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## Building Beyond The Mediterranean Studying The Archives of European Businesses (1860-1970)

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# The archives of engineer Luigi Luiggi

*Les archives de l'ingénieur Luigi Luiggi*

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# The Archives of engineer Luigi Luiggi

Ezio Godoli

The library and a collection of documents without call numbers known as the *Miscellanea* from the engineering firm of Luigi Luiggi (Genoa, August 3, 1856 – Rome, February 1, 1931) are housed in the Filippo Arredi Library of the Department of Civil, Building, and Environmental Engineering (Dipartimento di Ingegneria Civile, Edile e Ambientale) of the Sapienza University in Rome.

Luiggi, a hydraulic engineer who specialized in designing ports, was also a political figure. At the Ministry for Public Works, he served as secretary to the minister, Francesco Genala (June 29, 1885 – April 4, 1887), and later as head of his cabinet (May 15, 1892 – November 8, 1893). In 1921, he was elected deputy of the Genoa Government on the Nationalist Party ticket, and in 1924 he was appointed senator at the request of the Minister of Interior Luigi Federzoni.

Nevertheless, he devoted most of his career to harbor engineering.

In 1878, after earning a degree in engineering in Turin, Luiggi was employed as a Civil Engineering Officer. In 1881, he was assigned to plan and supervise the extension of the port of Genoa. However, he was forced to interrupt this assignment in 1882, in order to take part in the Campaign of Africa. Beginning in 1892, he directed the restructuring of the port of Livorno.

On the recommendation of the Italian Government, Luiggi was hired in 1896 by the government of Argentina, which commissioned him to plan and supervise the construction of the Puerto Belgrano naval base. For the base, which opened in March 1902 and was located in the Province of Buenos Aires, he drew up a development plan and some terminals and warehouses linked to the railway branch line to the nearest city, Bahía Blanca. He was also asked to work as a consultant on port expansion projects in Mar del Plata, Rosario, Montevideo, and Buenos Aires, a business he continued even after his departure from Latin America in 1905. Upon his return to Italy, he was appointed Professor of Maritime and Hydraulic Constructions and Inland Navigation at the School of Applied Engineering (Scuola di applicazione per gli ingegneri) in Rome, a position he held

until 1921. From 1905 to 1910, he also served on the Board of Directors of the Italian State Railways (Ferrovie dello Stato). He was a member of the steering committee of the Italian Society for the Advancement of Science (Società Italiana per il Progresso delle Scienze), founded in 1907, and also served twice on the Board of Governors for Education (Consiglio Superiore della Pubblica Istruzione) (1907-1913 and 1921-1923). Between 1911 and 1912, he designed the expansion and reinforcement of the ports in Massawa (Eritrea) and Brava (Somalia). Called up for the Italo-Turkish War of 1911-1912, he was asked to draft plans for the ports of Libya and the development of lighthouses and beacons along the Libyan coastline. During World War I, he was enlisted from 1915 to 1918, but continued working as a consultant for hydraulic engineering projects. In 1916, he was asked to be a member of the technical committee for the irrigation feasibility study of Puglia and Basilicata. In 1923, he joined the Commission Européenne du Danube and the Commission Technique Consultative du Canal de Suez. He designed the ports of Suez and Alexandria for the Egyptian Government. From 1926 to 1928, he was responsible for the design of the port and for the reclamation of Durres, Albania. Appreciation of his work abroad garnered him many academic degrees and honors: he was named honorary member of the Argentine Scientific Society and of societies of engineers in Buenos Aires, London, and New York; he belonged to the British Association for the Advancement of Science, and was also an Officer of the Order of the Légion d'Honneur.

The Luigi Luiggi *Miscellanea* collection is stored in 90 folders numbered from 1 to 98. The few gaps can probably be explained by the absence or severe shortage of documents related to some of Luiggi's projects. Some of the projects in the file document the entire construction process, from the first sketches to the working drawings (with numerous details). They include specifications for the companies which have been awarded contracts (valuable sources of information on the materials employed and the construction techniques used), correspondence with

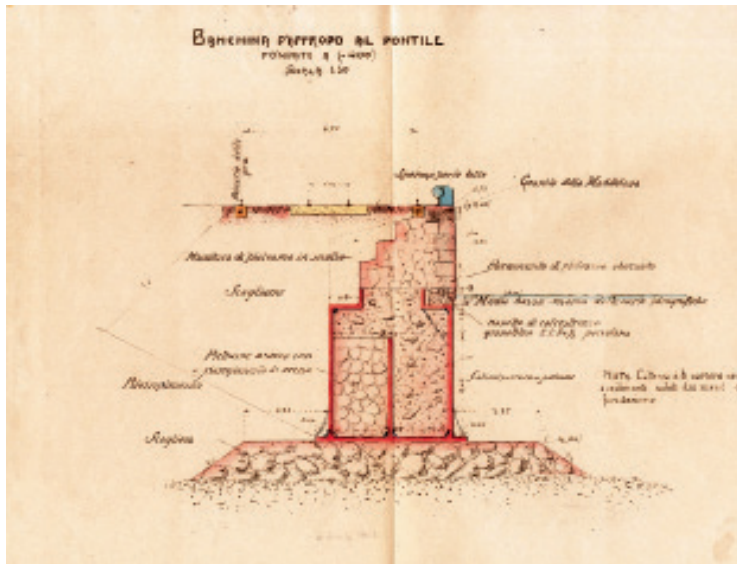


these companies, and photographs of construction sites. The *Miscellanea* also contain blueprints and photographic documentation of the hydraulic and railway engineering projects Luigi examined as an officer of the Ministry for Public Works, civil engineering inspector, or member of numerous committees, as well as catalogues, photographs, and blueprints from the construction companies and building material suppliers with which he collaborated. Documents supplied by the large industrial firms for which he worked as a consultant – such as the bullet factory

Gio. Ansaldo & C. in Sestri Ponente (Genoa) – can also be found in this archive. A selection of doctoral dissertations supplements the archive.

The contents of the *Miscellanea* reveal Luigi's ongoing endeavor to stay up to date with the most recent engineering achievements and the latest findings in all the fields related to engineering, by maintaining his network of international relationships. The cartographic collection of development plans for the port zones of different cities on various continents, and the documentation on the structures

Port of Tripoli, Libya: Section of the unloading dock, Luigi Luiggi, eng.



built (lighthouses, warehouses, depots, etc.) and the equipment used in the ports to transport and lift goods are also valuable sources. As for hydraulic engineering, the collection includes projects for reclamation works, dams, power stations, and waterways. It also contains a wealth of documents on public housing (particularly on new patents for prefabricated systems) and on the works of Italian architects in Latin America.

Regarding Northern Africa in particular, the documents most consistently concern Libya and Egypt. The development plan for the port of Tripoli, drafted by Luiggi's firm between December 1911 and January 1912, established the method which facilitated the design, execution, and management of the works at the ports of Benghazi, Derna, and Homs. To draft his plans, Luiggi used to start with maps of the cities and territory, as well as charts of the coastal waters recovered from various archives. He then carried out inspections and depth-sounding on site to verify their reliability, and he also analyzed available data regarding weather conditions. He also sought out local sources for materials used in the construction of dams, breakwaters, and docks. Construction carried out for military purposes received top priority, but instead of building temporary facilities, Luiggi always

designed them as the first stage of a broader development plan for the port, capable of meeting future requirements in terms of freight and passenger traffic. In January 1912, when the port he was engineering for the city of Tripoli required the construction of a new sewage system and an aqueduct, Luiggi appended a *Diagramma del piano regolatore* (development plan diagram) to the port project. The "diagram" was a general outline of the city, including railway and streetcar lines. He designated land outside the city walls for industrial, military, and hospital use, and zoned residential districts, segregated by class and ethnicity (Luiggi was motivated by the need to avoid religious friction). It called for the demolition of the city walls and the preservation of the ancient city (entailing a modest urban renewal program) for its "picturesque" quality. In the *Diagramma*, Luiggi even indicated the locations of the main public buildings, and for some (governor's residence, courthouse, city hall, schools, post and telegraph offices), the civil engineers drew up plans for these projects, which are now stored in the *Miscellanea*.

In 1923, Luiggi was hired by the Egyptian Government as an expert witness in the lawsuit against A. Bos & Cie, concessionaire for the works at the port of Suez. His appraisal was the basis for a project entitled *Travaux d'Amélioration du Port de Suez (Port of Suez Improvement Plans)*. It downsized the "grandiose lines" in French engineer Gaston Jondet's project (which had been approved in 1918). Luiggi developed his own project, based on the guidelines of the plan drawn up in September-October 1922 by L.A. Mazin, the project manager for the port of Suez, who assisted him in drafting the new project and estimating the construction costs. The 1923 plan indicated oil basin upgrades, pier reinforcement, and dredging at Port Ibrahim and at the old port of Suez as priorities (documented in the report with correspondence with the Ministry of Communications and 22 drawings).

Also in 1923, Luiggi was involved in the drawing up of a development plan for the Port of Alexandria. Although based in part on Jondet's plan (1920-1921), it was much greater in scope. The following priorities were listed: construction

of a new pier “E” south of the mouth of the Mahmudiah Canal; extension of the oil refineries; a swing bridge over the Mahmudiah Canal; the expansion of the freight dock, with new cargo-unloading and transport equipment; and the construction of a fertilizer terminal. The first draft of the plan, presented on September 20, 1923, was followed by a variation dated January 1924. The latter reassessed earlier judgments, and stressed the need to complete the oil basin prior to building the fertilizer terminal. In December 1925, instead of scheduling the works, the Egyptian Government appointed a committee of experts, consisting of Luiggi, the Englishman Cyril Kirkpatrick, and the Frenchman Charles Laroche. Their task was to review the three projects for the expansion of the port of Alexandria drawn up by Jondet, Luiggi, and Mazin (1925). After the comparative study of these plans and two meetings with shipowners, businessmen, and representatives from the petroleum industry and other groups involved in the development of the port of Alexandria, the commission wrote up its findings in a report dated February 24, 1926. This document outlined a thirty-year program for developing the harbor. However, the only project excluded from the new plan was the oil terminal (advocated as a main priority by Luiggi). The commission

suspended judgment on the subject, suggesting possible alternative locations such as El-Mex, El-Dekheila, and Damietta. The commission had also been asked to study the improvements to be made in the ports of Kosseir, Marsa Matruh, and Damietta. The proposals submitted concerned projects of limited scope. Damietta was to be sounded for seabed excavations. Similarly, dredging was suggested for Marsâ Matrûh. Only at Kosseir was there a proposal to build two new breakwaters.

The body of documents regarding Africa in the *Miscellanea*, which includes historical cartography, plans, reports, and description of construction systems, is a valuable source of information for both historians researching the development of Libyan and Egyptian ports from the late 1800s to the 1920s and businesses in the field of restoration of large structures. It also sheds light on the difficulties European engineers encountered in Africa, involving materials procurement, the availability of skilled workers, and the organization of construction according to strict economic criteria. Finally, it also contains information about the transfer of skills from European to Egyptian technicians, which occurred April 1924–April 1927 following the Act of 1923 demanding the dismissal of foreign officers.

