

Normally they used an open \*charcoal fire and a pair of bellows, melting their metals in discs and crucibles. They also used anvils, a variety of hammers, tongs, files, chisels, engraving tools, moulds, punches, a burnishing stone, scales, a touchstone, and touch-needles. They might also possess a draw-plate for making wire and tools for enamelling.

They completed surface decoration by the \*repoussé method, working from the back, by chasing, working from the front, and by engraving, in which thin lines were gouged out on the front surface. They sometimes soldered wire filigree onto the surface, decorated it with \*niello work, or applied \*enamel.

To make gold and silver leaf, goldsmiths hammered coins into foil and then beat them with hammers between \*parchment leaves to achieve the required thinness. They laid the leaf on a prepared surface such as \*gesso (gypsum smoothed and covered with adhesive) and then burnished it. They gilded silver and copper alloys by mercury gilding (also called fire-gilding). In this process, they made an amalgam by dropping gold leaf or filings into boiling mercury which was then allowed to cool. They then spread it on the object. Heating the object caused the mercury to evaporate, leaving a layer of gold. In a second gilding method, they rubbed the object with mercury and pressed gold leaf on, using smooth \*leather. As the gold dissolved, they added further layers, and finally heated the object to evaporate the mercury. Goldsmiths also made gold and silver thread and wire, each by specialized techniques. POL

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R. W. Lightbown, *Secular Goldsmiths' Work in Medieval France* (1978).

R. F. Tylecote, *The Early History of Metallurgy in Europe* (1987).

R. Vergani, 'L'attività mineraria e metallurgica argento e rame', in *Il Rinascimento italiano e l'Europa*, vol. 3: *Produzione e tecniche*, ed. P. Braunstein and L. Molà (2007), 217–33.

**Golden Bull** (of Andrew II of Hungary) (1222/31). Privileged charter (with a golden seal pendant) on noble liberties (extended to lesser nobles in 1267), in response to a movement of nobles and royal servitors (\**servientes regis*), guaranteeing them habeas corpus, freedom from taxation, limited military service, and the right of resistance to a king who would infringe upon these rights. From 1351 onwards kings of Hungary swore to observe it at their coronation. JMB  
J. Deér, 'Der Weg zur Goldenen Bulle Andreas' II.', *Schweizer Beiträge zur allgemeinen Geschichte*, 10 (1952), 104–38.  
DRMH 1: 32–41; 2: 8–9.

**Golden Bull** (of Charles IV) (1356) Promulgated at the imperial diets of \*Nuremberg and \*Metz. It regulated the process of \*election of the king of the Romans, by majority vote. The seven electors received regalian rights. Lay electors' lands became indivisible and inherited by \*primogeniture. It also outlawed \*town leagues. NB

B.-U. Hergemöller, *Fürsten, Herren und Städte zu Nürnberg 1355/56: Die Entstehung der 'Goldenen Bulle' Karls IV.* (1983).

**Golden Horde** (Ulus Jochi) [Russian: *Zolotaya Orda*]

The \*Mongol state that from the middle of the 13th to the first half of the 15th century dominated eastern Europe. The Golden Horde was one of the successor states of the Mongol Empire of \*Chingis Khan, and comprised the steppe from the \*Carpathian mountains to western Siberia and Kazakhstan. In addition, the Golden Horde included a range of settled districts with old centres of trade and industry: the northern Caucasus, the \*Crimea, \*Moldavia, (\*river) Volga \*Bulgaria, the Mordvin lands, and Khorezm. The \*Rus' principalities were tributaries of the Horde. The Ulus Jochi thus constituted a symbiosis of two worlds: an urban culture with centuries-old traditions, and nomads of the steppe with their own culture and social organization. A highly developed, classical variant of the Golden Horde culture existed in the Volga region. Main urban centres of the Golden Horde in the 13th century were Volga Bulgaria, Khorezm, and the Crimea. At the same time the khans built their own cities in the lower Volga where before there had been virtually no settled population and nomadic presence was also sparse. In the 1280s the superiority gradually passed to Saray in the lower Volga. These cities, including Saray al-Djedid, Haji-Tarkhan, and Ukek, flourished in the first half of the 14th century. However, until the 1360s the khans continued their seasonal migrations—north in summer, south in winter—on the left bank of the Volga. The Golden Horde experienced its heyday during the reign of the khans Uzbek (1312–42)—under whom in 1312 Islam was accepted as the state religion—and Janibek (r. 1342–57). In the later 14th century, owing to continuous internecine and external wars, the Golden Horde began to decline. The final blow was delivered by the invasion of \*Tamerlane in 1395–6. Still, the state and some of its cities survived into the mid 15th century, when the Ulus Jochi fell apart into the khanates of Kazan', Astrakhan, Crimea, and Siberia, as well as the Nogay and the Big Hordes. They were later (between 1552 and 1783) gradually conquered by Russia. LFN

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