

Steps toward the founding of NIO

Margaret Deacon

Naval personnel in what would later become the Royal Naval Scientific Service were well aware of the value of oceanographic work to their concerns. However, the events leading to the founding of NIO were actually set in train by the Hydrographer of the Navy, Sir John Edgell. In the summer of 1943 he was asked to attend a meeting of the Scientific Advisory Committee (SAC) to the War Cabinet. The reason was that a leading Swedish oceanographer, Hans Pettersson,¹ had recently approached the British government via an intermediary to ask if it would be interested in a joint expedition to study the Atlantic seabed after the war. At the meeting on 14 September, as well as giving the Admiralty response, Edgell *'took the opportunity of saying that, on general grounds, he would welcome the establishment of an oceanographic institute in this country'*.² He further *'undertook to submit to the Committee a Memorandum outlining the earlier history of the proposals for mapping the Atlantic seabed, and giving his views on the practicability of the particular proposal before the Committee, and also on the more general question of recommending that steps should be taken for the setting up of an oceanographic institute'*.

Edgell³ was no stranger to oceanography. Born in 1880, he joined the Navy as a boy and after entering the surveying service in 1902, rose to be Hydrographer in 1932. In this role Edgell was in close contact with marine research in the UK, both in the Navy and other organisations. He was a member of the Discovery Committee and numerous other relevant committees, including the Oceanography Subcommittee of the British National Committee for Geodesy and Geophysics. His department had close links with the Tidal Institute at Liverpool and he was on friendly terms with Proudman, its founder and director. He also knew the hydrological work being done by the fisheries departments and the people carrying it out, and had asked for one of them, J.N. Carruthers of the Fisheries Laboratory at Lowestoft, to be seconded to his department if war broke out. In 1938 he had been instrumental in proposals to ICES for investigations of the Atlantic

seabed, and secured agreement that a naval survey vessel would be available for work north of the Azores for limited periods in 1940 and 1941.

It seems unlikely that Edgell's proposal for an institute was long premeditated, and it appears to have been put forward as a personal suggestion, rather than as one having official Admiralty backing. In preparation for his appearance before the Committee, he had asked Joseph Proudman, as one of the most senior figures in UK marine science, for his opinion of Pettersson's proposal. Proudman⁴ advised against participation in the Swedish expedition and the Swedish Deep-Sea (*Albatross*)



Vice Admiral Sir John Edgell, KBE, CB, FRS. Hydrographer of the Navy. He was a major influence in the steps to establish the NIO. (By courtesy of UK Hydrographic Office Archive.)

Expedition of 1947 took place without British involvement. He felt that permanent institutions, such as Woods Hole, were a better use of the scarce resources currently available, but recommended that Edgell seek the opinion of marine scientists from the younger generation, George Deacon⁵ and Edward Bullard.⁶

This letter from Proudman seems the most likely origin of Edgell's proposal. If the idea was new it would have immediately appealed to him, for one consequence of the war was that the Hydrographic Department had been deluged with requests for oceanographic information, from civilian bodies as well as from the armed services, far more than Carruthers, acting as his assistant, could cope with almost single-handed.

It was not only the Royal Navy that was concerned about this state of affairs. By the mid-1940s a general movement was afoot to think ahead to what scientific priorities should be after the war ended. There was concern that more attention should be paid to fundamental research that had, of necessity, been neglected during the emergency. A proposal for a national institute of physical oceanography had recently been put forward by the Scottish fisheries hydrographer, John B. Tait, in a 'Memorandum on the significance of scientific research on planning for the post-war reconstruction of the fishing industry'.⁷ In this he argued that this step was necessary to rescue physical oceanography from its subordinate role in British fisheries science, which he felt was holding back its progress. This memorandum had clearly made an impression on government and later

that year E.H.E. Havelock of the Development Commission (one of the government bodies financing marine research in Britain in the first half of the 20th century) asked the Cambridge mathematician Sir Geoffrey Taylor for his opinion of the idea. Taylor's reply⁸ showed that there had also been considerable discussion of the future of oceanography among Cambridge geophysicists who were keen to see the seismic techniques introduced from the USA by Edward Bullard before the war applied to the study of the Mid-Atlantic Ridge. They too felt that an oceanographic centre ought to be established, either as part of a national institution for geophysics or independently.

The SAC invited Edgell to submit a memorandum of his views, which he duly did,⁹ and in January 1944 it discussed the matter and decided that both proposals, for an expedition and an institute, should be referred to the National Committee for Geodesy and Geophysics. This committee, organised by the Royal Society as part of the national contribution to the work of the International Union of Geodesy and Geophysics, had an oceanography subcommittee of which Edgell, Proudman, Matthews, Tait, Carruthers and Deacon were already members.

Several documents had been prepared before the meeting, chaired by Edgell on 1 March 1944. Back in December Proudman had drawn up a plan of his suggestions for the work of an institute.¹⁰ He believed that it should cover physical oceanography only, as marine biology was so extensively provided for elsewhere, and that it should be located at Liverpool. He continued to lobby for this solution during the protracted negotiations that followed. Carruthers had more modest expectations of what might be achieved, probably the result of long years of hopes deferred. He thought that the institute should act in the first place as a data centre and that they would never get the funds to run and fully use an ocean-going research vessel, but he did think that there should be a biological presence.¹¹

George Deacon presented a paper, 'Oceanographical Research',¹² that was less a blueprint for an institute than for the oceanographic research it should foster. He emphasised the importance of co-operation between the various branches of marine science, arguing that such an institute ought to cover physical oceanography, marine biology, marine sediment studies and chemistry. He concluded:-

The most rapid advance in any of the branches of oceanography will be made by orderly, intensive and concerted attack on one or other aspect. Expeditions are needed for filling gaps and exploring areas from which only scattered data are available, but the need is even greater for systematic work by well-equipped stations and research vessels that will represent all the marine sciences so that findings in different fields can be correlated.

The fact that much of the support for oceanographical work has for a long time been secured because of its application to fishery problems has tended to allow the relegation of physical work to a secondary position. This is considered by most physical oceanographers to have retarded the advance not only of the physical problems, but also of the biological problems that it was hoped to further. This neglect is not so obvious during the past 10 years, but it may still be made good; in the ideal fishery investigation the protracted enquiry into natural history and physiology must include all the physical and chemical work necessary to follow the whole life history of any species. It may be more difficult to obtain financial support for such an enterprise because it is not possible to say in advance what results will be obtained, and many problems must be attacked which seem remote from practical application or economic bearing. A long period is needed for the work to reach a productive state.

Edgell was in agreement about the inclusion of marine biology but he also thought that some of the others were not being bold enough in their expectations. He had earlier written to Carruthers:-

The more I go into this idea of an Oceanographical Institute, the more interesting it becomes, and I am beginning to have quite decided views on its make-up. I am inclined to think that you and Proudman, Tait and perhaps G.I. Taylor also, are thinking too much in terms of the British Isles and surrounding waters; my own ideas are much more ambitious and where you speak of spending £5,000 to £10,000 a year, I am much more inclined to think of £30,000, for I believe that unless we go for a maximum scheme we shall defeat our own object.¹³

He put this view forward even more forcefully at the meeting:-

My own view is that unless the Oceanographical Institute is run on generous lines, and provided with ample funds, it will fail to achieve its object and I would rather try to establish a major organisation than one which has to live on starvation rations. I know that this large view is not shared by all members of the Sub-Committee, also that it will be extremely difficult to get the necessary money, none-the-less I should hope for the setting up of an Institute with a suitable vessel attached at an annual cost of £50,000.¹⁴

On the Swedish proposal the general feeling of the meeting was that, as there was no realistic possibility of such a project getting off the ground until after the cessation of hostilities worldwide, they should at present

concentrate on plans for an institute. All present then declared themselves in favour of the establishment of an institute and the meeting proceeded to discuss the proposal in greater detail. It was then agreed in principle that there should be a junior biologist on the staff to liaise with other institutions. At a follow-up meeting in May¹⁵ this position was upgraded, and on Bullard's recommendation it was decided to include a geophysicist rather than a geologist. There was also to be a meteorologist but the senior posts would be in physics and chemistry. The committee's report was subsequently drawn up by Edgell and submitted via the Royal Society to the SAC later that year.

Fortunately for the future of the science the Admiralty was not prepared to wait. In June 1944 an Oceanographic Research Group was established at the Admiralty Research Laboratory in Teddington with George Deacon at its head. Group W (for waves), as it was generally referred to, was set up to improve understanding of the physics of waves at sea. This was a subject that had previously proved intractable. The problem of wave forecasting for amphibious landings had been tackled with some success here by the Naval Weather Service,¹⁶ and important contributions in this area were also being made by oceanographers Harald Sverdrup and Walter Munk in the USA.¹⁷ Both nations co-operated in the Swell Forecast Section in the run-up to D-Day but this organisation was subsequently transferred to the Far East. Group W's role was to investigate the basic processes involved, on behalf of the Navy. However its future success in establishing the science of sea waves and how to forecast them would have important applications in peace as well as war.

Meanwhile over the next few months the SAC discussed the Edgell Report with scientific representatives and senior civil servants from interested departments. They looked at various ways it might be financed and how it should be governed, and decided that the £50,000 a year required was a legitimate charge on public funds and that it should be located at Liverpool but have a status independent of the university. The committee then unanimously agreed to forward its recommendations to the government.

Until this time there had been no suggestion that plans for the new institute should in any way be linked with the fortunes of Discovery Investigations, but this possibility was raised in the summer of 1945 by A.V. Hill who 'understood that the Colonial Office were anxious to be relieved of their responsibility for the Discovery Committee'. To avoid multiplying administrative bodies in this field, he suggested that the governing body of the institute should look after both organisations. Edgell raised no objection, apart from stipulating that the institute's research vessel should not be used for polar work.

During the latter part of 1943 the Discovery Committee had also been looking to the future. Neil Mackintosh and members of its scientific

subcommittee had continued to meet during the war and put forward proposals for the resumption of work that were endorsed by a meeting of the full Committee on 6 June 1944. While the Committee recognised that its initial function, the scientific study of whaling, was no longer of such significance to the Colonial Office, it felt that while doing such work Discovery Investigations had acquired a more general knowledge of the Antarctic regions that would become valuable after the war, when improved communications would render the area more accessible. It felt that this justified asking for new funding and a wider remit but the Colonial Office was unwilling to agree. In 1945 it attempted to transfer Discovery Investigations to the Department of Scientific and Industrial Research but this proposal was robustly resisted by that organisation as unsuitable. It was at this point that the SAC recommendations and the Edgell Report arrived on various Whitehall desks, and others as well as Hill saw the possibility of a tidy solution to the problem.¹⁸ However nearly five years were to pass before the National Institute of Oceanography was actually established. In 1945 the war ended and Edgell, whose tenure as Hydrographer had been extended long beyond the norm, retired. The backlash from the concentrated efforts of the war years caused a general lessening of confidence and enthusiasm, and cut-backs in the research budget. It was amazing that the whole project did not get lost in the labyrinthine discussions that followed both within and between government departments.

It was July 1946 before the SAC received the government response to their proposal. This came partly in the form of a Treasury memorandum stating that the institute's relationship to the Discovery Committee should be settled. The Committee had recently put forward proposals for research activity over the next five years, at an estimated annual cost of £50,000, and the Treasury was not prepared to fund both bodies. As the Discovery Committee was an established organisation with accumulated experience and goodwill there was a case that it should continue rather than be subordinated to a 'new unknown and untried body'. The Treasury therefore proposed that the Discovery Committee and the institute should be merged into a single body in order to economise on costs, and to provide a balance between the interests of physical and biological oceanography.¹⁹

The SAC eventually agreed with the Treasury that there would be great advantage in placing general responsibility for ocean research on the Discovery Committee. It appeared that much research remained to be done in the Southern Hemisphere as well as urgent need for oceanographic research elsewhere in the world but that Discovery Committee vessels could do this. The Committee therefore recommended that the reconstituted Discovery Committee should be transferred from the Colonial Office to the Admiralty and have responsibility for all bodies interested in oceanography. The Discovery Committee should remain in London



Dr N.A. Mackintosh, who succeeded Kemp as head of the Discovery Investigations. He was Deputy Director at the founding of NIO.

but this did not invalidate the idea of the institute being in Liverpool. The interest in oceanography of the dominions, India and the colonies should also be borne in mind.

In March 1947 the Treasury recommendations for the foundation of the institute were accepted, with minor changes, by the Advisory Council on Scientific Policy, the post-war successor to the SAC, and it might have been expected that the way ahead was now clear. However this proved not to be the case and in August 1948 its chairman, Sir Henry Tizard, wrote to the Admiralty asking why no further progress had been made in setting up the Institute.²⁰

He was told that this was because the Admiralty could not meet the full cost and that expected assistance from other departments had not been forthcoming. Perhaps because of his family link with oceanography, his father, T.H. Tizard, having sailed in the *Challenger*, Tizard was influential in trying to get things moving.

In fact a great deal of heart searching had gone on among the various departments of the Admiralty where there were sometimes conflicting views on what form the institute should take. There was the belief, sincerely held by many, that it would be improper for the Royal Navy to take over an organisation such as the Discovery Committee whose work had little to do with defence. Yet they were being told by the Treasury that they must finance the whole package out of the naval vote, without extra funds, or face the prospect of losing the institute. Much of the responsibility for the stalemate lay with Sir Alan Barlow, the Second Secretary at the Treasury. Though not unsympathetic to science (he was married to a granddaughter of Charles Darwin) Barlow had traditionalist views about spending public money on it.²¹ Fortunately other counsels prevailed and by the end of the year the difficulties had been largely resolved, the final details being approved by the Treasury in February 1949.

The Discovery Committee was to be wound up and a National Oceanographic Council created by Royal Charter 'with the object of advancing the science of oceanography in all its aspects'. This body was to work through an executive committee, very much as originally recommended by the Edgell committee. The institute, which was to cover both physical oceanography

and marine biology, would receive financial support from the Development Commission and the Colonial Office, and from Commonwealth governments, but it would principally be funded by the Admiralty, £50,000 being set aside in the first year. The Admiralty also purchased the *Discovery II* and *William Scoresby* from the Government of the Falkland Islands and presented them to the institute. The Discovery Committee was disbanded in March and the National Institute of Oceanography came into being on 1 April 1949.²² George Deacon, the preferred candidate of the Royal Naval Scientific Service, was appointed Director some weeks later.

Meanwhile, the question of where the institute should be located was still unsettled. For the time being its component parts remained scattered; the Oceanographical Group of the Royal Naval Scientific Service (Group W) continued at the Admiralty Research Laboratory, Teddington; Discovery Investigations scientists at the Natural History Museum; and the Oceanographic Branch of the Hydrographic Department at Cricklewood in North London. Since Proudman's first suggestion in 1943 it had been intended to establish the institute at Liverpool but Neil Mackintosh vehemently resisted any plan to move Discovery Investigations out of London. The real necessity however was for an existing building to be found that could accommodate all sections of NIO on one site, as a new building would be too expensive. Options were considered from Scotland to the South Coast but the consensus increasingly was that it should be in the London area where so many of the staff were already living.

Early in 1950 the committee strongly recommended the purchase of Ridgemean, a pre-war Lutyens-designed mansion at Englefield Green, but was unable to proceed before the Council was in place and the site was sold to another purchaser. However by August the possibility had arisen that they might later be able to acquire cheaply a large wartime Admiralty building at Witley in Surrey.²³

On 9 October 1950 the Royal Charter incorporating the National Oceanographic Council was approved by Order in Council, and the Council, which included many names previously mentioned in these pages, first met in February 1951. One of its first actions was to constitute the Executive Committee, which till then had been provisional. The first chairman, Sir Frederick Brundrett, who as head of RNSS had done so much to bring the plans for NIO to fruition, had been transferred to the Ministry of Defence and was replaced by his successor, W.R.J. Cook. Among the other new appointments was Vice-Admiral Sir John Edgell, a fitting recognition of the part he too had played in the institute's foundation.

The Council authorised the Committee to acquire permanent premises for the institute and by the summer of that year plans for the move to Surrey were already being drawn up. NIO was to lease the building, originally erected by the Admiralty in 1943 as an extension of the Signal and Radar



The NIO building in the mid 1950s. The big black roller doors were later removed.

Research Establishment, then located at Haslemere. It stood in the grounds of King Edward's School, Witley, in a semi-rural situation (sometimes referred to as Wormley, the name of the local telephone exchange) but only a short walk from the local Witley railway station. The building itself made an ideal home for the young institute; it was plainly built but strong and serviceable. The situation was to some extent a compromise. The advantages of easy rail access to London and Portsmouth, for both staff and visitors, promoting links with scientific colleagues and making it easy to attend society meetings, were felt to outweigh the fact that it was 25 miles from the sea. The argument went that a central position with a choice of ports had much to recommend it in a small country like the UK. A seashore location was not necessarily an advantage if one was dealing with deep-water science. The work of readying the new building occupied a further two years but in the spring of 1953 the move at last took place and the staff settled in to continue the work which had already been in progress for several years and which is described in the following chapters.

Note to the reader

Much of the information contained in this chapter is based on unpublished material in The National Archives at Kew (TNA), including Cabinet (CAB), Admiralty (ADM) and Colonial Office (CO) papers. Other important sources are in the Hydrographic Office (HO) at Taunton (Ministry of Defence), and the National Oceanographic Library (NOL) at the National Oceanography Centre, Southampton, which holds the papers of George Deacon (GERD)²⁴ and other NIO scientists.