Ingénieur Hydrographe Général E. FICHOT - (1867-1939)

OBITUARY

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In the *Hydrographic Bulletin* N° IV, of July/August 1939, we announced the death of Monsieur l'Ingénieur Hydrographe Général Eugène FICHOT, who was both a scientist and hydrographer of great repute.

Lazare Eugène FICHOT was born at the Creusot (Saône-et-Loire) on the 18th January 1867. Gifted vith a keen intelligence, after short but brilliant studies at the "Ecole Monge", he entered the "Ecole Polytechnique", when he was seventeen; two years later he left this school as a member of the Corps of the "Ingénieurs Hydrographes" (Hydrographic Engineers). He worked with great enthusiasm and became rapidly conversant with marine surveys. He spent several months on the coast of Brittany, studying the "Chenal du Four", then left in October 1887 on the training cruiser "Iphigénie", but laid up with typhoid fever in April 1888, he had to be disembarked and taken to hospital.

As soon as he had recovered, and in spite of poor health which never improved, he was sent under the orders of Ingénieur Hydrographe MION, to effect a rapid survey of the coast of Madagascar. He remained there for two years and 4 months, during which he suffered from chronic enteritis and fever and was obliged to go for a rest to the Island of Réunion. He was there in 1890, during the eruption of the volcano, and thus was able to make interesting geological and botanical observations which he set out in a delightful article wherein is added, to the scientific interest, the charm of a bright and polished style which remained a characteristic of all his writings. As remarked by one of our great poets, this facility enabled E. FICHOT to be noted as much for the literary as for the scientific value of his writings.

On the sloop "Chimère", E. FICHOT took part, on the coast of France, in the following hydrographic expeditions:

Gironde	1892
Seine-Inférieure	1804
South coast of France.....	1897-98
Raz de Sein.....	1902
Glenan Islands.....	1903

Later, he directed on the same coast, the following surveys:

Cherbourg Pass.....	1908
Gironde	1912
Bay of the Seine.....	1913
East coast of Cotentin.....	1914
Gironde	1917

The survey of the Cherbourg Pass necessitated great accuracy, on account of the deep draught of the big liners which entered the Pass with but little water under their keel. Thanks to skilful researches carried out with the aid of

divers, E. FICHOT was able to discover several boulders which were a danger to these big ships.

Useful precision on the progress of silting in the Gironde and the Bay of the Seine were obtained by his surveys of these rivers and the study of the regime of same. This information enabled the Department of Public Works to improve, later on, the mouths of the rivers in question.

Between the periods of his numerous commissions on the coasts of France, he was engaged in the following important colonial commissions: Madagascar, 1899-1900, on board the "Rance"; Tonkin, 1905-1906, on board the "Manche"; Indochina, 1909-1910.

At Madagascar, the main object was the survey of the bank which, off Cape Saint-André stretches out of sight of land, rises in the shape of a dangerous coral ridge and then suddenly sinks into great depths. A special material of floating beacons was devised and thus it was possible to carry as far as necessary the system of a triangulation which supplied reliable datum points to the soundings.

The operations to be carried out in Tonkin were decided as a result of the loss of the *Sully* on a rock head at the entrance to the Bay of Along. It was necessary to effect an entire resurvey of the Indo-chinese coasts, which had been hurriedly made, with inadequate means, at the time of the conquest. E. FICHOT was obliged, by important geodetic work, to link up the hydrographic survey of the coasts with the triangulation system of the Geographic Department; he accomplished this task with the same accuracy which characterised all his work, and left to his successors a solid basis for pushing forward, right up to the frontier of China, the survey of the curious archipelago, a veritable labyrinth, which was, at one time, a den where the pirates found unknown refuges, and where numerous narrow channels constituted, over a great length of coast, a sea route wherein the water is always calm.

During part of the 1914-1918 War, E. FICHOT was detailed to the Army and, in 1916, was placed at the head of the "Groupe de Canevas de Tir de la 4^{me} Armée (Champagne)".

From 1918 to 1924, he was head of the Division of Scientific Instruments and of the Division of Tides, at the Central Hydrographic Office, Paris.

Promoted "Ingénieur Général" in 1924, he became head of the Department, until 1932.

He was also the head of the French Delegations to the International Hydrographic Conferences of 1926, 1929 and 1932, and presided over the latter with the competence, tact and affability which made him so popular as a colleague and as a chief.

On the 24th December 1931, he became "Grand-Officier de la Légion d'Honneur", a recompense which was granted to very few of his predecessors.

In spite of a well-filled career, E. FICHOT found time for important scientific work, the main one being the theoretical study of the tides. His first achievement in this connection was the compilation and publication of the lectures on the subject given by the great mathematician, Henri Poincaré. More than a compilation, this was a real collaboration, in which E. FICHOT, with his love

for accuracy, added the practical touch of strict facts to the theories which the brilliant scientist sometimes left to intuition. Pursuing the study of this great problem, he set out in several communications to the "Académie des Sciences", the action on the tides of the earth's rotation and the existence of amphidromical points.

In a wonderful little book, published by Gauthier-Villars in the collection "Science et Civilisation", entitled "Les Marées et leur Utilisation industrielle" (Tides and their industrial utilization), he managed, thanks to his alert mind and to his excellent style of writing, to give in a few pages and without mathematical formulae, a quite complete and exact summary of the phenomenon of tides, together with all the known facts and many hitherto unpublished results. Pursuing this study, he was able to improve the theories considerably and to show that the conclusions of certain authors had been too hastily drawn. He condensed the whole of his work admirably in the "Exposé Critique de la Théorie des Marées" (Critical Exposition of the Theory of Tides), a capital work, the first part of which appeared in Volume XI of the "Annales du Bureau des Longitudes" (1), and the second part sent to press before his death, and will, it is hoped, come out shortly.

E. FICHOT was also greatly interested in geodetic problems, and was led to study the formulae employed for the calculation of geodetic positions. Taking up the matter from the beginning, he showed that the method used by hydrographers, supplemented by his observations thereon, could furnish all the required accuracy in the same way as other formulae more recently held in honour.

He also resumed the study of a curious problem concerning the geodetic lines, which, starting from a point on our terrestrial ellipsoid, reach the antipodal region. He thereby obtained very interesting and accurate results, which invalidate those reached by Gauss, wherein the approximation is not pushed so far.

E. FICHOT was appointed in 1921 instructor in geodesy and astronomy at the "Ecole Polytechnique", and thereafter became an examiner in these same subjects. In 1923, he was nominated a member of the "Bureau des Longitudes", and, on 2nd February 1925, a member of the "Institut" (in the Division of Geography and Navigation); in 1935, he became a member of the "Académie de Marine" which he presided over. He was also President of the Division of Physical Oceanography of the French National Committee of Geodesy and Geophysics.

He was a member of the Astronomical Society, which he presided over, and of several other scientific Societies. He published several articles in the *Revue d'Astronomie,* where he treated playfully and with much humour, little but often difficult problems, which, by his skilful presentation, appeared easy.

He died on the 18th July, 1939, leaving to all who have known him the remembrance of a lovable, simple and kindly man, under whose great modesty was concealed high scientific knowledge. P.V.

(1) See *Hydrographic Review,* Vol. XV, N° 1, May 1938. page 100.