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The Three-year Circumnavigation by the Vettor Pisani

Research vessels are by no means ad hoc inventions. The following story describes the three-year circumnavigation by the Italian corvette Vettor Pisani that successfully combined military and national interests of purely scientific scope.

On 20th April 1882 the Italian steam corvette Vettor Pisani left the port of Naples for a three-year circumnavigation. Anton Dohrn, founder and director of the Naples Zoological Station, was the last to step off-board and welcome ship and crew on their return on 29th April 1885. During this trip, Lieutenant Gaetano Chierchia, 1850-1922, second officer in command, assembled an outstanding collection of marine organisms.

Dohrn had earlier been contacted by the Italian Navy for help in the selection of a scientist supposed to make collections onboard Italian vessels during their long trips around the globe. Dohrn replied that a scientist might not always be used to life at sea and would certainly give priority to his research project at all times; he might therefore easily experience or create problems onboard as, for example, experienced on the Beagle. Instead, Dohrn suggested having navy officers trained in sampling and preservation methods, since it was essential to have a good collection made at sea which could then be studied and described by experts in their home labs at their convenience.

Chierchia spent several months training at the Naples Station under the guidance of Salvatore Lo Bianco (1860-1910) to study the basic principles of classification and the most important methods of fishing and preservation. By that time the Naples Station was already a well-known international research institute for marine biology.

The counterpart in this venture, the Italian Navy, had also been well prepared. Already in 1865 Italian zoologist Enrico Hillyer Giglioli (1845-1909) had taken part in the three-year circumnavigation of the Italian ship Magenta under the command of V. F. Arminjon (Giglioli, 1868). In 1872 the Hydrographical Office of the Royal Italian Navy had been founded at Genoa, its first director being G. B. Magnaghi (1839-1902) who was to command numerous hydrographic campaigns in the Mediterranean Sea between 1878 and 1888 onboard the Washington.

After the well-advertised and enormous success of the Challenger Expedition (1872 to 1876), Giglioli in particular tried to encourage similar Italian hydrographic and zoological ventures in the Mediterranean (Giglioli 1881). He also took part in the first deep-sea campaign of the Washington during August and September 1881, where he also met Chierchia as well as Dohrn and his collaborators.

The steam corvette Vettor Pisani, launched on 22nd July 1869 in Venice, entered service in 1871 (Figure 2). For this special trip she was armed in Venice in March 1882. In April she arrived at Naples with a threefold order, suggested and approved by Dohrn, the Captain, Admiral Giuseppe Palumbo (1840-1913) and the Navy Minister: (1) to make zoological collections, (2) to check previous hydrographical research results, (3) to perform soundings at great depth, including bottom sampling and temperature measurements.

The hydrographical survey was limited to a few localities: the ports of Pernambuco, Italiano, Lagunas (all in the Chonos Archipelago), Ancon (Peru), Vettor Pisani (Galapagos), S. Jacinto (Philippines), Caldera (Chile), the Darwin Channel and the coast south-east of Chatham (Galapagos) (Maccacci 1885a). Captain Palumbo wanted to sound at great depth during the whole cruise and decided to have one stop a day for sounding and collecting. Some of the results were sent directly to the Hydrographical Office in Genoa.

The zoological collections were Chierchia's responsibility alone. During his training he had mostly concentrated on the rather difficult preservation of invertebrates such as worms, coelenterates and protozoa. He prepared a general scheme to facilitate their identification and decided to take onboard the fishing, dredging and sampling equipment that had successfully been used at the Naples Station. A small lab was installed onboard consisting of a 4-cubic metre space in the battery for the storage of specimens and chemicals. There was also a trunk specially made for him and fixed on the battery to house tools and glassware, its open lid serving as a working table. Dry plants, shells, cotton wool and paper were kept in another big trunk. Holes in the inclined lid could hold up to five hundred glass tubes, of which he took about twelve hundred. Alcohol required for scientific use was stored separately, together with boxes for larger animals. All this equipment cost the Navy about thirteen hundred lira in all.

Chierchia had to work mostly at night, when surface fishing was best, bent double because of the hammocks in the battery and with insufficient light for the identification of organisms and the danger of fire each time he had to use corrosive sublimate. Each organism had to be identified and date and place carefully noted.

In the Strait of Magellan the cruise followed very much the route previously taken by others, but part of their exploration of the Darwin channel (the Chonos Archipelago, Southern Chile) was new. Equipped with a copy of the chart used by Captain Fitz-Roy on the Beagle (1832 to 1835) they realised that essential geographical corrections of the map had to be made before they could take proper hydrographical measurements. Chilean authorities granted them permission to give their names to some of the islands in the Chonos Archipelago (Palumbo, Chierchia, Serra, Vettor Pisani). On at least three occasions Chierchia entrusted shipments of collected specimens to Italy-bound ships: two crates from Montevideo in September 1882, three crates from Calao in December 1883 and again in May 1884 after their return from the Galapagos islands. This last shipment included a new species of echinoderms, as well as insects, snakes and terrestrial plants.

It was while crossing the Pacific towards Hawaii that in May 1884 that the *Vettor Pisani* made her most important contribution to oceanography. In order to learn something about the horizontal distribution of organisms at greater depths one had to be sure that the contents of nets attached to sounding lines actually came from great depths. Captain Giuseppe Palumbo solved this problem by devising a net that, attached to a Negretti and Zambra reversing thermometer, could be taken to great depth still closed. It would open at a predetermined depth and remain open for the first ten to fifteen metres of ascent, before closing again for the rest of the way up to the surface. The results contributed to proving the existence of an intermediate fauna.

The remaining time on their return voyage allowed only for brief stopovers on Hawaii, the Philippines, Hong Kong and Shanghai. Singapore, Colombo, Aden, Massaua and Suez were the last stops before reaching Naples on 29th April 1885, after three years and ten days away from home.

In the end, Chierchia's collection consisted of 350 glass jars, 1,140 tubes and 25 zinc boxes full of organisms, in addition to 166 specimens of algae and plants, and four boxes of shells, dried animals and seafloor samples. Experts underlined the precise documentation and identification, as well as the perfect and high-quality preservation of the collected organisms, in particular the variety of pelagic fauna and of larval stages. Fifty scientists from nine different countries applied for the privilege of studying specimens or groups of animals from the Chierchia collection. A committee of six, including Dohrn, Giglioli and Chierchia, were responsible for distribution of permission.

There were several results published, but on the whole the *Vettor Pisani* circumnavigation remained an isolated episode: an exciting and innovative project of collaboration between the Italian Navy and the Naples Zoological Station that for various reasons never developed into something more permanent.

Further Reading

- Chierchia, G., 1885, Collezioni per studi di scienza naturali fatte nel viaggio intorno al mondo dalla R. Corvetta Vettor Pisani (Comandante G. Palumbo). Anni 1882-83-84-85, Rivista Marittima, (sett., ott., nov.): 174 p, plate I – XII, charts A, B.
- Groeben, C., 1990, The Vettor Pisani Circumnavigation (1882-1885), Deutsche Hydrographische Zeitschrift, Erg.-Heft B, 22: pp. 220-234.