



The charming Eritrean capital, situated almost on the edge of the highlands, dominates the slope that descends first quickly and then gently to the searing beaches of the Red Sea - was qualified by its natural location to become one day one of the principal collection points for commercial traffic arriving by sea and headed for the heart of the country.

But for many years this natural advantage could not be exploited. It was too high above sea level (about 2400 m.) to be easily linked to heavy commercial traffic. The little, narrow-gauge railroad begun in 1911 was able to make the great leap, thanks to a series of dizzying serpentine curves up the slopes. But the problem could not be considered solved; the railway's potential being too limited in view of the ever-growing traffic.

This was the origin of the Massawa-Asmara cableway, the great engineering work of that time that won the approval of technicians and the admiration of the world. It has been one leap more than doubled the commercial traffic between the sea and the interior, and, in conjunction with the railroad, accounted for almost the entire traffic.

Construction of the gigantic work was awarded by the Ceretti and Tanfani Company - which was proud of its long history of glowing successes throughout the world, and most particularly in the competitive field of engineering in the service of industry.

The supplier of the cables was S.A. Giuseppe and Fratello Redaelli of Milan; of the engines, S.A. Franco Tosi of Legnano.

Population centers at markedly different altitudes and separated from one another by vast desert or forest lands see in the cableway the ideal solution to the problem of reciprocal trade links.

It [a cableway] brilliantly surpasses a railroad of equal capacity and an equivalent highway in cost of setup and in, what most counts, the cost of operation.

At the meeting point of two successive sections, that is, in the intermediate stations, the cars, so to speak, change drawing cables, freeing themselves automatically from that of one section to be connected with the other. Goods sent to one end of the cableway can thus travel its entire length without undergoing transfer operations.

It was like an aerial railroad with two tracks on which the train is as long as the railway, the individual cars a hundred meters apart; a somewhat bizarre railroad because of the paradoxical fact that the cars stop at the loading/unloading stations while the train never stops!

The Massawa-Asmara cableway was implemented as a three-cable system. That was, with three cables.

Two cables carry the weight: they make up the pathways for the cars moving in opposite directions. The third had a drawing function: connecting the cars and pulls them along.

The Massawa-Asmara cableway had been recognized as the longest three-cable aerial line ever constructed.

For a brief overview of the gigantic work, the following facts attest to its feature:

- The mechanical components weight of a little less than a thousand tons; the cables weigh the same; and the aggregate weight of the structural steel work amounts to almost two thousand tons.
- The walls and foundations amount to 15,000 cubic meters of concrete.
- The earthworks and the pits for the foundations required the excavation of 45,000 cubic meters, of which about 35,000 were solid rock.

But for two other reasons the great aerial line could be shown off for the admiration of the public:

- Because it represented the best quality the industrial world could provide.
- Because its construction took place in extremely difficult and harsh environmental conditions.

No one can help notice the greatness if one considers how many long and murderous trips on the shoulders of men and the backs of animals the transfer of heavy mechanical parts (like motors, control mechanisms, huge coils of cable, and lumber material) cost the workers, in an area almost devoid of roads and under the scourge of an implacable sun.

This marvelous machine which continuously transfers goods through the air without aircraft at a

rate of around 30 metric tons per hour in each direction was 75 km long!

The route layout had been represented by a broken line that began at Massawa in two branches, at Campo di Marte (Mars Field) and the Munitions Dump, respectively, which meet at Zaga, one via Otumlo, the other directly, and which then proceeds in a single branch from Zaga to Asmara, turning in Dogali, Mai Atal, Sabarguma, Ghinda and Nefasit.

While the section from the highlands to Nefasit had been straight, the section from Nefasit to the sea inscribed an almost imperceptible arc, with its center to the Southeast.

The strange course layout, which departed from the straight line normally preferred for cableways, owes its unique configuration to the requirement that the aerial line follow as much as possible the route of the highway to facilitate services for its construction as a finished work, to make it easier for repairs during its operation.

The profile of the route, level from the sea to near the Mai Atal station (about 24 Km from Massawa) from there on ever steeper through the hilly areas, the closer it approaches the highlands.

This zone was the most picturesque stretch of the superb line, which provided beautifully bold flights in unique spans between the peaks of adjacent mountain ranges, culminating in daring and beauty of the stretches around Ghinda and particularly between Nefasit and the edge of the highlands.

Because of its remarkable length and as a consequence of the change in altitude between sea and highlands, the Eritrean cableway passed through all the climates and all the seasons along its course! Because as the temperature, a function of altitude, varies from the dog days of summer of Massawa to the delightful coolness of Asmara, so the humidity passed through the entire scale to saturation. As a result, it had been almost impossible to travel the entire length of the cableway without encountering a "rainy zone" that shifts continually in the same way the crests of dunes shift to the blowing of the monsoon.