

another; into opposite ends of the cross fit fork-like prongs which are attached to a spindle, at the top of which is a pinion to which a rotatory motion is given by a horizontal crown wheel, as many as eighteen being driven in this manner—the power employed being water—by one crown wheel, although there were also small ones in use which a man could work. The front portion of the tub was pierced by two or three holes, in the same line on different levels, through which the sludge at different periods might be withdrawn from within. The substance was ground, if coarser than sand, and concentrated as much as possible; about two tröge (according to Dr. Percy—to from 40 to 50 lbs.) are thrown into the mill and water added, then 40 lbs. of mercury. Grinding now is started, but should the mill be able to take more it is added with sufficient water to prevent stiffness. Grinding is continued until the whole is brought to a state of mud, when the top plug in the top hole above-mentioned is now removed and the mud allowed to run off to this level, when another charge is added; this is continued until the mercury has absorbed sufficient gold or silver to make it stiff, thus impeding the rotatory motion of the cross, when the tub is emptied of slime and the amalgam taken out, cleaned and dried, and squeezed through a calf-skin bag and distilled; the distilled mercury always retaining a certain quantity of gold or silver, the retort broken and the silver taken out and melted. The amalgamation process as applied to silver had its primal demonstration on a large scale in Mexico, Chili, and Peru. Dr. Percy, in his *Metallurgy of Gold and Silver*, says that Bartolome Medina was generally admitted to be the inventor of the present "Patio process," having invented it in 1557 while a miner at Pachuca in Mexico; the authority for this statement being two documents, one, a report addressed to the Viceroy of Mexico, by Luis Berria de Montalvo, printed in the city of Mexico in 1643, and the other a memoir by Diaz de La Calle to Philip IV., printed in Madrid, 1646, both giving Medina the honour and credit of the invention. Dr. Percy then adds that this statement is not correct, as Don José Garces y Eguia, says that the first treatise on amalgamation as then conducted was that of Barba, published in Peru, 1639, the process being introduced into Peru by Don Pedro Fernandez de Velasco in 1571. Dr. Percy does not mention when the process was introduced into Mexico, but I have found by consulting the work before mentioned as in my possession, that the process was introduced into Mexico by the same person (Don Pedro de Velasco) five years before his introduction of it into Peru, namely, in 1566. Now, whether the Patio process was ever introduced into Mexico is a point that might be raised. The enormous amount of gold and silver that had been collected and stored by the Caciques that ruled the Aztecs, which was