desilverization process. This process is outlined in Figures 3 and 4 and was later commercialized by W. T. Isbel of St. Joseph Lead Company.

Kroll also worked on age hardening of aluminum, in particular investigating substitutes from silicon, magnesium, and copper and developed a silver-aluminum alloy; a lithium-bearing aluminum-zinc alloy and magnesium-germanium-aluminum alloys. He also studied the germanium-aluminum phase diagram and the replacement of silicon with germanium crystals in radar detectors.

While working on fused salt electrolysis of beryllium, Dr. Kroll became beryllium poisoned in 1927 but stilI managed to develope the process for the reduction of anhydrous beryllium fluoride with magnesium.

It was at this time that Kroll became interested in the application of vacuum metallurgy in the extraction and purification of metals. Since he was not allowed into the local Heraeus plant he had to learn vacuum technology and methods by himself. He subsequently developed a process for the vacuum reduction of BaO with aluminum to produce barium metal, and the production of high quality calcium by vacuum sublimation of electrolytic grade calcium cast under an argon atmosphere. This period of work gave him the initial background for his subsequent development of titanium and zirconium extraction metallurgy.

The high purity calcium he produced in this period, he used as a reductant in a bomb reactor for the production of ductile chromium, vanadium, titanium, zirconium, uranium, and thallium. He also worked on the vacuum purification of silicon, copper, iron, chromium, beryllium, and alloys of copper, tin, and lead during this period.