

SPAIN

Spain is located in the southwestern part of Europe, and, together with Portugal, constitutes the Iberian Peninsula. In addition to the peninsular zone, the whole of the Spanish state is constituted by the Balearic and Canary Islands and the cities of Ceuta and Melilla in the north of Africa.

The country has a land area of 504,782 km², a population of around 40 million and 5,309 km of coast. It is administratively divided into 17 autonomous regions and 2 sovereign regions. The official language is Spanish, the currency is the Peseta. Spain is a constitutional monarchy, the present king being King JUAN CARLOS I.



FIG. 1.- Spain.

The capital city of Spain is Madrid, which is the seat of the government, and other major towns and ports are: Barcelona, Valencia, Sevilla, Malaga, Bilbao and La Coruña.

Geographically, the central part of the Peninsula consists of a very extensive and high tableland, the borders of which are formed by high mountain chains: the Cantabric Chain on the north, Sierra Morena on the south and the Iberian System on the east. In the West, the tableland slopes down slightly to the Atlantic Ocean. Other mountain chains are located in the external part of the tableland. The most important are the Pyrenees on the northeast and the Betic mountain chain on the south. Between the tableland and these chains of mountains are the valleys of the Ebro and the Guadalquivir and the Eastern plain. The two insular areas, the Balearic and Canary Islands, are respectively in the Mediterranean Sea and in the Atlantic Ocean.

Agriculture, cattle farming and fishing have traditionally been the principal economic resources of the country but industrial production has grown in the last years.



FIG. 2.- SV TOFIÑO.

Tourism has reached spectacular levels. In 1995, Spain was visited by 63 million foreigners, drawn by the warm climate, the excellent network of hotels and other facilities.

Civilization in Spain dates back to the stone age. The Cro-Magnon man ante-dated the Iberian and the Celtic. The Phoenicians established colonies in Andalusia, and were followed by the Greeks and the Cartaginians.

The Romans, after their victory over the Cartaginians, settled down in Spain for several centuries, creating many cities and building numerous monuments, many of which still exist today. In 711, a Muslim army defeated the last Visigothic King and conquered a great part of the Peninsula. Their influence still exists in the present Spanish culture. The domination lasted for almost 8 centuries and ended in 1492 with the conquest of Granada, the last Muslim bastion, by the Catholic Kings, who became rulers of all Spain.

The discovery of America inaugurated an enormous expansion of the Spanish empire, which included, at the beginning of the 16th century, besides Spain, not only the present European countries of Austria, The Netherlands, Belgium and part of Italy, but almost all of the Americas and Philippines.

The 17th century marked the beginning of Spain's decline as a major power and was finalized at the end of the 19th century with the loss of Cuba and the Philippines.

The Hydrographic Office

The hydrographic activity of the Spanish Navy began with the first voyages of the Navies of Aragon and Castilla to which some of the oldest portulan charts are owed.

During the second voyage of Christopher Columbus, who served the Spanish Kings, the pilot Juan de la COSA began, in 1493, the first nautical chart of the New Continent, which was finished in 1500, and presented to the Catholic Kings. This document is kept at the Naval Museum in Madrid.

After the discovery of the New World, shipping, till then mainly coastal, acquired a new dimension: offshore navigation became important, requiring a wider scientific knowledge, improved technology, and the support of nautical cartography in order to reduce the risks.

The Kings of Spain participated actively in the development of navigation and hydrography. In 1503, the "Casa de Contratación" was established in Sevilla and in March 1508 they created the post of Main Pilot, who was tasked to create the "Padron Real", a type of chart design and general register to be used by all pilots and in which new discoveries and maritime courses should be included. Islands, bays and ports were included in it. King Fernando requested the services of distinguished mariners: Vicente YÁNEZ PINZÓN, Juan DIAZ DE SOLÍS, Juan de la COSA and Amerigo VESPUCCI, known in Spain as "Américo VESPUCCIO". De LA COSA and VESPUCCI were among those holding the rank of Main Pilot. A number of important nautical documents were published. The error of plain charts was corrected, providing an adequate chart projection. Also, an effort to find a solution to the complex problem of obtaining the longitude at sea was made.

During the XVIIIth century the development of hydrography continued, thanks to the effort of renowned mariners such as Jorge JUAN, ULLOA, MALASPINA, TOFIÑO, BUSTAMANTE, LÁNGARA, CISCAR, ESPINOSA, among many others.

From 1735 to 1745, Jorge JUAN and ULLOA, two young midshipmen, took part in a geodetic expedition, which measured, in the Vice-Kingdom of Peru, an arc of meridian of one degree longitude, to solve the problem of determining the true shape of the earth.

From 1789 to 1794, the corvettes ATREVIDA and DESCUBIERTA, commanded by MALASPINA and BUSTAMANTE, achieved the most ambitious and complete expedition carried out till then. One of the objectives of the expedition was

to improve the cartography of all the Spanish colonies in America and Asia. 185 charts and 240 drafts were produced.

In 1783, Brigadier Vicente TOFIÑO was tasked with the preparation of a Hydrographic Atlas and Sailing Directions. This work was concluded in 1788.

On 17 October 1797, under the leadership of Captain José de ESPINOSA Y TELLO, the "Dirección Hidrográfica" was established. In 1789, the "Depósito Hidrográfico" was also created to keep, print and distribute original charts. These organizations represented a considerable improvement of Spanish navigation. In 1944, the "Instituto Hidrográfico de la Marina" was established in Cádiz, reporting directly to the Chief of the Staff, with the mission of ensuring safety of navigation, obtaining and broadcasting nautical information and contributing to the development of the nautical science. Hydrographic, oceanographic, geodetic and photogrammetric surveying were required to achieve these objectives, resulting in the publication of nautical charts and other documents, such as Tide Tables, Sailing Directions, List of Lights, Radionavigational Warnings and Notices to Mariners.

Spain was one of the 21 founding members of the International Hydrographic Organization, in 1921.

The present organization of the "Instituto Hidrográfico" is as follows: Directorate, Sub-Directorate, Secretariat and Sections of Navigation, Hydrography, Cartography, Oceanography, Photogrammetry, Geodesy, Industrial, Computer Center, Personnel and Finance.

The School of Hydrography, within the Institute, provides training to all the categories of hydrographic staff of the Navy.

The chart portfolio includes 418 nautical charts. The hydrographic flotilla consists of six vessels, all of them built in Spain: MALASPINA and TOFIÑO (1,090 Tn.) CASTOR, POLLUX, ANTARES and RIGEL (355 Tn.)