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TRADITIONAL BLACKSMITHING OF KARABAKH

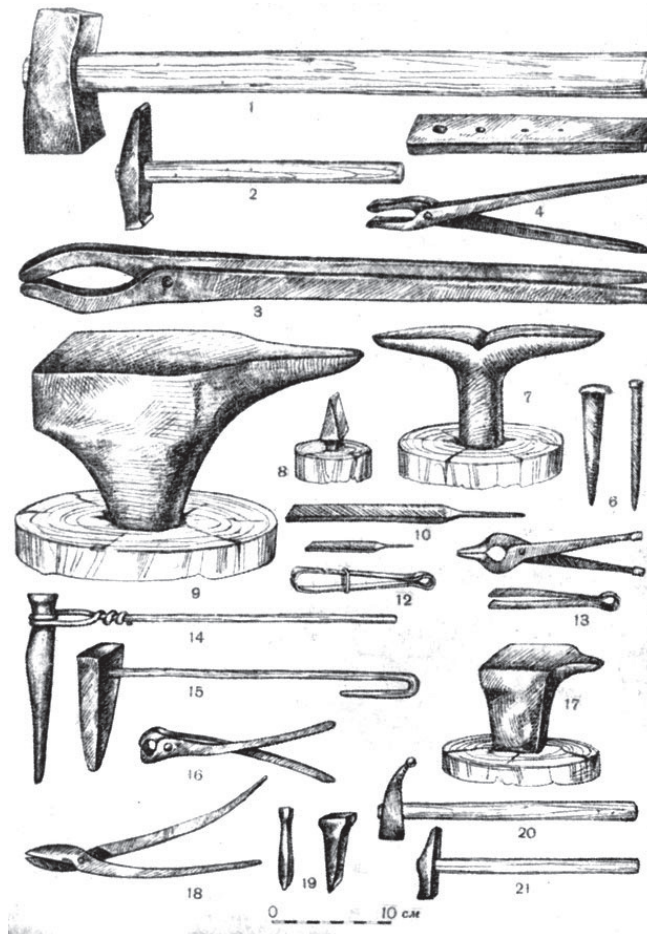
Metalworking traditions in Karabakh have been preserved and passed down from generation to generation for thousands of years. The development of iron at the end of the Bronze Age contributed to the creation of more advanced types of tools and weapons, which is clearly seen from the samples of

Demirchiler village near Khojaly. As suggested by its name, the village was established as a settlement of blacksmiths. The village was occupied by Armenia in 1992 and liberated by Azerbaijan in 2020

metal products found in archaeological sites of the early Iron Age, as well as antiquity and the Middle Ages. The



Traditional tools used in blacksmithing



With the advent of iron (steel) products, especially in ancient times, specialization in the traditional craft of metalworking increased in Karabakh. In contrast to the masters of bronze and brass products, who used low-performance casting techniques, blacksmiths used a technologically simple method of **hot and cold forging**. It was technologically easier and faster to make iron tools and weapons. Most importantly, more advanced cutting tools and weapons could be made from iron. The use of iron quickly spread to almost all spheres of metalworking – the manufacture household tools, production of weapons, horseshoes, nails, etc. However, the steady increase in demand for certain types of iron (steel) products paved the way for the specialization process. At first, arms-making became an independent branch of the craft, i.e. **the manufacture of edged weapons and armor, and the manufacture of horseshoes started a little later. Tin appeared significantly later, which led to the isolation of tin products into a separate craft.** All these crafts developed mainly in cities.

development of iron in Karabakh gave an impetus to the acceleration of socioeconomic and technical progress and, as a consequence, to development of productive forces. In a fairly short time, not only stone, but also many bronze tools and various types of weapons were pushed out of use.

Demirchiler village near Gubadli. The village was occupied by Armenia in 1993 and liberated by Azerbaijan in 2020



As can be seen from archaeological finds and ethnographic materials, all types of blacksmithing have been rapidly developing in Karabakh since ancient times. This is primarily due to the vast reserves of local raw materials contained in the metal deposits of the Lesser Caucasus. Speaking about the iron ore deposits of this territory, experts pay special attention to the traces of ancient mines near the villages of Gavart and Pirdavudan on the right bank of the Tartar river (1, p. 258-259). Speaking about the Dashkesan iron ore deposits, which are a continuation of the iron ore belt in the mountains of Karabakh, K. Khatsov reports on the continuing artisanal smelting of iron ore in the villages of Bayan, Gushchu, Seyidli and Dashkesan up

Copper tray with engraving. National Museum of History of Azerbaijan

to the 1860s (2, p. 323-324). Noting the deep roots of the use of the Dashkesan iron ore deposits, N. A. Abelov added the village of Chovdar to the list of villages in this region that were engaged in handicraft iron production until the middle of the 19th century (3, p. 4-5). As is clear from the materials of geological research, ancient Karabakh blacksmiths could receive raw materials from the deposits of magnetic iron ores in nearby Dashkesan, where iron ore was mined by the open method, and only much later the mine method began to be used (4, p. 74; 5; 7, vol. VI , p. 152). This method is described by E. Weidenbaum, who observed the labor process at the Dashkesan iron mines in the 19th century. He wrote that the mines here were so cramped that the workers had to crawl into them and lay down to split off the ore, which was then filled into sacks and pulled out with ropes (1, p. 265). The same author also described the method of artisanal smelting of ore in traditional furnaces equipped with bellows, which was observed by K. Khatsov at the end of the century. In this method, the forges represented an open hearth with a depression, into which pipes from inflatable bellows, very similar to ordinary bellows, were laid. Lumps of ore were piled into the hearth alternately with layers of charcoal, and then the furnace was heated and the ore was melted. The slag was periodically removed, and at the end the alloy (crystals) was cleaned by forging on an anvil. As a result the iron solidified and acquired the required ductility. **The result of this artisanal production, characterized by a small amount of final metal product combined with an exorbitant fuel consumption, was a very high quality iron that is not available in modern enterprises. Thanks to this, the products of local blacksmiths were distinguished by their extraordinary strength and high quality (1, p. 324).**

Most likely, the same technology was used in Karabakh for smelting iron ore in ancient times. Thus, for many centuries, iron production in Karabakh was entirely based on local raw materials. When iron was not enough, blacksmiths collected old and obsolete metal products, smelted them and put them into secondary production. Old horseshoes were considered a very convenient material for making steel. Old iron items were very cheap, and besides, they were considered more reliable than factory iron, which often turned out to be damaged.

Blacksmith workshops were fitted with simple tools and equipment. Most often, such a workshop consisted

Copper and gold-plated aftafa on a tray. National Museum of History of Azerbaijan



of three walls and a large door. By acquiring bellows and an anvil, the master could independently make all the tools he needed.

In the second half of the 19th century, the rapidly growing industrial center of Baku began to play an important role in supplying the blacksmith shops with raw materials. The increase in the import of metal following the development of the oil industry caused an increase in the number of repair shops in the city, which became a source of a large amount of iron raw materials and secondary scrap metal for blacksmiths in the regions, including Karabakh. As can be seen from archival materials, Shusha was the center of blacksmithing in Karabakh in the 19th century. In 1848 there were 26 blacksmiths workshops, and in 1860 the number reached 112 (6, p. 158). In the second half of the 19th century, Karabakh's Javanshir, Jabrayil and Shusha districts were the main centers for the manufacture of iron products in the entire South Caucasus (2, p. 235).

Literary sources of the late 19th century contain a description of one of the blacksmith workshops that belonged to the Aghdam community, provide information about equipment (forge, bellows, anvil pads of various sizes and shapes, vice, grindstone, etc.), tools (hammer, sledgehammer, pincers , tongs, grapple, scissors, canto

Copper water bowl with engraving. National Museum of History of Azerbaijan



smith workshops specialized mainly in repair work. The workshops located in remote villages were engaged in both the manufacture of new products and the repair of old ones. New iron products, including scythes, sickles and toothed sickles "chin", shears "girkhilig", were made mainly in the season of harvesting and shearing of sheep.

As before, in the 19th century, the production of iron products in Karabakh mainly served the needs of the local population. Rural blacksmith workshops specialized in the manufacture of agricultural implements (plowshares for plows, plow knives, chains, spade, scythes, sickles, shovels, pitchforks, rakes, hoes, pallets, cleavers, chisels, knives for cutting vines, etc., and also scissors for haircuts, combers, harnesses, bells) mainly on the orders of fellow villagers.

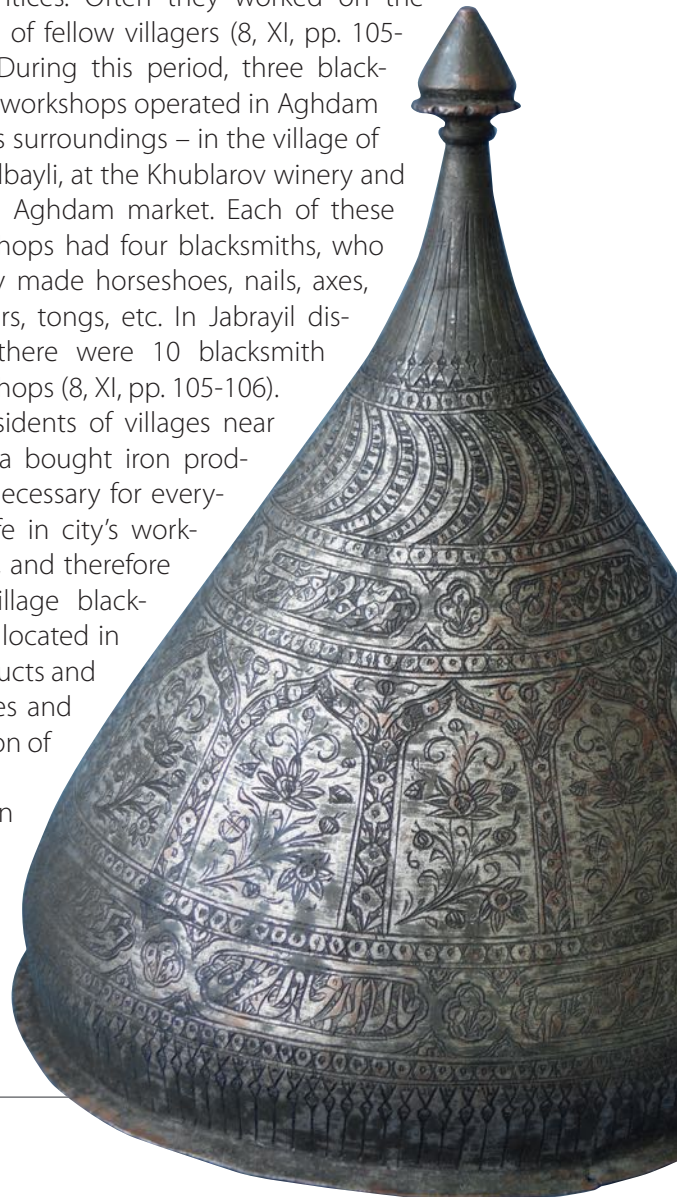
Engraved copper lid. National Museum of History of Azerbaijan

opener, ramrod, etc.), raw materials and secondary iron scrap, finished products (8, p. 4-85).

As it is clear from field ethnographic materials, the production process (cold and hot forging, welding, smoothing, notching, dipping in water for hardening, turning, etc.) in blacksmith workshops did not undergo particular changes. Changes occurred mainly in the supply of raw materials: **whereas earlier they used local iron, then after the Russian annexation factory iron came into use. It was bought from Baku industrialists at negotiated prices, while after the Baku-Tiflis railway was built, it was purchased from repair shops at the stations.**

Literary sources of the late 19th century report about the high level of development of blacksmithing in the Javanshir district, the presence of 10 blacksmiths there, each of which had two to three apprentices. Often they worked on the orders of fellow villagers (8, XI, pp. 105-106). During this period, three blacksmith workshops operated in Aghdam and its surroundings – in the village of Muradbayli, at the Khublarov winery and at the Aghdam market. Each of these workshops had four blacksmiths, who mainly made horseshoes, nails, axes, cleavers, tongs, etc. In Jabrayil district, there were 10 blacksmith workshops (8, XI, pp. 105-106).

Residents of villages near Shusha bought iron products necessary for everyday life in city's workshops, and therefore the village black-



Steel axes with gold plating. National Museum of History of Azerbaijan

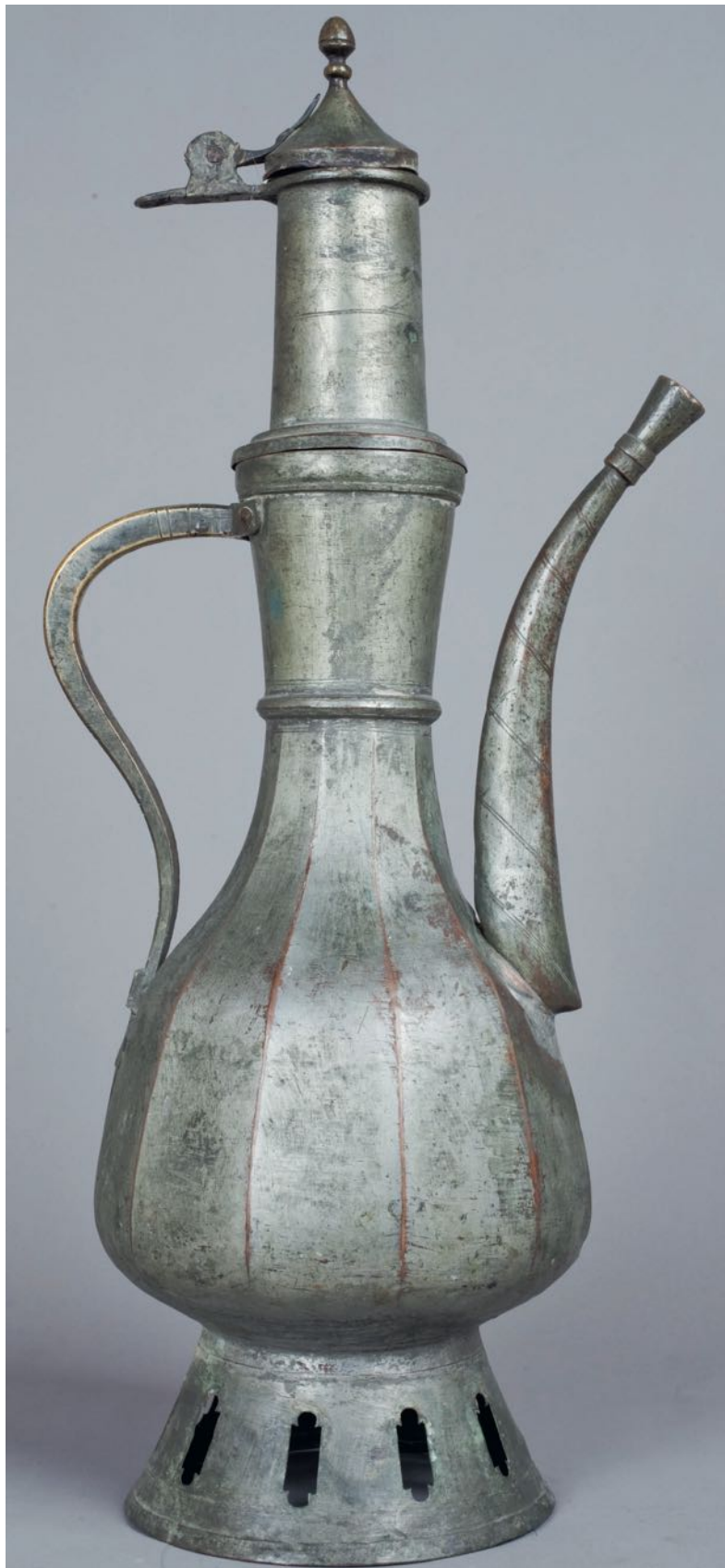
Along with this, they also made various household items (firewood axes, scrapers, hooks, chopping knives, kitchen and pocket knives, tongs, hammers, sewing scissors, carpet loop scissors, as well as pliers, adzes, bolts, door hooks, nails, etc.). Both urban and rural forges made equipment for horse-drawn transport: bits, stirrups, spurs, horseshoes, wheel rims, hooks, etc. City workshops fulfilled not only individual orders, but also worked directly on the market, selling finished products themselves.

Technique for making blacksmith products. The dressing of iron products in the forges was carried out in a simple manual way. Despite this, Karabakh, especially Shusha blacksmiths were highly skilled in performing, among other things, complex operations of manufacturing cutting products from the total mass of welded iron.

The process of making iron products in general looked as follows. The blacksmith usually began his work by heating the forge, for which he threw some coals into the forge, fanned the fire, put a piece of iron corresponding to the size of the product being made on it, and left it in the forge until it was white-hot. Then he took out the iron with tongs and put it on the appropriate anvil, after which he used hammer blows to give it the desired shape. If a piece of iron did not match the shape of the product being made, the blacksmith gave it a round or flat shape. Manufacturing processes differed depending on the type of metal products. After forging, some iron products had to be welded and hardened. For example, when making axes, openers, cleavers, scissors, etc., they usually used welded iron "gaynag demir". Making such products from welded iron was somewhat more difficult. In this respect, the manufacture of sickles "orag" or "chin" was of particular interest. Usually, both types of sickle were made either from iron with welded steel blades or from a single piece of steel. Some changes were made to the dressing process depending on the material.

Steel helmet with gold plating. National Museum of History of Azerbaijan

Copper tea-pot. National Museum of History of Azerbaijan



Before the production of welded sickles, preparatory work was carried out. It consisted in cutting, forging and welding an iron strip and steel. For this operation, a rod or strip of iron was cut into pieces of a certain length depending on the size of the sickles being made. Then the blacksmith forged a steel strip 10-15 cm long, 3 cm wide and 1 cm thick, called "shiga". Then the cut iron and steel bars were stacked on top of each other, and were repeatedly heated together and welded. After the last heating, the welded blank, called "pestakha", was shaped into an arc. As a result of heating and forging, the ingot assumed the same thickness along its entire length, and only the ends were slightly sharpened.

Further processing consisted in polishing, which included processing the proper shape of the sickle and trimming the bevel for the blade. As a result of these operations, the blunt end of the piece was somewhat lengthened, sharpened and bent back slightly. As a result of successive processing, the surfaces of the sickle were leveled and the chamfer was pulled onto it. After turning the chamfer, the sickle was cored, i.e. the teeth on the blade were notched. The notch was made with a small chisel by hand with uniform blows at an angle of 45 degrees to the blade. At the same time, the blacksmith made sure that the distance between the teeth was the same.

After curing, quenching followed, for which the sickle was heated in the furnace again and then immediately cooled in water. When handed over to the customer or sent for sale, the sickles were planted on a wooden handle of various shapes and workmanship.

Karabakh blacksmiths differed in their art from other Azerbaijani metalworking masters. Continuing and improving the ancient traditions up to the beginning of the 20th century, they managed to achieve a high industrial culture in the field of handicraft production and processing of various household products and items made of iron and steel, supplying the urban and rural popula-

Copper bowl. National Museum of History of Azerbaijan*Copper pot. National Museum of History of Azerbaijan*

tion of Karabakh with a wide range of their products for centuries. ✨

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