

## BY THE OLD HYDROGRAPHER

# Ernst Knorr and Shaping the Hydrographic Surveying Profession

Ernst Peter Rudolphus Knorr was born in the city of Thorn in West Prussia in 1819. He emigrated to the United States and made his way to Washington where he became associated with the Navy. Starting as a civilian clerk he rose over the years to be the senior draughtsman in the Hydrographic Office. In 1879 he put forward detailed proposals for the establishment of an international hydrographic organisation. Forty years later the first International Hydrographic Conference was held in London where it was decided to form an International Hydrographic Bureau, very much along the lines of Knorr's proposal.

His first naval appointment was as the Captain's clerk onboard the U.S. steamer Hetzel commanded by Commander John Rodgers. Three years later both the Captain and his clerk transferred to the U.S. steamer Legare. These two vessels were virtually on loan to the Coast Survey for surveys of the waters of southern Florida. The work was extremely arduous, involving much sounding work in open boats under oars in a tropical climate.

In Legare Rodgers was already employing his civilian clerk on survey work - "I have so high an opinion of Mr Knorr's carefulness and skill" he wrote "that I should regret to trust my hydrography to anyone whom I do not know so well".

By 1838 the Navy had begun a series of major expeditions designed to survey unknown waters frequented by the country's sealers and whalers. The first of these was the U.S. Exploring Expedition which, under the leadership of Lieutenant Charles Wilkes in his flagship Vincennes, a sloop of war, circled the globe in the years 1838-42.

After six months in Legare Rodgers and Knorr moved together to the bark-rigged steamer John Hancock to take part in an ambitious exploring expedition to the north Pacific led by Commodore Ringgold, in Wilke's old flagship the Vincennes, due to sail in June 1853. Knorr was now rated as a draughtsman in addition to his duties as Captain's clerk.

Work had begun off Japan when Commodore Ringgold fell sick and was sent home. Rodgers took over command of the Expedition and transferred onboard Vincennes together with Knorr.

At one stage the expedition spent two months engaged in a detailed survey of Tsugar Strait, between Nippon and Jesso (Honshu and Hokkaido). This survey had only recently been completed when it was learnt that Captain J. Richards, a British naval hydrographer, had made a similar survey in HM Brig Saracen only a few months earlier. This unnecessary duplication of work in which Knorr had been deeply involved made a lasting impression upon him.

With the expedition home in 1856 Rodgers established an office in Washington to deal with the publication of the many surveys and sailing directions resulting from the expedition. Knorr was employed in the office until its closure in 1861 with the advent of the Civil War. Knorr moved to the former Depot of Charts and Instruments, which had now become the Hydrographic Office, where he was employed in the Department of Draughting and Engraving. During this period Knorr had eventually become a naturalised citizen and had married a German girl by whom he was to have five children.

About this time Knorr put on paper his Ideas for on a Hydrographic Bureau of which I have a copy in his own handwriting, sent to me many years ago by the oceanographer Henry Stommel of Woods Hole Oceanographic Institution.

In this paper Knorr first looks at the various European maritime nations which had established hydrographic services to support national chart making, whereas the U.S. waste much effort on sending out expeditions of discovery and exploration, instead of taking steps to exchange hydrographic data with other countries to maintain overseas charts. He goes on to suggest that a Hydrographic Bureau should be established in New York where its services would be widely available to navigators and the public in general and where shipmasters could feed in data obtained on their overseas voyages.

He finally states that the particular field of U.S. hydrographic activity should be the Pacific where he points out that The U.S are the only civilised power bordering it with home territory and may justly claim the supremacy on its waters.

There is no evidence that this treatise came to the notice of any person of consequence.

In 1871 Knorr was put in charge of the Draughting and Engraving Department. He still often pondered on the possibility of a truly international hydrographic organisation; in 1879 he finally produced his Memoir on International Hydrographic Co-operation. His text covers twenty five foolscap pages written in impeccable copperplate manuscript.

He begins by pointing out how little of the world's coastal waters are as yet surveyed, but that in some cases the authorities have published charts of the same area which differ in both content and positioning. He quotes such a case as two charts of the coast of Brazil, one by Brazilian naval officers under the direction of Captain Vidal-de-Oliveira (1857-59), the other by French Admiralty Surveys by Captain Mouchez (1861-1872). Such work based on a single coastal triangulation could have been shared if both nations had belonged to an international organisation.

A very fruitful field for co-operation, he writes, would be the joint establishment of longitudes, the telegraph having proved a potent method of co-ordination. Other objects could be the introduction of uniformity in the placing of seamarks upon the charts.

He sees that mariners are the main source of information on newly found dangers such as hidden rocks and reefs, often only reported in local newspapers. If mariners sent their reports to an international organisation they could be substantiated and their dangerous presence broadcast in notices to mariners world-wide.

He sees the first step as establishing discussion by national delegates appointed for the purpose leading to the establishment of an International Hydrographic Board with an elected President; the work to be divided into sections dealing with surveying methods, sailing directions, tides and currents, reported dangers etc.

All questions of major importance he proposed should be decided by national delegates, meeting on regular occasions, each having as many votes as the tonnage of their seagoing vessels would allow. He sets out a table of such tonnages, and the number of votes to which each nation would be entitled for the year 1878.

For the seat of the Organisation he suggests Hamburg with Brussels as an alternative. Captain S.R. Franklin, the U.S. Hydrographer submitted Knorr's Memoir to higher authority in January 1879. Franklin indicates that the writer, was an excellent draughtsman and had been engaged in the various branches of hydrography for the last thirty years.

In 1883 Commander John Russell Bartlett took over as Hydrographer. He was the 'new broom' who certainly put a lot of things to rights during his five years term of office. However he thought that Knorr as Chief Draughtsman, had too much power and was making charts which lacked uniformity in lettering, abbreviations and other graphic elements. Bartlett first reduced his salary by 50 per cent and later on Bartlett's recommendation he was dismissed at the age of 65. He died the following year.

This was a sad end for a man who had given his life to the U.S. Hydrographic Service. However just over one hundred years later, the Navy, recognising his contribution, named a fine research vessel, which they built for the Woods Hole Oceanographic Institution, Knorr. This beautiful modern ship now regularly carries the great old hydrographers' name across the world's oceans.

Whether or not Knorr's Memoir was widely studied over the years cannot be known, but when one reads the French proposal, supported by sixteen other maritime states, which resulted, at the first International Hydrographic Conference in London in 1919, in the formation of the International Hydrographic Bureau, one feels that Knorr must have sown some seeds forty years earlier.