

THE SALMOIRAGHI THEODOLITE: A TRIBUTE TO GAGO COUTINHO

The theodolite is an instrument used to measure the azimuthal and zenithal angles of the directions defined by the geodetic points and astronomical observations for geodetical purposes. This theodolite is one of four identical instruments constructed under the specifications of Gago Coutinho. He used it himself during the Geodetic Mission of Eastern Africa (1907-1910) and the Geodetic Mission of São Tomé and Príncipe (1915-1917).

Carlos Viegas Gago Coutinho was born in Lisbon, 17 February 1869. After secondary school, he studied at the Lisbon Polytechnic School to prepare his admission into the Naval Academy. Internationally known by the first aerial crossing of the South Atlantic, accomplished in 1922 with Sacadura Cabral, his greatest passion was geography. He developed intense activity in Timor, Angola, Mozambique and São Tomé and Príncipe, contributing to these countries' geodetical and cartographical surveys and the establishment of their borders.

In 1907, Gago Coutinho was appointed to lead the Geodetic Mission of Eastern Africa. He was a precise surveyor. Although well acquainted with the challenges of surveying he also had the capacity and knowledge to innovate. He proposed the construction of four "*geodetical theodolites of the highest accuracy*" especially adapted to the African surveys. They had an horizontal covered circle and platinum scales, as well as other "*special conditions not founded in any catalogue, since they were modifications of geodetic circles used in the United States and Europe, ...*".

Initial field observations revealed some defects in the instruments, notably in platinum scales, which were "*very convenient to avoid silver oxidation, so common in these humid and hot climates, but more difficult if not impossible to perform with sufficient precision due to platinum hardness*", and the ocular thumbscrew. Thus, Coutinho made extra improvements.

After an intense life as a naval officer, geographer, air navigator and historian, Gago Coutinho died one day after his 90th birthday.

