

# THE DEPARTMENT OF NAVIGATION AND HYDROGRAPHY OF THE TURKISH NAVY

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## Historical Background

Old charts and books show that Turkey has given an important place to hydrography since the fifteenth century.

Piri Reis, who lived in the time of Süleyman the Magnificent, wrote his well-known sailing directions for the Mediterranean, entitled *Kitabi Bahriye*, in 1513. And also, a chart compiled by Piri Reis contains all discoveries in the methods of navigation and maritime routes known in the sixteenth century. His chart shows the Atlantic Ocean, the Antilles, and the Atlantic coast of South and Central America.

During the first and middle parts of the nineteenth century, separate surveys of the Turkish shore in the Black Sea were carried out first by Russians, and then by the Turkish ships *Ahter* and *Neyyirizafer*.

The first chart of the Black Sea was produced in the Naval Academy in 1840, and is now in the Turkish Naval Museum.

The survey made in Marmara in association with Russians in 1824, and the surveys of the Turkish coasts (Aegean Sea, Black Sea, and the Sea of Marmara) that British hydrographic experts started to carry out in 1840, constituted a basis for the present Admiralty charts of Turkish waters. Between 1890 and 1900, three Turkish ships made occasional surveys for training purposes.

In 1909, the first official hydrographic organization, entitled the "Naval Charts Division", was set up and attached to the Ottoman Ministry of the Navy. Among its functions were establishing and maintaining lights, issuing notices to mariners, and supplying navigational devices and charts to the Navy.

Later, this office was re-organized and converted in 1911 into the "Navigational and Maritime Survey Division", with a relatively more independent status. In 1925 the Naval Charts Division was attached to Harita Umum Müdürlüğü (Army Map Service).

Finally in 1950, the Maritime Division was re-organized under the Turkish Navy as the Department of Navigation and Hydrography. Then in 1956, the Department moved to its new building, designed specifically as a hydrographic office, and expanded its facilities with new equipment, laboratories, survey ships, a printing press, etc.

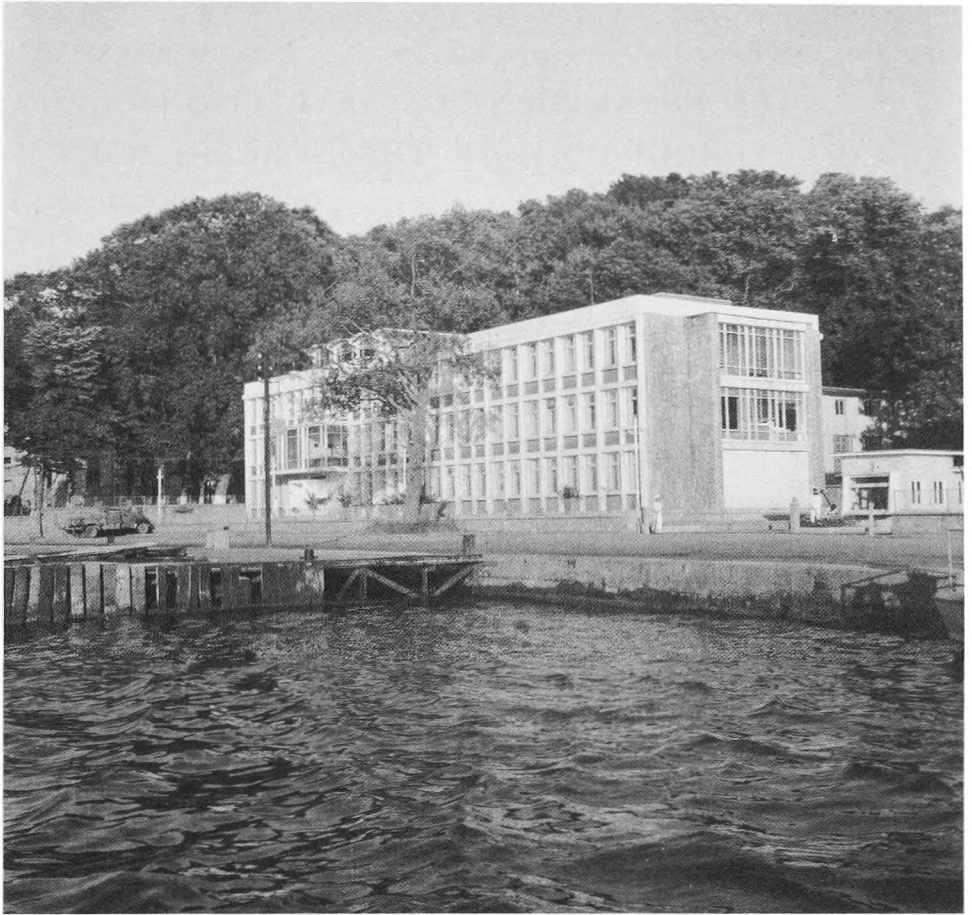


FIG. 1. — Department of Navigation and Hydrography  
of the Turkish Navy.

### **The Basic Functions of the Department**

Hydrographic, oceanographic, geophysical and geological surveys, and research for bathymetric, acoustic, magnetic, seismic and biological information;

Issuing Notices to Mariners, List of Lights and Sailing Directions;

Construction of all nautical and special purpose charts;

Supplying all nautical charts and publications to the Navy.

### **Organization of the Department**

The Department consists of two main groups : the technical group and the administrative group. The technical group includes the divisions of oceanography, hydrography, geophysics, cartography and lithography. The divisions of the administrative group provide the administrative support necessary for the functioning of the office.

### The Survey Ships

Two steel-hulled minesweepers of the Turkish Navy have been converted into hydrographic and oceanographic survey ships. They were built in 1943 (ex-U.S. *Auk* type), but later overhauled on many occasions.

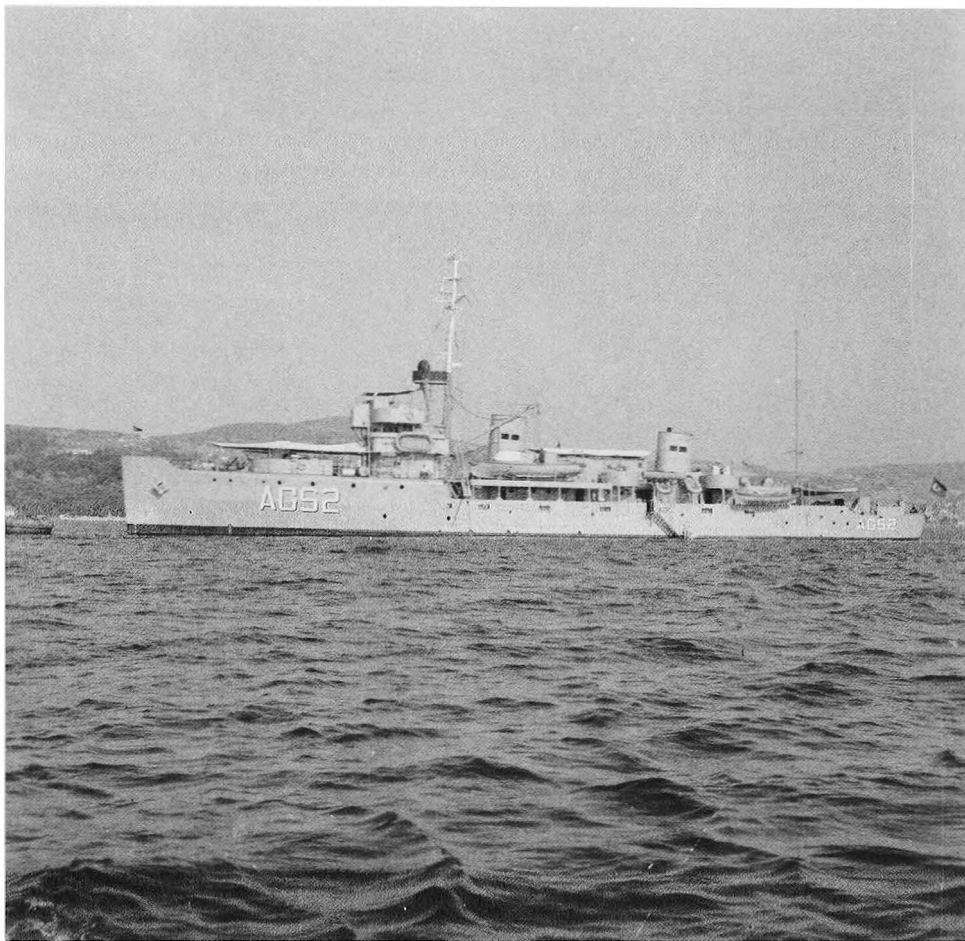


FIG. 2. — Survey vessel *Çandarlı*.

Their main propulsion is two diesel electric engines of 3 500 B.H.P. The ships have an overall length of 221 feet, a beam of 32 feet, and displacement under full load of 1 250 tons. Their cruising speed is 12 knots.

Each ship has a chart room, oceanographic and electronic laboratories, and is equipped with the Two-Range Decca System and 909 Decca Survey Radars, an electro-hydraulic controlled oceanographic winch with a drum capacity of 12 000 feet, and a bathythermographic winch.

The oceanographic equipment on the ships includes devices for measuring current and water temperatures, for obtaining water samples of various depths and samples of bottom sediments. The geophysical equipment

includes a towed proton precision magnetometer, a Boomer for seismic observation and a velocimeter for continuous sound profiles.

For hydrographic purposes, the ships are equipped with three UQN depth recorders and precision graphic recorders.

Two inshore hydrographic boats, each of 60 tons, are equipped with a portable Edo 255 CMK depth recorder.

### PÎRÎ REIS' CHART (\*)

The chart of Pîrî Reis was discovered in 1929, when the palace of Topkapi in Istanbul was being turned into a museum of antiquities.

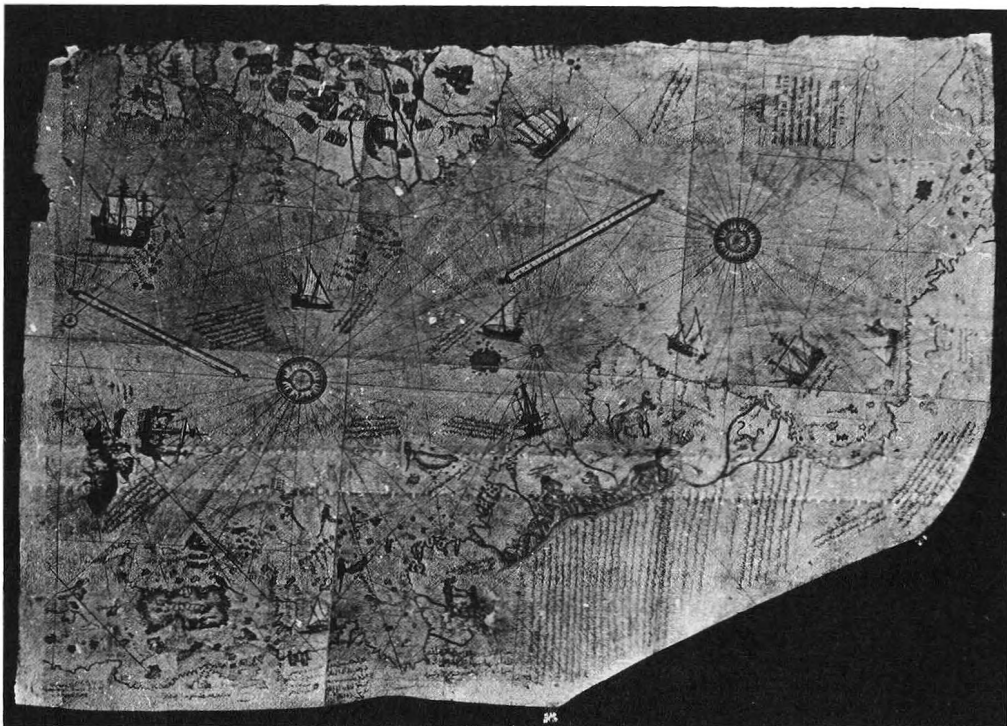


FIG. 3. — Pîrî Reis Chart.

The cartographer of the chart, Pîrî Reis, was a nephew of Kemâl Reis, one of the Turkish admirals in the Mediterranean during the last quarter of the fifteenth century. History records Pîrî Reis' last official post to have been that of Admiral in the Red and Arabian Seas.

Besides acting as the Admiral of the Fleet, Pîrî Reis also occupied himself with the science of navigation. His chart and his book, *Kitabi Bahriye*, testify to his skill and capacity in theoretic navigation. The book contains not only descriptions and drawings of the coastal cities and countries, but also valuable information on the subject of navigation. Pîrî

(\*) *Türk Tarih Arastirma Kurumu Yayinlarindan*, No. 1, 1935. From the Publications of the Turkish Organization of History and Research, No. 1, 1935.

Reis prepared and drew his chart in 1513 in the city of Gallipoli in the Dardanelles.

Piri Reis explains in one of his marginal notes the manner in which his chart came into existence :

“ This section shows in what way this map was drawn. In this century, there is no other map like this map in anyone's possession. The hand of this poor man has drawn it, and now it is constructed. From about twenty charts and Mappae Mundi — these are charts drawn in the days of Alexander, Lord of the Two Horns, which show the inhabited quarter of the world; the Arabs name these charts “ Jaferiye ” — from eight Jaferiyes of that kind and one Arabic map of Hind, and from the maps just drawn by four Portuguese which show the countries of Sind, Hind (India) and China geometrically drawn, and also from a map drawn by Columbus in the western region, I have extracted it. By reducing these maps to one scale, this final form was arrived at. So, the present map is correct and reliable for the Seven Seas since the maps of these countries are considered correct and reliable by seamen. ”

In a special chapter of *Kitabi Bahriye*, Piri Reis explains that, in drawing this chart, he has followed the cartographical traditions considered as international in his time. Cities and citadels are indicated by black lines, rugged and rocky places by black dots, shallows and beaches by red dots, and submerged rocks by crosses.

A second point of interest is that the chart is not a copy, but an original work from various maps, and based on the personal experience of the Admiral and his friends.

It is regrettable that only a fragment of this very important chart is in our possession. If the remaining parts had not been torn away and lost, we would be in possession of an excellent Turkish map of both the old and the new worlds drawn as early as 1513. Considering that Columbus' voyages were made during the last years of the fifteenth and the early years of the sixteenth centuries, a chart drawn so short a time after the new discoveries may be considered as one of the first to show all the continents together. To summarize, Piri Reis' chart, drawn in the early sixteenth century is, from various points of view, a very valuable Turkish work.