

**CHAPTER 3**

# FROM MANUAL WORK TO THE MODERN PLANT **PART III**

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In our previous Tech News issue (n° 6) I spoke about the additional efforts my father, Ilario Properzi, made promoting his continuous casting and rolling system versus the wire-bars casting and separate rolling method. His efforts finally received some recognition from the copper industry; Continuous received two purchase orders for two Properzi copper lines with delivery almost at the same time. The first order was in 1962 from the United States and the second one was from the U.S.S.R. less than one year later.

In April 1963 the first copper rod was produced at Southwire. (Wire Journal International, December 1983, page 58, article by E.H. Chia - Southwire).

And later on – May 16, 1963 – the American Metal Market reported about “The first commercially successful continuous casting and rolling process for producing redraw copper rod.” The developments which occurred behind the iron curtain (Brezhnev era) were not so public but more or less followed in the same way, obtaining the same good results and maintaining in use 99 % of the original Properzi design. In the U.S.S.R. republic of Uzbekistan they had a great advantage because of their preference for electrical furnaces which assured a good and consistent quality of molten copper.

In America the same metallurgical problems from the furnaces were attributed to the Properzi design. This and many other commercial factors brought about a system based on a similar Properzi caster followed by a 2H steel mill, which is now very well known.

Technically speaking, it is interesting to note that one expert engineer, who worked in the Uzbekistan plant for many years, was now acting as a consultant for a Russian Company that decided, two years ago, to buy a new copper line with the same original Properzi all 3H rolling sequence! The line, already delivered, is intended for ETP rod but also for difficult alloys.

Well, it took a little more than 10 years from the early experiments to the birth of a real industrialized continuous copper rod system.







The vast majority of the time was spent by Ilario Properzi on the plant floor and at the drawing board and in convincing copper people that his method was technically possible and a win/win method from an economic standpoint. Only a short learning curve of between one and two years was spent in testing and operational trials in the U.S.A. and the U.S.S.R. in an effort to fine-tune this operation.

By 1965 there were three lines in operation: one in Georgia, U.S.A. with a modified Properzi wheel and one Morgan mill, one in Uzbekistan which was 99 % original design, and one in New York, U.S.A. with original design but having two 2H stands of Properzi design mounted on the frame of the Model No. 7 rolling mill. I think the entrance of the Asarco furnace on the scene ended the pioneering era even though the market was overwhelmingly conquered by the continuous system supplied under three brand names only 8-10 years later and the last wire-bar rolling mills were shut down and scrapped only at the end of the 1980's.

Naturally you cannot compare hardware, software and performances of the three lines of 1965 with the present technology of modern continuous lines, but if you spend ten minutes in doing so, you will see that the differences are very important but practically only relate to instrumentation, automation, drives and control.

The system is basically the same as that of the early sixties with one exception, the in-line pickling, which was developed by the Uzbekistanis before 1970. What is certain is that the copper wire and copper cable producers and consumers of today are infinitely indebted to Ilario Properzi for inventing the copper continuous casting and rolling technology which is currently used throughout the world. *by Giulio Properzi*

