

BY JOE SANO

# Your CellPhone- Now That's Italian !



**T**he modern cellphone/mobile phone is Italian. You see there is an interesting history of Italian inventors having their life's work credited to others. In 1871, Antonio Meucci created the first voice-

communication device in his Staten Island lab. His error was that his patent did not state electromagnetic transmission, and the later invention of Alexander Graham Bell stated the transmission medium and after much litigation received the prized patents.

Similarly, the invention of the mobile phone has Italian roots but once again the ultimate credit going to others. The 1980s bears witness to the growing technological introduction and continuously improving mobile phones we all have in our pocket or purse. It was Domenico Mastini who in the 1930s developed what can rightly be considered the prototype of the modern mobile phone. His invention, produced by the Fimi-Phonola factory in Saronno, Italy, allowed users to place calls from a moving vehicle to any number on the urban telephone network, something truly astounding.

Mastini's system worked through a fixed radio transceiver and a vehicle-mounted phone unit. It relied on alternating frequencies

– 46 MHz for transmission and 42 MHz for reception on the base unit, with the opposite configuration on the car phone. The range extended several dozen kilometers, allowing real-time communication while on the road, a groundbreaking feat that anticipated mobile connectivity by decades.

Mastini was a visionary. While the Second World War was becoming a reality, signal repeaters were installed on high ground, to create a national network for seamless calls over long distances.

In 1942, in the middle of World War II, Mastini went even further by proposing a radio-based switching center on Mount Penice to link major cities in northern Italy via airwaves. However, only one connection – between Milan and Bergamo – was ever installed. The idea for a mobile radio phone network was born but the physical and financial toll of WW II on Italy kept

his dream from being realized. Postwar Italy saw Mastini's project shelved as Italy rebuilt its hard-wired national telephone system.

Domenico Mastini saw the future use of hand-held wireless communication devices decades before our smartphones became our daily companions. His pioneering work became the basis for electrical engineers in the USA designing wireless hand-held communication devices and networks that support these transmissions.

By the 1960s, Bell Labs engineers Richard H. Frenkiel and Joel S. Engel developed the technology based on the Mastini model for the design of a cellular network. But as AT&T sought permission from the Federal Communications Commission (FCC) to develop a cellular network, a competitor made a bold and cheeky move in 1973.

That competitor was Martin Cooper, who at the time was an executive with Motorola, one of AT&T's competitors. Cooper led a team that designed the first practical cell phone. It was called the Motorola DynaTAC, and it still was not a tiny device -- it was 9 inches (22.9 centimeters) long and weighed 2.5 pounds (1.1 kilograms). Cooper decided to make one of the first cellular telephone calls to professional rival Joel Engel at Bell Labs. That is right -- the first cell phone was involved in what some might refer to as a prank call!

Mastini and his industrial partners filed numerous patent infringement lawsuits against AT&T and Motorola but his pleas for justice obtained a result similar to that received by Meucci v Bell in the late 19th Century.

While Motorola may have been credited with making that cellphone call, it needed cell sites to repeat the signal so that there was a network and the network creation was the work of Bell Labs. There is little question that the Bell Labs model was theoretically a similar concept akin to Mastini's vision, but the continuous patent litigation eventually went to Bell Labs. Thus, mobile units by themselves do not make it a cellphone, as it is only a cellphone when there are cell sites.

While Domenico Mastini developed the first working handheld portable phone decades before the Motorola/Bell Labs versions, his invention and his unrealized vision for a cell network may be forgotten.

However next time your cell phone rings...remember him and give a small "GRAZIE" to Domenico Mastini. □



Il primo radiomobile in assoluto realizzato dalla FIMI-Phonola nel 1939 su progetto di Mastini

