

History of Garnet Mining and Cutting in the Austro-Hungarian Monarchy

Karl Schmetzer

Petershausen, Germany; SchmetzerKarl@hotmail.com

Bohemian garnets, i.e., chromium-bearing pyropes, are found in several jewellery pieces from the Migration Period (circa 400 to 600 A.D.), and only a small number of jewels containing Bohemian garnets remain from the period of the Middle Ages thereafter (until 1500 A.D.). The exact locations from which these garnets were mined remain unknown, and it was Agricola who first mentioned specific occurrences for Bohemian garnets in his treatise from 1546. According to present knowledge, three areas in the former Bohemian kingdom, now in the Czech Republic, became important sources for rough garnets of gemstone quality, i.e., the Central Bohemian Highlands, the Podkrkonoší area, and the Kolin region (Figure 1). The most important location in the Central Bohemian Highlands supplying chromium-bearing pyropes for several centuries covered an area of approximately 70 km² (Figure 2). Production in the 19th and 20th centuries in these three different areas in Bohemia went

up and down, yet even within the last few decades, discrete localities within these areas have seen mining activity using modern equipment.

Early cutting of gem materials in the Breisgau region, especially in Freiburg and the small town of Waldkirch north of Freiburg, dates back to the late 14th or early 15th century. The city of Freiburg belonged to territory controlled by the Austrian dukes since 1368, and the kingdom of Bohemia was then ruled from 1526 onwards by the Habsburg dynasty. Thus, when Bohemia became part of the Archduchy of Austria controlled by the Habsburgs, an industry for gemstone cutting had already been established in the Breisgau area for more than 100 years. It has been suggested that this was the main reason why cutting of Bohemian garnets in large quantities started in the Breisgau region, given that the mining sites and an area experienced in cutting of gem materials were then ruled by the same dynasty.



Figure 1: Administrative regions in the Czech Republic and location of the most important historical areas which supplied garnets of gem quality: 1) the Central Bohemian Highlands, northwest of Prague, 2) the Podkrkonoší area northeast of Prague, and 3) the Kolin region southeast of Prague.



Figure 2: Map of the Bohemian garnet district in the Central Bohemian Highlands; after Kunz (1893).

Nonetheless, the start of garnet cutting in Freiburg and Waldkirch is not precisely dated. Garnet is first mentioned as a cutting material in a document from 1544 describing various rules and laws governing the gemstone cutting industry in both Freiburg and Waldkirch. The techniques applied for cutting the Bohemian garnet grains of small sizes, generally below 8 mm, on large rotating sandstone wheels (Figure 3), and for drilling the mostly small rough garnet grains were kept secret. Such secrecy, in turn, established what functioned largely as a monopoly for the Breisgau area until the mid of the 18th century, notwithstanding the fact that the mining areas in Bohemia were at a distance of more than 500 km from the Breisgau region.

The only notable exception to this monopoly was found in the Imperial City of Nuremberg, where Claudius vom Creutz devised a technique for cutting of Bohemian garnets and setting the rose cut gemstones on glass substrates, e.g., engraved glass goblets and glass beakers (Figure 4), by means of low melting-point lead glass fixation layers. Creutz and several of his successors received imperial privileges, comparable to modern patents, in 1591, 1653, and 1714. Starting around 1750, various garnet cutters from Freiburg or Waldkirch moved to Bohemia, together with their families. As a consequence, the requisite technical knowledge for garnet cutting and drilling was transferred from the

Breisgau region to Bohemia. The result was a progressive decrease in the number of gem cutters in Breisgau and, conversely, a continuous increase in the gem cutting industry in Bohemia, with more than 3000 gem cutters working there during the second half of the 19th century. Gem cutting in Freiburg ceased completely before 1800, and in the 19th century, the garnet cutting industry in the Breisgau area only survived in the city of Waldkirch, where two new companies were founded.

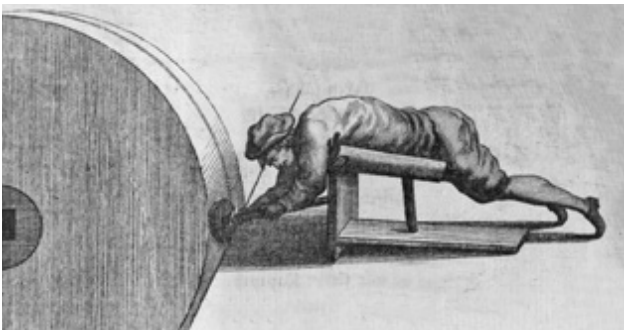


Fig. 3: Cutting of gem materials on large sandstone wheels with the gem cutter lying prone in front of the wheel; from Collini (1777).



Figure 4: Lid of a goblet from the collection of the Bavarian National Museum in Munich, embellished with red Bohemian garnets; height of the lid 8.3 cm. Courtesy of Bavarian National Museum Munich, photo by Bastian Krack.

Gemstone mining in the Ziller Valley in Northern Tyrol and cutting of these gemstones in Salzburg was initiated in 1782 by Ignaz Hirtz, who came from the Breisgau area. Hirtz cooperated with Peter Kreidl from the Ziller Valley for supply of the rough garnets, the latter of whose business was subsequently taken over by his sons Andrä and Jakob Kreidl, also born in the Ziller Valley. The cutting business for garnets in Salzburg remained small, and the supply of rough material surpassed the local cutting capacity. Hence, garnets from the Ziller Valley were exported to other cutting centers in Austria and Bohemia. The first garnets from the Ziller Valley arrived in the Bohemian cutting factories around 1800 or shortly thereafter.

During the late 1820s and early 1830s, the Kreidl brothers Andrä and Jakob established a monopoly for garnet mining in the Ziller Valley. Thus, when Joseph Hofer, also born in the Ziller Valley, became interested in garnet mining in the early 1830s, he found the main areas of interest, especially on the Roßrücken mountain, in the hands of the Kreidl family. Chemically the garnets from Roßrücken and other localities in the Ziller Valley were almandines (Figure 5). Searching for new promising locations for gem quality garnets, Hofer first moved to Southern Tyrol and later, in 1852, to the area around Radenthein in Carinthia, where he also found almandines of gem quality.

The Kreidl family mined garnets until 1904 in the Ziller Valley. The Hofer family operations, in turn, continued until forced to stop all activities during World War I, but they resumed on a very small scale after the war, before finally ceasing in the 1920s. Both the Hofer and Kreidl families sold their garnets as garnets from the Ziller Valley, disregarding their true origin, and after cutting, all faceted stones, whether pyropes from Bohemia or almandines from Tyrol and Carinthia, were characterized as “Bohemian garnets” in the trade.



Figure 5: gem quality transparent almandines from the Ziller Valley in northern Tyrol, location of the most prominent garnets mined in Austria in the 19th century. Photo courtesy of Walter Ungerank.

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