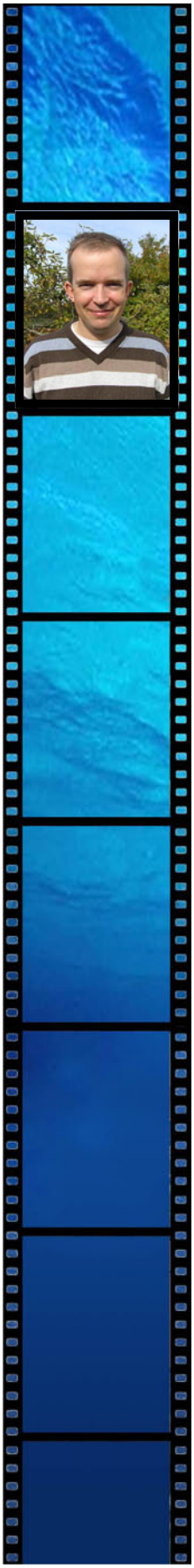


Article

FOUNDATIONS FOR "INTERNATIONAL COOPERATION IN THE FIELD OF HYDROGRAPHY": SOME CONTRIBUTIONS BY BRITISH ADMIRALTY HYDROGRAPHERS, 1795-1855

By Adrian Webb[1]

Abstract

Great Britain established its Hydrographic Office in 1795 with a remit to produce charts for the use of its Navy. As time progressed and Hydrographers to the Admiralty Board changed so did the remit of the Hydrographic Office. As a facet of the steady development of Office activities there was an underlying theme of international cooperation, which resulted in British Hydrographers entering into correspondence and agreements with their international counterparts. Some of those activities are examined in this paper to hopefully redefine the International Hydrographic Bureau's statement that 'International cooperation in the field of hydrography began with a Conference held in Washington in 1899[2].

Résumé

La Grande-Bretagne a établi son Service hydrographique en 1795 avec pour mission de produire des cartes devant être utilisées par sa Marine. Par la suite, cette mission se modifia à mesure que les hydrographes du Conseil de l'Amirauté se renouvelèrent. L'une des facettes du développement régulier des activités du Service hydrographique fut le thème fondamental de la coopération internationale qui incita les hydrographes britanniques à entrer en correspondance et à passer des accords avec leurs homologues internationaux. Quelques unes de ces activités sont passées en revue dans l'article qui suit, avec pour dessein de redéfinir la déclaration du Bureau hydrographique international d'après laquelle la coopération internationale dans le domaine de l'hydrographie a commencé lors de la conférence tenue à Washington, en 1899[2].

Resumen

Gran Bretaña fundó su Servicio Hidrográfico en 1795 con un mandato para producir cartas para su uso por la Marina. El tiempo ha pasado y del mismo modo que los Hidrógrafos del Consejo del Almirantazgo han cambiado, así ha sucedido con el mandato del Servicio Hidrográfico. Como faceta del desarrollo estable de las actividades del Servicio había un tema fundamental de cooperación internacional, cuyo resultado fue que los Hidrógrafos Británicos iniciaron un intercambio de correspondencia y acuerdos con sus homólogos internacionales. En este artículo se examinan algunas de esas actividades, esperando definir de nuevo la declaración del Bureau Hidrográfico Internacional según la cual 'la cooperación internacional en el campo de la hidrografía empezó con una Conferencia celebrada en Washington en 1899[2].

Alexander Dalrymple F.R.S. (1737-1808)

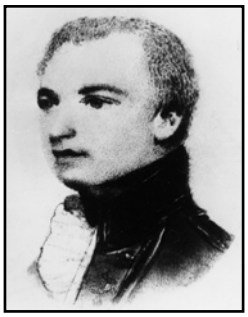
Alexander Dalrymple

Britain was already behind the times, in international terms, when it decided to establish a government hydrographic office, as both France and Denmark had already done so in 1720 and 1785 respectively. Sitting alongside those two government offices were similar institutions established by the mighty trading companies, such as that of the Honourable East India Company (H.E.I.C.) whose own Hydrographer was also appointed to the newly formed post of Hydrographer to the British Admiralty in 1795. Britain was exceptionally fortunate in appointing Dalrymple for three particular reasons. First, as he was not a naval officer and a military figure he did not come with the limitations of such trappings when dealing with foreign institutions. Secondly, he was already very well connected in the world of charting, science and exploration, having been elected as a Fellow of the Royal Society of London; he was also the Society's candidate to lead an expedition to record a transit of Venus in 1768, although he did not go and Lieutenant (later Captain) James Cook R.N. did. As well as being a close friend of Sir Joseph Banks he was supported in his election to a fellowship by Benjamin Franklin, natural philosopher, writer, and revolutionary politician in America, and Nevil Maskelyne, astronomer and mathematician. Thirdly, he had corresponded with French hydrographers Jean Baptiste Nicolas Denis d'Après de Mannevillette through the 1770s and Charles Pierre Claret (later comte de Fleurieu), as well as employing Elisabeth-Paul Edouard, chevalier de Rossel (who later become French Hydrographer).[3]

Dalrymple epitomised the fundamental strands of international co-operation, those of science, cordial international relations and a desire to put hydrography before military gains. He even proposed to the Admiralty Board in 1807 how British 'Ministers and Consuls in Foreign parts' could be used to obtain foreign charts and subsequently improve international relations.[4] However, many factors worked against expanding Dalrymple's collaborative endeavours, the main one being the state of conflict between the major European powers.

Matters came to a head for Dalrymple when he put his international values up against those of the British Admiralty, forcing his employers to pension him off. Thankfully all his good work was not undone, as the benefits from international collaboration became more deeply ensconced within the mind sets of hydrographers, not only in France and Britain but in other nations over succeeding decades.

Captain Hurd R.N. (*c.*1747-1823)



Thomas Hurd

After Dalrymple's departure from the Hydrographic Office in 1808, the Admiralty appointed Thomas Hurd, an experienced hydrographic surveyor and captain in the Royal Navy as Hydrographer. The shift from a civilian to a naval appointment, coupled with the fact that Britain was at war with France and Hurd was not a Fellow of the Royal Society (unlike Dalrymple), could have been a disaster for international relations. However, the ethos of co-operation may have been curtailed but it was certainly not gone. Hurd was very interested in science and was on very good terms with Sir Joseph Banks, and could count amongst his fellow hydrographic specialists many men who were much more scientifically orientated. Men like Captain Matthew Flinders, Captain Francis Beaufort and Captain John Franklin, had all proved their worth by the time Hurd was in post. All three men collaborated internationally despite negative experiences with foreign powers; Flinders had been incarcerated by the French for years, Beaufort nearly killed in the Mediterranean and Franklin served at the Battle of Copenhagen when only 14 years old.[5] Despite all of this potential animosity, when the American 'Hydrographer' found himself in England at the time the war of 1812 was declared, far from being treated harshly as a foreign national, he was granted a passport with the caveat that 'the British government makes no wars on science'.[6] After the peace of 1815 the situation was very different and it was in everyone's interests to co-operate.

With relationships with France restored and Dalrymple's openness to cooperation with Rossel bearing fruit as the latter was now French Hydrographer, it was only natural Britain should look elsewhere to strengthen its position in international hydrographic affairs. Subsequently it fell to Hurd to make an approach to Spain. Thus in 1817 he sent a collection of 42 Admiralty charts to the Depósito Hidrografico[7] in an attempt to open up a reciprocal arrangement for the mutual supply of charts. He did not stop with contacting just Spain, as two years later he opened up communications with the second oldest government hydrographic office, which belonged to Denmark.[8] Fortunately for Hurd the Danish Hydrographic Office, or what was properly known as the Royal Danish Sea Chart Office, was in the capable hands of Rear Admiral Poul Löwenörn. Löwenörn was also someone with international experience as he had served in the French Navy from 1776 to 1782 and was inspired by the organisation of the French Dépôt to establish a similar one in his own country.[9] He was a man with all the right hydrographic experience in both science and navigation, being responsible for erecting numerous lighthouses on the Danish coast, backing a proposal for a portable log watch and involved with the Royal Society of Sciences at Copenhagen, amongst other things. [10]

Towards the end of 1819 Hurd managed, through assistance from the British Ambassador at the Court of Denmark, to open up communications with the Danish royal family.[11] His thinking behind this can be seen in his obtaining from the Admiralty Board permission for a mutual exchange of sea charts and 'useful maritime knowledge'. He wrote to Löwenörn stating: Ever since the year 1808, in which I succeeded the late Mr. Dalrymple in this office, my increasing endeavours have been exerted to accomplish so desirable and liberal an object as an interchange of Hydrographical charts and knowledge with all the maritime nations in Europe – and I cannot but offer you my very sincere congratulations on the success attendant on our joint efforts towards the producing this effect between Denmark and Great Britain.[12]

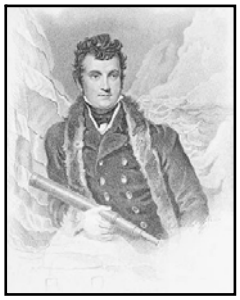
Why Hurd left it until 1819 was most likely due to the pressure of war upon his office, preparations for the Arctic voyages and the opportunity of peace that had only materialised during the previous few years. Hurd certainly needed Danish charts of the Baltic, but the hatred many Danes had for the British after Copenhagen meant they were closer to the Russians, making a contact in 1819 between the two Hydrographers a landmark event.[13] Nevertheless an important ally and source of maritime information was quickly established. To seal what was most likely Hurd's first (and possibly only) bilateral arrangement he sent Löwenörn a copy of every chart he had published, as well as pointing out the shortcomings of many other charts published outside the Admiralty in England. Subsequently two packages of charts arrived at the Admiralty from Copenhagen in 1820 and another in June the following year.[14] Another consignment of charts (under Hurd's mutual exchange system) was sent to the Danish court in 1822,[15] but after his death in April 1823 the arrangement temporarily stagnated.

At sea, one officer, Commander William Henry Smyth R.N., epitomised the spirit of international collaboration and science through hydrography. After peace was declared in Europe in 1815 he found himself in the Mediterranean having to survey areas of interest to numerous European nations with a hydrographic capability, without the shackles of conflict. Whilst Smyth was on Malta in 1816 he found Captain Gauttier, a French naval officer, had arrived on the island with the intention to measure meridian distances. Smyth offered Captain Gauttier every assistance and even showed him the spot he had used to obtain his own observations, hoping the Frenchmen would use the same place so their data could be compared. Their collaboration in the field was a seminal moment in the history of relationships between the two countries surveying officers, as the two men went on to meet up in the following years exchanging and comparing further information. Great faith was placed in Smyth by the Admiralty as he was sent to Paris to sort out further survey planning arrangements between the two nations, when the French agreed to concentrate on the Greek Archipelago leaving Smyth to work in the western Mediterranean and the north coast of Africa.[16] Smyth also went to Naples in 1818 to undertake negotiations with the Austrian and Neapolitan governments for a joint survey of the Adriatic. Consequently four Austrian surveyors were attached to Smyth's survey vessel, *Aid*, and the Austrian sloop *Velox* was put under his direct command.[17] Further international relations were fostered by Smyth, when he became great friends with Baron von Zach (1754-1832) the German astronomer and Colonel Visconti, Director of the Officio Topografico of Naples. To add to his list of international contacts he could also count Marshall Koller (an Austrian general and diplomat), Count Nugent (Commander-in-Chief of the Bourbon army) and Baron Poiter (of the Austrian staff).[18]

Outside of formal channels between hydrographic offices there was a great reliance on a small group of countries to undertake hydrographic surveys in waters of countries who lacked such a function. Britain, France, Spain, Denmark and Russia had all established themselves as capable of undertaking such surveys, even though the territorial waters they surveyed in were owned, in some cases, by countries whom possessed their own naval vessels. .

For example, the British had sent two survey vessels in 1821, the *Leven* and *Barracouta*, to survey the coast from the Cape of Good Hope to Cape Gardafui. The commanding officer, W.F.W. Owen, had been involved in anti-slaving operations as well as numerous international incidents. He took the decision to annexe Portuguese territories around Delagoa Bay and parts of the northern coast of east Africa, as well as purchasing Clarence Town (on Fernando Po) apparently overlooking Spanish interests in the area, which caused some consternation back in England as well as in Spain. Also, at the port of Mombasa, to ensure its management under British rule, he installed one of his own officers as governor.[19] Owen's work extended into east Africa, but it was not all controversy, as relationships were strengthened between the Sultan of Oman and Britain when the two men met at Muscat. Owen was belligerent towards the slavers but established good relations with the native population, even though the diplomatic fallout caused some embarrassment to the British Government.[20]

Captain William Edward Parry R.N. (1790-1855)



William Edward Parry

After Hurd's death in April 1823 there was a hiatus as his successor, the noted Arctic explorer, Captain Parry, was not appointed until the end of the year. Parry like Dalrymple was a man of science, who (additionally) had exhibited great leadership skills during his first command to the Arctic. However, he appears not to have been fully aware of the arrangement Hurd had set up with Löwenörn, as in 1825 it appeared nothing had been sent to Copenhagen since 1822.[21] Parry soon put matters straight and the charts were eagerly expected at the Royal Danish Sea Chart Archives.[22] Unfortunately by the time they arrived, two and a half months later, Löwenörn had passed away and his temporary replacement, Commodore Fabricius, wrote to Parry stating:

It is not without the most sensible regret, that at the same time I have to mention the decease of our highly deserving and respectable Admiral Löwenörn, who departed this life the 16th of March. I have nothing to add to the kind praises, where with you have been pleased to speak of a man whose death may be said to be a loss not only to his family and friends, but to the whole country whose ornament he was.[23]

Fabricius was also very conducive towards the reciprocal arrangement entered into by his predecessor and the charts the Admiralty received from the Danes Parry found especially worthy of further supply to the British navy. [24]

Parry, like Hurd, found himself administering British surveys in foreign waters, such as those off north Africa (an area of former Anglo-French rivalry)[25] where Smyth continued to expand his contacts and, as a result of co-operation with France, was able to concentrate on further surveys. By 1824 Smyth had orchestrated surveys from Tripoli (modern Tarabulus) across to Alexandria (modern Al Iskandariyah), whilst Lieutenant F.W. Beechey R.N. and his brother (dressed in Arab clothing) sketched the coastline from Tripoli to Derna. Lieutenant Boteler's survey of Morocco, which received one of the most detailed set of geographical instructions from Parry [26], saw him in 1829 in a difficult position when the local authority, the Emperor of Morocco, did not grant him permission to survey his waters. That decision was due to the position of the European powers as a whole rather than any action Boteler had taken. At the same time Smyth was at work, the French were undertaking clandestine surveys of the north African and eastern Mediterranean coasts. [27]

When it came to science during the 1820s the position the Admiralty Board took can be seen in the instructions given to one surveyor for his voyage to the Pacific, as he was: not on any account to commit any hostile act whatsoever; the vessel you command being sent out only for the purpose of discovery and science, and it being the practice of all civilised nations to consider vessels so employed as excluded from the operations of war: and, confiding in this general feeling, we should trust that you would receive every assistance from the ships or subjects of any foreign power you may fall in with.[28]

Such then were the terms of engagement between most advanced maritime nations when it came to hydrography, whereby safety and science were often put before war, on more occasions than not, with Flinders being unfortunate to have been incarcerated whilst undertaking such duties. Fortunately for Parry, science and such an enlightened attitude by the British government to hydrography paved the way for more international cooperation.

Parry was fortunate when it came to establishing relations with Spain, as on his return from his third Arctic voyage in 1825, he met with the exiled Spanish Hydrographer Felipe Bauzá y Cañas in London.

As the two men shared similar interests in surveying, science and astronomy they became good friends and through Bauzá a line of communication was opened up with the Madrid Office. Parry was able to inform the Admiralty Board how Bauzá had 'given us several, and but (for copying) a great number of the best Spanish surveys, and has been very attentive and obliging in immediately communicating any recent information of this nature'. [29] It was not just a one way exchange as Parry gave Bauzá a set of the latest Admiralty charts in return for his benevolent act. Bauzá also arranged for a large number of charts to be sent to His Royal Highness the Duke of Clarence[30] during his term as Lord High Admiral, thus making every effort to put in place the firm foundations of formal international relations. Bauzá was also invited to attend the annual visit to the Greenwich Observatory as a member of the examining board, where he met Sir John Herschel,[31] which subsequently led to the Spanish astronomer, Sánchez Cerquero, visiting both Greenwich and the home of Captain Smyth.[32] This led to an association with the Royal Society, which resulted in contact with one of, if not the most, prominent men of science (internationally speaking), Baron Alexander von Humboldt. It was through Humboldt that Bauzá subsequently met Jabbo Oltmanns, the astronomer who worked for Humboldt in Paris and Baron Franz Xaver von Zach at the Seeberg Observatory.[33] This was a classic example of international collaboration through science facilitated by hydrography.

If Parry thought he was fortunate in fostering beneficial links with Spain, then how he must of felt when an opportunity came along to collaborate with France it can only be speculated. Such an opportunity occurred through the preparations Parry made for Commander Foster's voyage in H.M.S. *Chanticleer*,[34] which undertook a cruise around the Atlantic. The enthusiasm for joint cooperation was shared with his French counterpart, as when Parry asked Rossel for any longitudinal observations that he held in his office, he replied: It is with eagerness that I send you the information that you have requested concerning the geographical determinations which result from the astronomical observations made in various parts of the globe by the French Naval Officers. [36]

The two men exchanged letters and a great deal of information in the spirit of *entente cordiale*. This was all despite differences in some of the geographical positions the two men had exchanged, which Rossel determined were only negligible and the product of better chronometrical readings.[37]

Parry used Rossel's information to institutionalise international co-operation when he placed them before the Council of the Duke of Clarence, Lord High Admiral. In response to the generosity of the French the Council ordered a complete copy of the survey of the coasts of Africa and Madagascar, containing two atlases, to be sent to France. Parry subsequently wrote to Rossel stating: how much satisfaction it will afford me to maintain between our respective Departments a constant communication, which cannot fail to be equally beneficial to both, which it tends to the promotion and improvement of that department of science to which we more particularly belong.[38]

Rossel was delighted with this news and in his letter of reply explained the terms under which he was instructed in his duties:

I am very flattered, Sir, that the communications maintained by the two establishments that we run have the suffrage of an authority so respectable. Myself, I only execute the kind intentions of His Majesty the King of France whose care extends not only to his subjects but to the sailors and navigators of all nations.[39]

This clearly showed how the French, like the British, were operating a like-minded policy of supporting navigational science and safety of life at sea, no matter what nationality was involved. This was an important era in Franco-British relationships, which secured a much closer working relationship than had ever been enjoyed before in the nineteenth century, but Parry did not stop there.

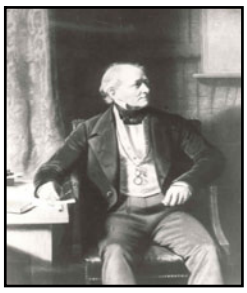
With Spanish and French cooperation secured, Parry turned his attention to the remaining hydrographic nations. His underlying agenda was to try to improve the supply of foreign government charts to the Admiralty, as during the 1820s there was a 'limited and irregular' supply of charts from other governments. This was much to the embarrassment of the Hydrographic Office because the London chart sellers had better supply arrangements than the Admiralty. Therefore Parry proposed a complete exchange of all those published by each department during the last (seven?) years; and, at the same time come to some decided and explicit understanding, as to a similar exchange being made in future, at regular stated intervals, (say at the end of every half year).[40]

His scheme was limited to the major players in the world of government hydrography, only including the French, Spanish, Russian, Danish, Swedish and Neapolitan nations. He even included with his proposals a pro-forma letter when he sent this to the Admiralty Board on 18 January 1828, in which he further suggested that exchanges should be made every six months. He did not stipulate that it should only be new or amended publications that should be exchanged, rather than a complete package of everything, once every six months.[41]

However, Parry's proposal was not taken up and he suggested to John Wilson Croker, First Secretary of the Admiralty, that the Netherlands should be included along with the other nations. This second proposal was accepted but then stopped when it came to light that the problem was the concept of reciprocal exchange and the method of approach to the foreign countries. A revised scheme involved working through established diplomatic channels via the Foreign Office, who would use the appropriate ambassador or consul to obtain catalogues of charts and sailing directions published by government hydrographic offices, as well as any by private chart sellers. The Hydrographer would then use those catalogues to identify any charts or sailing directions he needed, then order the ambassadors to purchase them, also checking once a quarter for any new catalogues. This revised proposal was taken up[42] and some 24 works were identified by Parry as being needed in the Hydrographic Office,[43] including charts received by the consuls at Hamburg and Elsinore which arrived at the Admiralty in July 1828.[44] Krusenstern also presented Parry with a copy of his atlas covering the Pacific, which arrived in the Hydrographic Office in October 1828.[45]

Not taking up the idea for reciprocal exchange was a great opportunity missed, especially as it was cost and protocol which prevented it happening. This was a reflection of the lack of understanding Croker (an administrator) had over the advantages reciprocal exchange could lead to, rather than any shortcomings by Parry (a surveyor and Hydrographer). The days of keeping charts for the sole use of the British Navy were long gone as Admiralty charts were easily available through selected chart sellers, so there was little to be gained from not exchanging them with foreign hydrographic offices.

Captain Francis Beaufort R.N. (1774-1857)



Francis Beaufort

By the time Beaufort was appointed Hydrographer in May of 1829 the precedent for international cooperation through hydrographic offices, as well as through surveyors at sea, had been well and truly set. The die was cast and Beaufort did not break it. As a man who both privately and professionally was greatly involved in science and hydrography, this naturally led to spin-offs for international collaboration. Beaufort wasted no time in cashing in on such a profitable position by sending a copy of the first issue of the *Nautical Magazine* to Russia in 1832 in an effort to open up more formal relations. He was indirectly assisted with his dealings with Russia by his old friend Franklin, who had travelled to Russia as a guest of Tsar Nicholas I in 1828, where he met the celebrated navigators Otto Kotzebue and Admiral Krusentern.[46] Krusenstern eagerly entered into a very friendly relationship with Beaufort, which saw the exchange of charts and surveys, with copies of the *Nautical Magazine* being translated for the use of Russian officers.[47] Krusenstern thought highly of Beaufort, stating in one letter accompanying some Japanese surveys obtained at great risk, how 'no better use can be made of it than to lodge them in your and Captain Beechey's hands'.[48] Krusenstern became great friends with Sir John Ross, Franklin and Beaufort.

However, Krusenstern passed away in 1846 and by 1850 Beaufort was receiving little encouragement in return for his efforts, and matters made even worse after Britain found itself at war with Russia soon after. He did manage to continue the good work Parry had undertaken with the French and Spanish, as well as open up communications with the Norwegians,[49] Prussians,[50] Neapolitans[51] and the Americans.[52] Of those final four America was the last to join in Beaufort's circle of international collaborators, when in 1845 Mr Lewis sent 'the first fruits of our coast triangulation and survey commenced by Mr Hassler' who had passed away the year before.[53] A mutual exchange followed shortly afterwards[54] and the relationship grew even stronger when W.F. Maury, who had been appointed as head of the Depot of Charts and Instruments in Washington, made an appeal in Brussels for climatological observations over the oceans. This naturally caught Beaufort's interest and that of the British parliament.[55] Rear Admiral F.W. Beechey represented British interests at the Brussels conference of 1853,[56] where he argued successfully for the adoption of the Beaufort Scale on an international basis.[57]

For Beaufort the opportunities he was involved with in scientific circles gave him contacts with a legion of scientists, hydrographers and surveyors. With the arrangements and relationships put in place by Beaufort's predecessors, Hurd and Parry, his role in the field of international cooperation whilst Hydrographer was more one of consolidation than innovation. He certainly took advantage of his position as Hydrographer to expand British scientific interests in the international arena, especially through his support of the work of scientists like Dr Whewell and his agenda of worldwide tidal data collection.

Beaufort was also involved with numerous scientific organisations, such as the Royal Society (of which he held a fellowship), the Royal Astronomical Society (of which he was vice-president), Royal Irish Academy, Institut de France, United States Naval Lyceum and the American Philosophical Society.

Conclusion

Dalrymple had led the way for the British in international cooperation in the field of hydrography with Mannevillette, which certainly had the potential for greater things had not factors beyond his control, such as conflict between Britain and France, worked against him. During times of peace, Hurd's effort to formulate a mutual exchange of charting products with Denmark was more than admirable. Had ill health not deprived him of the strength and time to undertake similar arrangements with 'all the maritime nations in Europe', then further nations across Europe could have benefited from his idea. Who knows what might have materialised as a result of Hurd's idea for international collaboration across Europe? A lack of interaction with Russia, which 'had been identified as Britain's main security concern after Waterloo', and also with Portugal were notable absentees before Beaufort's efforts tried to resolve the issue. However, a Russian decree of 28 September 1821, claiming rights to an exclusive use of the Siberian and Alaskan seas,[58] was a direct threat to the plans for exploration being worked upon by John Barrow, Second Secretary to the Admiralty and his circle of friends. Clearly Russia must have felt there was little need for collaboration with Hurd or Parry, especially after Admiralty charts were offered for sale in 1821.

Beaufort's efforts were equally admirable and during his term as the longest serving British Hydrographer (since 1795) he dealt with all the main charting nations. However, despite good relations between such nations, principally with the aim of supplying each other with charts and collaborating to avoid the duplication of survey work, there were some problems with obtaining the right charts, especially those of areas that were poorly surveyed, if at all. Such deficiencies were well known by Hurd and Parry, and one such example caused Parry to write to the Admiralty Board, stating:

There is certainly great room for improvement in our charts of the eastern and north-eastern coasts of South America; a very small proportion of which has, until lately, been regularly surveyed. We now possess the means of compiling a very tolerable chart of that coast from Mahanham to the Island of St Catherine; having lately received from Paris the complete survey of Baron Roussin, comprehendible between those limits, accompanied by a book of sailing directions. In Baron Roussin's charts, there are a good many gaps left unsurveyed; but they seem to be faithfully marked, so that the attention of future surveyors may be directed to those particular parts.[59]

Parry was fortunate in being able to obtain copies of Roussin's charts and for them to have been so well compiled, enabling him to easily establish what further work needed to be done. Many hydrographic offices relied heavily on foreign government charts, as well as local contacts, at that time.

There were also problems with the rights needed to survey in foreign waters, even after Britain had secured the pre-eminent position as a world maritime power after the Peace of 1815. The situation was difficult for the British and on one occasion the Admiralty Board decided to avoid the issue rather than tackle it head on when, fortunately for them, the surveyor in question was deployed to a different area.[60] Permissions were sought, for example, from the Ambassador at Madrid to survey the Spanish West Indies and from the Emperor of Morocco to survey his territorial waters, of which the latter was refused. [61] Despite those setbacks the agenda for international cooperation was well and truly on the table, over half a century before the American Bureau of Navigation proposed a 'system of international hydrographic work' in 1879.[62] There may well have been other interactions and I am interested in corresponding with historians who have identified examples of international collaboration before 1899.[63]

The question of 'why they needed to cooperate?' is not easily answered. Indeed, should a much wider study be undertaken it may reveal how hydrography helped the Admiralty hide the main purpose of the exercise which was in fact military intelligence gathering. It was not only hydrographic information, essential for navigation and trade, that was required but strategic information on defences and military strength, which could be gathered quite easily by the mutual exchange of charts. Foreign charts were, for example, certainly used to the advantage of the British when they mounted their Baltic and Crimean campaigns in the mid-nineteenth century. Nevertheless, despite such drawbacks with mutual exchange, the International Hydrographic Bureau's statement that 'International cooperation in the field of hydrography began with a Conference held in Washington in 1899'[64] should perhaps be revised in the light that at least nine nations were undertaking such activity half a century earlier.

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10. *The Annals of Philosophy*, new series 1 (January-June 1821), 113-15. That society was also involved with cartography (Ravn, *Kongelige Danske Søkort-Arkiv*, 18).
11. The United Kingdom Hydrographic Office, Taunton, England (UKHO), MB1 f.6, Schifter to the Admiralty Board, 4 January 1826.
12. UKHO, LB1 fos.261-2, Hurd to Löwenörn, 30 December 1819.
13. Ex inf Prof. Lambert, January 2010.
14. TNA, ADM17/28.
15. UKHO, LB1 f.488, Hurd to Spencer, 30 April 1822.
16. Cdr L.S. Dawson, *Memoirs of hydrography including brief biographies of the principal officers who have served in H.M. Naval Surveying Service between the years 1750 and 1885* (Eastbourne, 1885, reprinted London, 1969), 53-4, 72; A.C.F. David, *The rise of Great Britain as a major charting nation* (Portsmouth, 2008). The French were thought by Parry to have been working in the Archipelago in 1825 (UKHO, LB2 f.54, Parry to Copeland, 23 December 1825).
17. Dawson, *Memoirs*, 54.
18. E. Valerio, 'Landscapes and Charting in the 19th Century. Neapolitan-Austrian and English cooperation in the Adriatic Sea' in *Mappæ Antiquæ. Liber Amicorum Günter Schilder* (2007), 469-70, 472-3.
19. R.T. Brown, 'Fernando Po and the Anti-Sierra Leonean campaign: 1826-1834', *The International Journal of African Historical Studies* 6:2 (1973), 253-62.
20. E.H. Burrows, *Captain Owen of the African survey. The hydrographic surveys of Admiral W.F.W. Owen on the coast of Africa and the Great Lakes of Canada. His fight against the African slave trade. His life in Campobello Island, New Brunswick 1774-1857* (Rotterdam, 1978), 78-48. Some embarrassment was avoided. When the *Leven* was carrying a number of pigs that were used as fresh meat and as His Highness was a Moslem a decision was taken to load the pigs into the ship's boats and take them away where they could not be seen.
21. UKHO, MB1 fos.8-9, minutes 4-7 January 1826.
22. UKHO, LP1857 F239, Fabricius to Parry, 15 March 1826.
23. UKHO, LP1857 F240, Fabricius to Parry, 17 June 1826.
24. UKHO, MLP5/3ii f.9, Report on the Hydrographic Office by Parry, 1 February 1827.
25. C.R. Middleton, *The administration of British foreign policy, 1782-1846* (Durham N.C., 1977), 8.
26. UKHO, LB1, fos 120-4, Parry to the Admiralty Board, 3 November 1827.
27. UKHO, Ritchie Papers box P.
28. F.W. Beechey, *Narrative of a voyage to the Pacific and Beering's Strait. To co-operate with the Polar expeditions: performed in His Majesty's Ship Blossom, under the command of Captain F.W. Beechey, R.N. in the years 1825, 26, 27, 28* 2 vols (repr. London, 1968), vol.1, xii.
29. UKHO, MB1 f.42 Parry to the Admiralty Board, 31 May 1826. See also Chapter Three for details of his supply of data to Parry.
30. U. Lamb, 'The London years of Felipe Bauzá: Spanish Hydrographer in exile, 1823-34', *The Journal of Navigation* 34:3 (September 1981), 326.
31. Lamb, 'The London years of Felipe Bauzá', 324. The Admiralty accepted the administration of the Royal Observatory in 1818 (Vice-Admiral Sir A. Day, *The Admiralty Hydrographic Service 1795-1919* (London, 1967), 33).
32. Lamb, 'The London years of Felipe Bauzá', 324.
33. Lamb, 'The London years of Felipe Bauzá', 329.
34. See A.J. Webb, 'The Hydrographer, science and international relations: Captain Parry's contribution to the cruise of HMS *Chanticleer*, 1828-9' in *The Mariner's Mirror* 6:1 (London, 2010), 62-71. See also J.N. Pasquay, *La cooperation Franco-Britannique en hydrographie* (Brest, 1996), 1-4 for a very brief and selected account of relations involving Rossel and others with the Admiralty.
35. For Parry's letter to Rossel see UKHO, LB2 fos 88-9, 11 January 1828.
36. UKHO, LP1857 M481, Rossel to Parry, 23 February 1828.

37. UKHO, LP1857 M481, Rossel to Parry, 23 February 1828.
38. UKHO, LB2 fos.129-32, Parry to Rossel, 19 April 1828.
39. UKHO, LP1857, M480 Rossel to Parry, 8 August 1828.
40. UKHO, MB1 fos.130-1, Parry to the Admiralty Board, 18 January 1828. There were other charts that remained unpublished, which the Admiralty and its Hydrographer did not wish to fall into the hands of their enemies, but they were predominantly of interest to operations in or adjacent to American waters.
41. UKHO, MB1 fos.130-2, Parry to the Admiralty Board, 18 January 1828.
42. UKHO, MB1 fos.140-1, Parry to the Admiralty Board, 14 February 1828.
43. UKHO, MB1 f.190, Parry to Owen, 28 May 1828.
44. UKHO, Accession ledger book 1, E626-E631.
45. UKHO, LP1857 B369, Booth to Parry, 29 October 1828.
46. A. Lambert, *Franklin tragic hero of Polar navigation* (London, 2009), 44, 163.
47. UKHO, LP1857 K150, Krusenstern to Beaufort, 20 April 1834.
48. UKHO, LP1857 K148, Krusenstern to Beaufort, 15 September 1834.
49. UKHO, LP1857 H128, Hausteen to Beaufort, 4 May 1835.
50. UKHO, LP1857 H272, Hebeler to Beaufort, 28 March 1839.
51. UKHO, LP1857 V78, Visconti to Beaufort, 17 August 1844.
52. Day, *Hydrographic Service*, 49.
53. UKHO, LP1857 L152, Lewis to Beaufort, 31 January 1845.
54. UKHO, LP1857 L515, Lewis to Beaufort, 25 March 1845.
55. Day, *Hydrographic Service*, 57.
56. TNA, ADM 12/577, Admiralty Digest 1853, cut 90a, 'System of Meteorological Observations Congress of Brussels', 27 July 1853.
57. A. Friendly, *Beaufort of the Admiralty. The life of Sir Francis Beaufort 1774-1857* (London, 1977), 147.
58. Lambert, *Franklin*, 36.
59. UKHO, MB1 fos.206-7, Minutes on charts of South America, 14 August 1828.
60. UKHO, MB1 f.34, Parry to Melville, 10 April 1826. See also UKHO, MB1 fos.32-4.
61. Day, *Hydrographic Service*, 61.
62. UKHO, MLP85.
63. The address for correspondence is 19 Kirke Grove, Taunton, Somerset, England, TA2 8SB, email aj.webb@virgin.net.
64. http://www.iho-ohi.net/english/home/about-the-iho/about-the-iho.html (accessed 9 January 2010).

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