

Lessons of history – The beginnings of modern copper and nickel smelting technologies and the quest for energy efficiency and sulphur capture

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The origins of autogenous smelting and pneumatic converting - both key components in modern copper and nickel production - are described. These technologies allowed significant reductions in energy consumption and paved the way for sulphur capture. Heightened by concerns such as global warming with its requirement to minimize energy consumption, future challenges faced by the non-ferrous industry are also briefly discussed.



Phillip Mackey is President of P J Mackey Technology Inc. involved in consulting on metallurgical projects worldwide after many years associated with Xstrata working in all areas of non-ferrous metallurgy. He has over forty years of broad, in-depth experience and understanding of the non-ferrous metals business including operations and technology, in particular for nickel, copper and precious metals. He has authored or co-authored over 100 publications covering many aspects of non-ferrous metallurgy, including metallurgical history. P.J. Mackey played a leading role in the development of the Noranda Process, the world's first commercial continuous copper smelting and converting process and one of the important copper technologies developed in the twentieth century. His role in introducing the Noranda Converter, a new continuous converting process, was recognized by the Noranda Technology Award given in 1998. He played key role in Copper Development Association activities and helped introduce the North American Initiative for Copper in Architecture to the copper industry in the 1990s. Dr. Mackey served as President of The Metallurgical Society of CIM from 1983 to 1985. He received a Special Medal of Honor by the CIM in 2007 for his role as co-founder of the now well-established Copper-Cobre conference series. He is a Fellow of both the CIM and TMS, and has received a number of Awards from both these institutions.