

ARTIFICIAL SAPPHIRES.

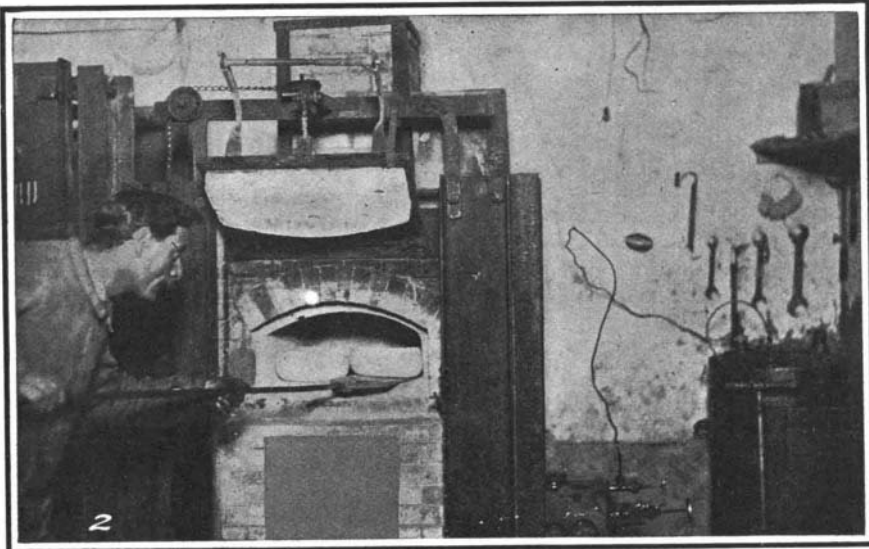
BY THE PARIS CORRESPONDENT OF THE SCIENTIFIC AMERICAN.

Up to the present it did not appear that the sapphire could be made by an artificial process, although there have been many efforts made to produce it. While the ruby is now made artificially by melting pure alumina and coloring it with oxide of chromium by the heat of the arc or the oxy-hydrogen blowpipe, the sapphire

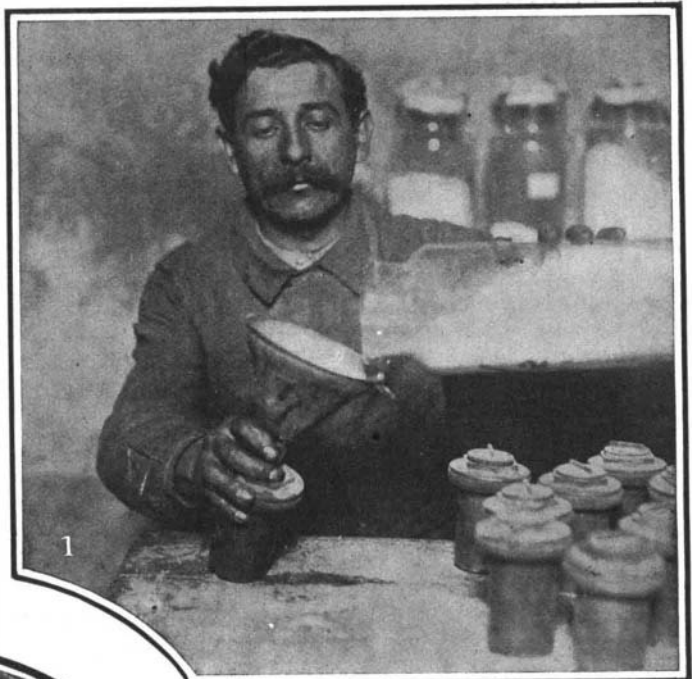
to produce the yellow color, and is in a small proportion to the whole amount. The experimenter had the idea of adding 2 per cent of lime and magnesia, and the whole mixture was melted at the usual high temperature. The effect of this combination is surprising. Before this, the melted alumina crystallized upon cooling and eliminated the coloring matter, but in the present case this crystallization does not take place.

scopic examination is needed in order to distinguish the two. Prof. Lecroix presented an account of the process at the last meeting of the Académie des Sciences, together with specimens of the new stone. We expect to give further details of the process here briefly outlined.

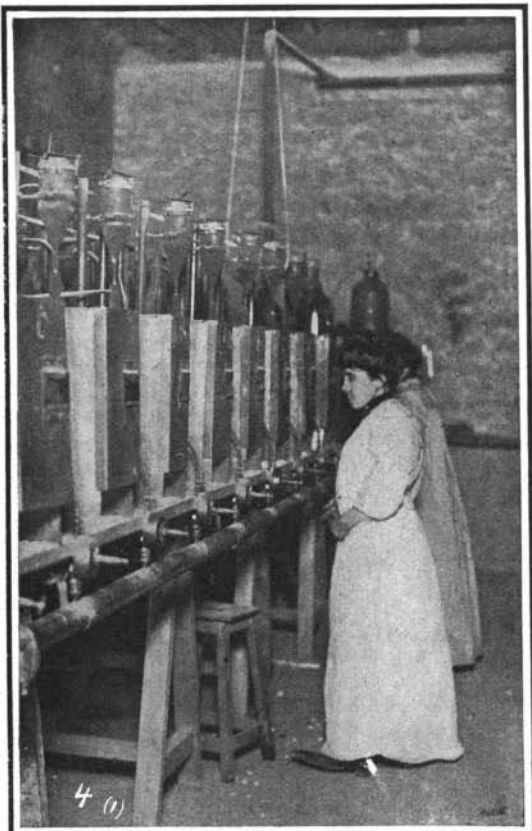
A short time ago it was announced that the Illinois



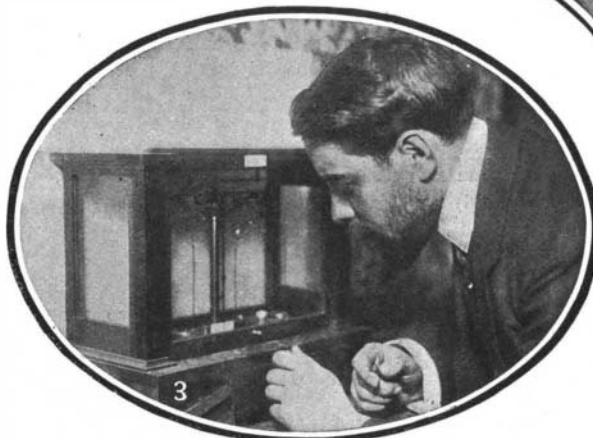
Thrusting the crucible into the furnace.



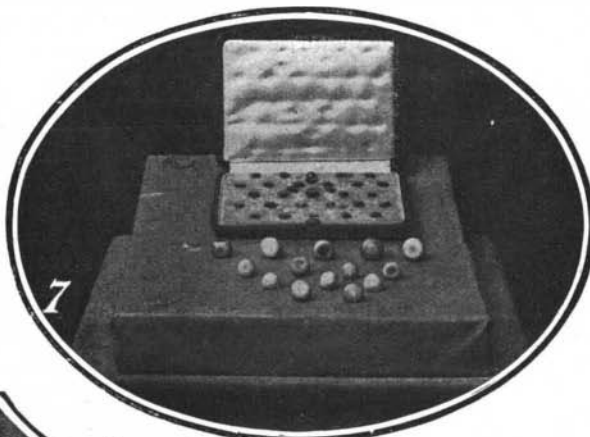
Pouring raw material into crucible.



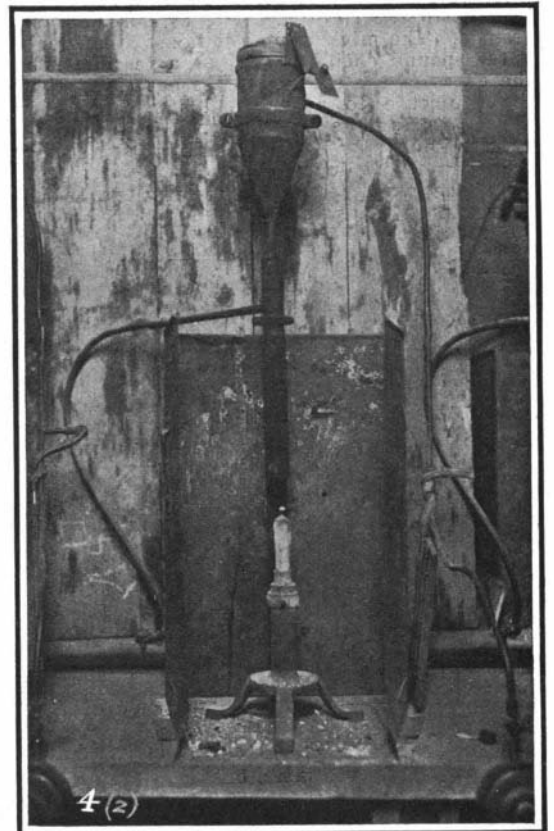
A row of blowpipes.



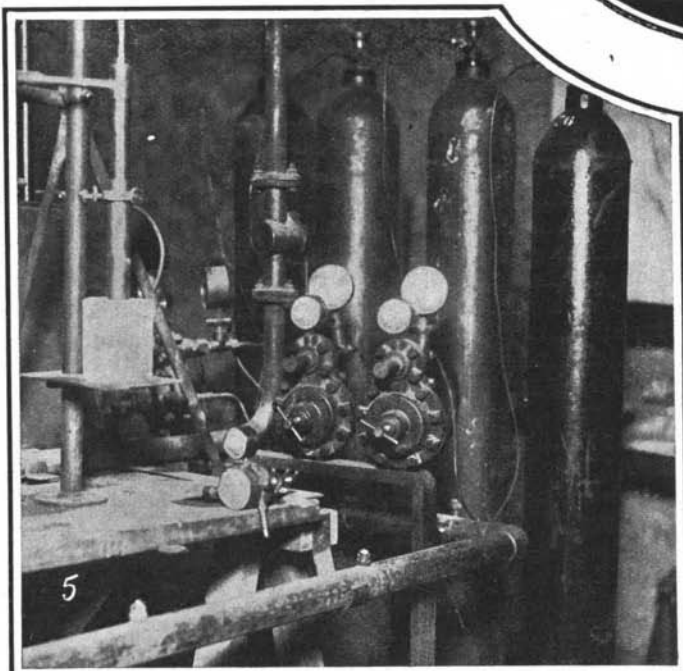
M. Paris weighing the raw material.



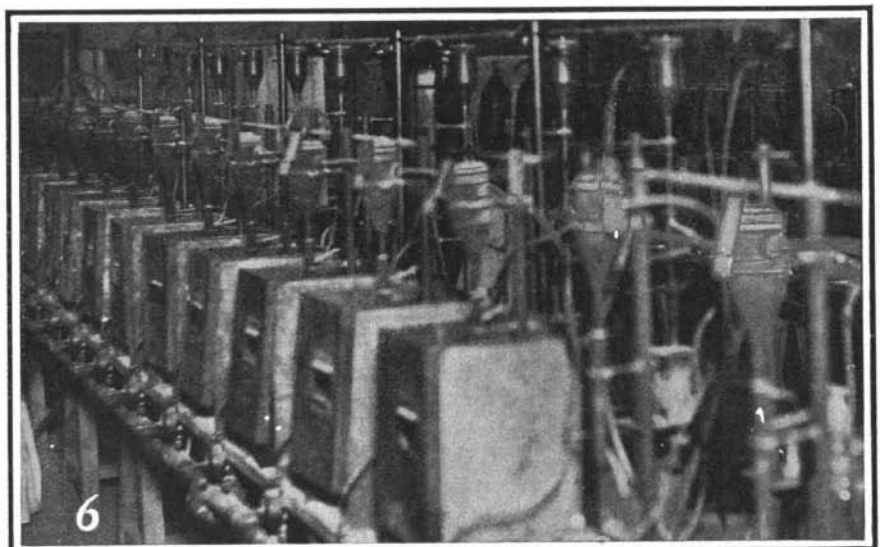
Artificial sapphires.



A single blowpipe.



Oxygen tubes feeding a row of blowpipes.



A general view of the blowpipe room.

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could not be produced by an analogous method. After some attempts, M. Paris, of the Pasteur Institute, has now succeeded in obtaining the sapphire in the laboratory of that establishment. His method consists in introducing foreign elements into the combination. Alumina and oxide of cobalt are theoretically all that is necessary to form the sapphire. The latter serves

The mass becomes colored and remains permanently in this state. At the time of the highest heat the lime and magnesia are driven off and the alumina, colored by the oxide of cobalt, remains. This substance is therefore the artificial sapphire, and it is chemically identical with the stone found in nature. An expert cannot tell the difference, it is claimed, and a micro-

Central Railroad had decided to electrify its Chicago terminal, this determination being influenced to a large extent by the public agitation against the smoke nuisance. It is now stated that the Chicago, Rock Island & Pacific, and the Chicago, Burlington & Quincy railroads are also seriously considering the advisability of electrifying their lines within the city limits.