Much of the gold is not found in its native state, but associated with some minerals within the rocks. Mostly these are grains, foils and straws included in the minerals, on the surfaces separating the crystals. They are usually so small that they are invisible to the naked eye, even in the richest deposits.

From the 1700s until the mid-1900s, the process of concentrating the metal by separating it from the rest of the rock involved mechanically grinding the ore, amalgamating it with mercury, distilling it and forging it. Today, this rudimentary process -

which we are going to describe in its stages - has been replaced in large mining companies by the cyanidation method but is still used in several countries around the world by small-scale miners.

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First the ore is mashed coarsely in the mill and crushed.



mashed



crushed

The ore is then loaded into the mill and finely ground until it has an almost impalpable consistency.



MinerAlp



Mercury is added and the mixture left to grind for about 5-7 hours, to let the gold amalgamate with the mercury. The lighter aggregates are washed away.





mercury is added

washing



clear water

The grinder is removed. The water must be clear, leaving the mercury clearly visible at the bottom.

Mercury is then carefully collected in a bowl and poured into a suede.

> mercury is collected



mercury is poured in the suede





out of the pores. A small ball of amalgam ('white gold') thus remains in the suede.

The suede is squeezed hard, to get the unamalgamated mercury

Squeezed hard

Follows distillation to recover the mercury left in the amalgam. The result is a golden sponge. The sponge is carefully scraped and placed in a graphite crucible.





sponge gold

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More than 1000 °C

Gold button

On the fire of the forge the temperature is raised to over 1000 °C and in an instant the the 'golden button' is formed. The crucible must be removed from the fire immediately.

Here is the extracted gold, which is then weighed on a scale.





Gold is weighed

Extracted gold

Fun fact

Pure gold, too soft to be worked, is often used alloyed with other metals in precise proportions, measured by Carat (K). Pure gold has 24K, that used in jewellery 18K. Counterfeiters often pass off gold and copper alloy bars as pure gold bars. Alternatively, they produce totally fake ingots made of tungsten coated with a thin layer of gold the weight of this metal is in fact almost identical to that of gold, so putting the ingot on the scales does not reveal the deception.



Elaborazione di testi e immagini dalla presentazione "Il ciclo di lavorazione dell'oro nelle valli del Monte Rosa (XVI-XVIII sec.)", realizzata per Mineralp dall'Ass. Figli della Miniera e del Centro Studi Zeisciu.