.05.1881. National Records of Scotland CS318_25_234_1 p.1C

¹⁶ He was a Bohemian national, but became a British Subject by marrying an English woman.

¹⁷ For an outline history of the factory: <http://uranglass.gooside.com/shinagawa/sgf.htm> (22 March 2021)

¹⁸ Two engraving lathes, various stone and wooden wheels, 'bristle brush wheels', 'cork', 'polishing sand for cutting' and 'noshinku iron'. Kobusho (Ministry of Industry), 1877-1881
<www.digital.archives.go.jp/das/image/M0000000000000038551> pp.59-65 (22 March 2021)

¹⁹ For example, Chuzaemon Ōshige was already an experienced maker of kiriko (in the Satsuma style) when he started at the factory in 1878, and advanced quickly under Emanuel's instruction to become a master craftsman before the factory closed in 1883. Yamaguchi, 2009

²⁰ Yamaguchi, 2009

²¹ Yamaguchi (2009) writes that a 4.0 horsepower steam engine was used at Shinagawa glassworks in 1891. p.295

²² Yamaguchi, 2009, pp.187-189

²³ Ōhashi's birth dates are given by Yamaguchi (1993) and believed to be correct. It was common at the time for children to begin their training very young, both in Britain and in Japan.

²⁴ <<https://www.edokiriko.or.jp/kumiai.html>> (22 March 2021)