

250 YEARS OF HYDROGRAPHY IN FRANCE

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The French Hydrographic Service has now marked its 250th anniversary, having been founded by a Naval Council decree of 19 November 1720 instituting within the Naval Archives Department a General Depot of charts, plans, journals, and documents relating to navigation. A day later, another decree nominated Captain, the Chevalier de Luynes as its director. This senior officer was the first of a line of executive branch (*) directors who up to 1901 headed this department. After several changes of name, in 1886 the depot was finally designated the Naval Hydrographic Service. Alongside this director — from the time of Louis XVI onwards the post was always held by officers of flag rank — there was a hydrographic engineer who was responsible for the smooth technical running of the Depot. Since 1901, however, these two aspects of direction have been amalgamated in the person of a hydrographic engineer.

As is often the case, the creation of the Hydrographic Service was merely the outcome of a long period of development from an initial concept. In the case of French marine cartography this period covered two centuries. The first nautical document published in France appears to have been the "Grand routtier, pillotage et encrege de la mer" drawn up in 1483 by Pierre Garcie, alias Ferrande, a pilot at Saint-Gilles-sur-Vie, but not printed until 1520. This was in fact more a representation of the coastline than a chart, properly speaking. About this time Pierre Desceliers, a priest, formed a school of hydrography in Dieppe, profiting by all the information that Norman sailors brought back from their long voyages to form a basis for navigational instruction founded upon charts. These charts were much improved by the introduction of the so-called "reduced chart" process invented by Jean Le Vasseur, disciple and continuator of Desceliers. The State, however, did not uphold the work of these hydrographers in Dieppe, and the Dutch, learning the secret of these French charts, were to monopolize almost entirely the construction of new charts. By the middle of the 17th Century these new charts had superseded all the older similar documents.

The first hydrographic survey was attempted during the first quarter of the same century, but it was not to meet with much success. The

(*) The American equivalent is "line officer".

surveyors, one of whom was a qualified hydrographer, were given the task of describing the coasts and islands of the kingdom but the means available to them were wholly inadequate.

The first French statesman to perceive the importance of hydrographic surveys and nautical charts was incontestably Jean-Baptiste Colbert, Louis XIV's celebrated minister, whose prodigious creative activity in many domains, and in particular the Navy, lasted from 1661 up to his death in 1683. His concern for the safety of ships led him to interest himself in hydrography. As early as 1661 he had converted the hydrographic school in Dieppe into a state establishment, later bringing several similar establishments into being. Hydrographic engineers were given the task of surveying French coasts in the Channel, the Atlantic and the Mediterranean as well as those of several other Mediterranean countries. This work covered the period 1666-1689 and it served as a basis for the publication of the first "Neptune françois", a collection of charts of the European Atlantic coast, from Norway to Gibraltar and including the Baltic — an Atlas so remarkable that a Dutch version of it was published in the very year that the publication first appeared. The Mediterranean coastal surveys which should have been the subject of another "Neptune" were, however, repeatedly interrupted, and it was not until 1737 that a set of three charts for the Mediterranean was finally published. These were of high standard for the times.

In this way hydrographic and nautical documentation started to be built up in France. However, although the Naval Archives (a service set up by Colbert) were kept in Versailles at the headquarters of the Ministry, the nautical documents were centralized in Paris where the hydrographer engineer Charles Pène made use of them, in particular for compiling the "Neptune françois".

After Pène's death the documents reverted to the Naval Archives whose director was at the time the learned Pierre de Clairambault. In 1699 the documents were installed in a building in the Petits-Pères Garden, Place des Victoires, Paris. It was from there that the final division of papers between the Archives Depot and the Chart and Plan Depot was made in 1722, the latter receiving all documents of a nautical nature such as charts, plans, ships' logs, reports and other memoranda submitted by commanding officers on their return to port.

Following France's example, the great maritime nations in turn created their Hydrographic Offices — Denmark in 1784, England in 1795, Spain in 1800, the United States in 1807, etc.

After 1720 the impetus given to hydrography in France by Colbert was maintained for another 50 years, largely due to the hydrographer Bellin who from his appointment to the Depot in 1721 right up to his death in 1772 was the moving spirit in cartographic reproduction, improving its quality greatly. Later the Marine Depot made rapid strides with the direct aid of royal authority, for it was decreed that only the most accurate charts could be used, thus in effect according to the Chart Depot a monopoly in marine cartography. Both the compilation of nautical charts and their publication by those not expressly entrusted with the task were in fact forbidden by a King's Council decision dated 5 October 1773. This decree

remains in force today, never having been revoked by an order to the contrary.

However, whereas the Marine Depot was able to continue to devote itself uninterruptedly to the task of compiling and publishing nautical charts, systematic surveying was not begun again until more than a century later when the renowned hydrographer Beautemps-Beaupré established the principles which made of hydrography a veritable science and their author the creator of modern hydrography. As a young man of 25 he was attached in 1791 to an expedition under Admiral d'Entrecasteaux sent to the Pacific in search of La Pérouse. It was during this voyage, which was to last four years, that it occurred to Beautemps-Beaupré that he could avoid the large errors inherent in magnetic compass measurements by extending to nautical charting the newly formulated methods used in geodetic and topographical surveys for production of land maps. The precise angle measurements that this new method necessitated were made with a Borda sextant which supplied the values of the horizontal angles subtended by the base lines between points on the shore. Each determination gave the observer's geometric locus, i.e., an arc containing the measured angle described on its base. Beautemps-Beaupré thus obtained for chart survey purposes an accuracy that was incomparably superior to any previously attained, and this method which transformed hydrography into a mathematical technique was soon universally adopted. Even today it remains the basis of most of the methods employed. This material progress soon led Governments to organize hydrographic surveys staffed with truly scientific specialists whose task was to survey all the coasts likely to be of interest to their Navies. These two aspects of hydrographic activity, and the fact that hydrographers were no longer essentially compilers as they had been in past centuries, both date back to this era.

Thus in France towards 1794 there came into being a Corps of Hydrographic Engineers which was rapidly to become the keystone of the Marine Depot for its members were those who carried out the essential activity of the Marine Depot. The Corps, however, did not receive its Statute until the royal decree of 6 June 1814, which is thus the date on which the Corps can truly be said to have been founded. Its complement was 16 Engineers — although this number was before long increased by one — and it then remained unchanged right up to 1929. Since that date the number has been almost doubled, on account of the increased demands of surface and sub-marine navigation, as well as by reason of a world wide development in maritime activity. Finally, their numbers have increased in the last 25 years due to the military requirement for a better knowledge of the marine environment, in particular of its physical and dynamic aspects.

Animated in its early years and for nearly half a century by Beautemps-Beaupré — a man as learned as he was indefatigable — this tiny Corps since 1800 has accomplished a monumental task. First, its engineers reconnoitred the coasts of the whole of Napoleon's vast empire from Prussia to Illyria, and then they painstakingly surveyed the coasts of both France and Italy as well as taking part in exploratory cruises and scientific missions. Then came the work of revision surveys to cope with new

developments in both maritime traffic and ship's characteristics. At the same time, step by step, hydrographers were accompanying France's territorial expansion that led to her extensive colonial empire under the Third Republic. Thus the work they carried out over the long years was to benefit mariners everywhere.

The year 1970 was not merely the year of the 250th Anniversary of the foundation of the Hydrographic Service; it marked also another milestone in the life of the institution : the recent decision to transfer the Hydrographic Service from Paris to Brest — although the Directorate is to remain in Paris as part of the central Administration. Land has been acquired, the buildings are on their way to completion, and the move is expected to take place in a few months' time. Up to the present, apart from a fairly short stay in Versailles (1763-1775) and partial withdrawals to the provinces during the two World Wars, the establishment has never yet left Paris. Ever since 1817 the Hydrographic Service has occupied premises at 13, rue de l'Université which during the reign of Louis XV had been the residence of the Venetian Ambassador. Many generations of mariners have frequented the old edifice which the Hydrographic Service will be quitting in a few months' time to become "decentralized" in Brest. This move — which is to be accompanied by an internal reorganization — is certain to evoke nostalgic memories, for hydrographer and sailor alike have long been familiar with the address in the rue de l'Université, and often even with the friendly building itself.

We may note a curious parallel between the stability of the Corps of Hydrographers from 1814 until 1970 — the year of its amalgamation with the larger Corps of Military Engineers — and that of its seat of activity from 1817 to 1971. This may perhaps account for both the remarkable continuity in the Hydrographic Service's activities and the expansion that it now plans, an expansion resulting from its close and continuing links with modern scientific and technical progress.

Such progress has today become so rapid and so important that the structure of many traditional organizations is proving inadequate. French hydrography does not escape this impact, and indeed therein lies proof of its vitality. May this vitality continue to flourish within the Hydrographic Service in its new surroundings.