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ROYAL NAVAL ENGINEERING COLLEGE, MANADON Captain John N McGrath Royal Navy

In 1877 Marlborough, an old screw line-of-battle ship, which was no longer required in the fleet and was paid off in 1864, became the home of Engineer Officer students in Portsmouth. Soon afterwards a new facility was built at Keyham, on the fringes of Devonport Dockyard, and took its first students in 1880.



Plymouth - Keyham College for Engineer Officers circa 1930 by permission of NMRN

Keyham College continued to be the centre of Engineer Officers' education until the threat of war in the 1930s caused their Lordships to look for a less vulnerable site to accommodate future Engineer Officers. In 1937 the 100-acre Manadon estate on the northern fringes of Plymouth was purchased, and plans were drawn up to relocate the college to its new site. Wartime economies meant that much had to be improvised, and huts for accommodation were built in the grounds. In 1940 Keyham and Manadon became one unit.

In 1947 the college was named Thunderer; Keyham finally closed in 1958, leaving engineering training to be carried out only at the Royal Naval Engineering College, Manadon. The Keyham building was used by the Devonport Dockyard Technical College from 1959 until it was demolished in 1985.

Early Days

Lieutenant John Franklin first went to Manadon in 1952 to teach Applied Mechanics. The Wardroom had not yet been built — the foundation stone was laid by Lord Mountbatten in 1956; therefore, accommodation was variously in the old college buildings at Keyham, in temporary huts at Manadon and in Manadon House. The so-called Recreation Block at Manadon provided mess facilities for those in the huts and for mess dinners generally, whilst those at Keyham were selfcontained. Manadon House, which was shared with the Captain, was the most sought after, with small separate cabins on the top floor. Travelling up and down the stairs of that elegant house meant passing through the Captain's quarters on the first floor, which must have been a trial for him and his family. The temporary huts faced across the tarmac from the Recreation Block. The Instructional Block, which was completed in 1951, was where the academic teaching took place, supplemented by practical work in the well-fitted workshops and the three aircraft hangars, one of which was allocated to private work on motor cars and other pursuits. This very valuable facility was both highly educational and also rewarding, coming at a time when car engines could be taken apart and reassembled without specialist equipment. The other valuable facility was the college's airfield at Roborough, a little way out of Plymouth, where useful flying experience could be gained. Of course, on the sports front, there was plenty of opportunity for team sports, golf on Dartmoor, and sailing from the college boathouse where there were three yachts (Galahad, Gauntlet and Gawaine) and a fleet of dinghies.

Manadon Diploma and the London External Degree

The teaching functions of the college were broadly divided into two: the Directorate of Naval Engineering, headed by a Commander (Engineer), looked after the more equipment-orientated training, while academic education was the province of the Faculty of Engineering, headed by the Dean, an Instructor Captain.

Until the mid-1960s education and training were very much focused on delivering the minimum to prepare the young officer to perform in his first few complement billets. At this time the concept of the Chartered Engineer had not been conceived and the professional overlay was that the Manadon product should be acceptable for membership of a professional institute. For fairly obvious reasons, the institutes that the college targeted were the Institute of Marine Engineers, the Institution of Electrical Engineers and the Royal Aeronautical Society.

These institutes were satisfied with a two-year academic component and this was, therefore, what most students received. It was, however, recognised that some officers would benefit from a better academic foundation. This was especially true of those who would go on to complete more advanced studies to fit them for design jobs. These officers studied for the London External BSc degree. The college's staff had no input into the setting or marking of the examinations, and it is a tribute to their dedication and professionalism that a very high pass rate was regularly achieved.



Royal Naval Engineering College, Manadon in late 1950s by permission of Kit Reeve

Within this framework, there was little external oversight, and the officers on the faculty staff were free to impose intensively taught programmes. The key requirement was to get the students through their examinations, and there was little emphasis on the freedoms associated with more traditional universities; thus, there were very few periods of private study. Another difference was that students did not complete the type of investigative project leading to a dissertation that is so strongly associated with engineering degrees today. Indeed it is one of the main requirements for the Bachelor and Master of Engineering degrees.

This self-contained model of engineering education was about to change forever, despite the reactionary attitudes of some of the older members of the staff.

Council for National Academic Awards and the Engineering Council

Many of the polytechnics and technical colleges that had been teaching to the syllabuses of various London External degrees began to demand greater academic independence so they could develop a wider range of options to attract more

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students. The upshot of this was the foundation in 1964 by Royal Charter of the Council for National Academic Awards (CNAA). This did not lead to the immediate demise of the London External degree model but the writing was clearly on the wall. In parallel with this academic development, the engineering institutions were beginning to flex their muscles, and in 1964 the Joint Council of Engineering Institutions was formed to establish common standards for professional engineers. It became the Engineering Council in 1982 and later had other name changes. Over the past few decades, it has exerted a great influence on the formation of professional engineers, and, despite the name changes, it has effectively controlled the academic component required for recognition as a professional engineer.

The decision was made that all Manadon students should study for a degree awarded under the auspices of the CNAA and that this should be a suitable qualification for professional recognition. The academic leadership to implement these simple-sounding decisions in an organisation as traditional as the Royal Navy should not be underestimated, and it is a tribute to the senior management of the faculty, led by Captain Brin Morgan, that it was accomplished within the necessarily tight timescale.

The CNAA granted the college the right to design its own BSc course in 1966; the last students studying for the London External BSc degree took their final examinations in 1970.

Validation and Accreditation

The academic staff of the college was heavily involved in validation and accreditation, which are often confused in the eyes of those not familiar with the academic development of professional engineers. So, it is probably appropriate to write a few words about them:

• Validation. This is the process by which a degree programme is assessed by the awarding body (in this case the CNAA) to ensure that it is has the academic worth to qualify it to lead to the award of a degree.

Accreditation. The fact that a course is deemed suitable for the award of a degree does not, of course, mean that the
degree is suitable for the development of any particular profession. It is this latter process that is termed accreditation,
which is conducted by the professional institutions themselves. In the case of Manadon, it was the Institute of Marine
Engineers, the Institute of Electrical Engineers, and the Royal Aeronautical Society. Passage through this procedure
was not always smooth, and one early task of Commander Nic Brown, as Director of Studies, was to unscramble the
problems resulting from a particularly difficult accreditation visit in 1990.

CNAA Degree for Engineer Officers

Many changes in the way Instructor Officers on the academic staff had to function came about with this degree validated by the CNAA. No longer were they working to a syllabus set by an external body but they were responsible for designing the syllabus, convincing the validation panel that it was at the correct academic level, and then delivering it in a manner that would also satisfy the CNAA.

Most obvious was the requirement to lighten the instructional load on the students by giving them an adequate provision of private study. This went much against the pre-existing ethos and led to some memorable exchanges between the old and new guards. Along with forcing this change through, the staff had to adjust to replacing in the final year much of the formal laboratory work with a major individual project. Starting from scratch, this was no simple matter. Good quality project work that delivers a satisfying challenge to the student is usually the by-product of staff research, which was thin on the ground. There were exceptions, such as Commander George Emmons, who worked on electron spin resonance and Lieutenant Commander Colin George, who investigated ultrasonic fatigue of aluminium alloys; however, these were rare and could not support the necessary number of student projects.

Setting up research could be a challenge as Lieutenant John McGrath discovered when he was sent for by the Dean and the conversation went something like: 'You've got a PhD, haven't you? Well, I'm told we need some research in the college — just set it up.'

The Instructor Officers working at the college at the time of these changes also had to make the transition from teacher, albeit one operating at an advanced level, to something more approaching the typical university lecturer. This transformation did not happen overnight and was slowed down by the traditional long appointments to the college. The Instructor Specialisation was a broad church and, as well as embracing those who joined because of the opportunity to work at a high academic level, there were those who wanted just the opposite. This necessitated careful selection and career development of officers who were going to fill staff appointments at Manadon.

During Captain Henry Morgan's time as the Dean, Commander John Franklin rejoined the college as his deputy. Coming straight from a sabbatical at the Massachusetts Institute of Technology, he set about creating a modular structure for the degree.



Royal Naval Engineering College, Manadon in late 1970s by permission of Kit Reeve

Officers who had adopted a selective methodology to passing their own degrees could be caught out on joining Manadon. Nic Brown's 'gulp' moment came on joining Manadon as a second-job Lieutenant and meeting his boss, Commander John Dobson. While at university approaching his finals, he remembers thinking: 'So, it's five out of eight questions, but for me it will be five out of seven, as I am not going to learn about Maxwell's equations, div grad and curl, etc.' Somehow the strategy worked until he arrived at Manadon, when John Dobson said, 'Nic, I see you are a specialist in radio communications and I'd like you to take on the final honours lecturing for Maxwell's equations, div, grad and curl, etc.' Nic Brown is sure that he was not alone in finding Manadon a very stretching experience intellectually — challenging yet hugely rewarding.

Another officer faced with teaching an alien subject was Lieutenant Commander Mike Barry, who found himself directed to look after statistics. He was mercifully glad of the Edinburgh University short module in that subject in his undergraduate programme.

In parallel with these changes, during the late 1960s, there was a shift in emphasis from the academic philosophy of the degree to one based on a systems approach to engineering. Two great enthusiasts for this type of approach were Commanders Jack Howard and David Kenner. However, it must have been a difficult balancing act for the Dean to allow them to implement this important change without, at the same time, destroying some of the important traditional aspects of engineering education. This was really innovative and was emulated some years later by a number of universities elsewhere. At Bristol, for example, ex-Manadon IOs Bob Ditchfield and Mike Barry relied heavily on the unit structures concept established at Manadon by John Franklin and others for the 1980 degree.



Royal Naval Engineering College, Manadon – Academic Dinner

With the CNAA seeking to develop its validated degrees by adopting best practices across universities, the goalposts could shift between validation visits, so key players among the academic staff needed to keep in touch with the way that body's thinking was evolving. To add to the confusion, the Engineering Council was also continually redefining the academic requirement for registration as a Chartered Engineer. While they set the standard, its interpretation and application were in the hands of the professional institutions to which it had delegated these functions. These institutions all seemed to view the rules differently, and the teams they sent had their own perspectives as well. However, a combination of good preparation in the form of supporting documentation, quick thinking and copious gin and tonic seemed to get the college through these visitations.

One important by-product of these changes was the adoption of a more traditional academic staff structure. This took the form of an Academic Board, chaired by the Dean, and comprised the heads of the academic departments and other key personnel. Not surprisingly, it took time to develop the collegiate modus operandi of a traditional university. It is a tribute to the incumbents of the Dean's office early in this process that it moved rapidly from a body deemed necessary by the CNAA to one that genuinely set long-term academic goals and managed the academic resources.

Bachelor Degree for Seaman Officers

In 1988 and 1989 working closely with the CNAA, the Dean, now Captain Colin George, examined a novel way to capitalise on the educational component of the new entry training that Seaman Officers received at Britannia Royal Navy College Dartmouth.

This meant that the young officers would be given academic credit equivalent to one year at university for their time at Dartmouth, leaving just two years of full-time education to be completed at Manadon for the award of a Bachelor's degree in Maritime Defence, Management and Technology. This was a pioneering scheme and the forerunner of a model now common in relationships between higher education and major employers. The major load resulting from this scheme was to fall on the Liberal Studies department. Like most of the others in the faculty, this department had undergone many changes in name. Possibly the most memorable was Complementary Studies, described irreverently by its head, Commander Clive Lewis, by the phrase in general use in Liberal Studies' circles as 'Cultural Sheep-dip'. This was somewhat unfair because the syllabus had evolved to focus on the requirements of the Institutions for the Engineer in Society, tilted a little to those on a naval career.

The Bachelor's degree saw the Liberal Studies department moving from a peripheral position to become one of the core academic departments within the faculty with a far wider subject content in its portfolio. The first few cohorts through the scheme proved both its viability and attractiveness.

Postgraduate Degrees

In 1971 the Advanced Marine Engineering course (AMEC) was transferred from Royal Naval College, Greenwich to Manadon. The potential of this course to meet both the naval needs and the academic criteria for the award of a Master's degree was apparent. Thanks to the efforts of the faculty's staff, led by the Dean, Captain Henry Morgan, appropriate shifts of emphasis were made, and 1976 saw this become a Master of Science (MSc) course. It supplied officers needing deep engineering expertise, especially for appointments in the Ministry of Defence Procurement at Foxhill, Bath, and Abbeywood, Bristol.

It was clear that the college would, in future, be operating at a higher academic level than before, and it became increasingly necessary for successive Deans to ensure a supply of highly qualified officers on the staff.

Some of these Instructor Officers would stay at Manadon for very long spells, developing deep expertise in their subjects and providing an essential component of academic stability without which it would have been difficult to convince validating and accrediting authorities that the college was up to the task of delivering postgraduate degree education. Other Instructor Officers would spend shorter times but return to the college in increasingly senior positions before, possibly, occupying the Dean's chair.

The development of a proper academic structure was an important factor when a completely new postgraduate venture was initiated in 1985. This was the Advanced Marine Defence Technology course (AMDTC), which aimed to give officers of the Weapon Engineering sub-specialisation an MSc qualification equivalent to that earned by their Marine Engineering colleagues on the AMEC. Naturally, this led to Instructor Officers working in the electrical and electronic disciplines, joining their fellows in the mechanical subjects in educating students at the postgraduate level. While bringing a welcome expansion in student numbers, this new course also increased the challenges of providing sufficiently demanding project work in an environment that did not have a strong research base on which to draw. Following start-up, there was a gradual expansion in numbers as the course became more established and its reputation among its customers increased. An agreement was reached with ENSIETA (Ecole Nationale Supériere des Ingénieurs des Etudes et Techniques d'Armement) in Brest, whereby students from Manadon could undertake the project phase of the course in Brest and vice versa. Several

exchanges of this type were made. The Royal Military College of Science at Shrivenham saw the real benefit of all of this groundwork when the course later transferred there.

During this period, under the auspices of the CNAA, the academic experience of the staff grew, and visiting validation and accreditation panels found that they faced a much more difficult task imposing arbitrary changes in the face of strong, well-reasoned arguments advanced by an increasingly self-confident faculty. Other evidence of this growing self-confidence can be seen in the way Instructor Officers integrated into the country's higher education structure by belonging to validation panels and steering committees of various degree courses. Nic Brown remembers thinking, 'I have gone in two years from organising elementary literacy training for Royal Marines recruits to being a member of the Engineering Professors Council for Britain'. At one stage the heads of the academic departments debated whether to follow the precedent of Royal Naval College, Greenwich in styling its heads of departments as professors, but this proposal was overwhelmingly rejected.

On appointment as Dean, Captain John McGrath recognised that Manadon would only enjoy full academic credibility in universities with engineering faculties if the academic credentials of its staff could be measured. The college was broadly ahead of the field in two of the 'Big Three' areas:

- Teaching very good.
- Administration excellent.
- Research really astern.

While the college was growing in self-confidence, so were the larger polytechnics operating under the CNAA umbrella, whose aim was for total academic freedom. The result of their lobbying was the creation of a new tier of universities, often referred to as the 'polyversities', and the demise of the CNAA in 1992.

Other Courses

In the 1970s the Royal Naval Engineering College established a one-term Lieutenants' staff course called the Engineering Management course, which ran for six years. This included foreshortened elements of a Master's programme in Management and included a substantial module in statistics, complete with a project that was taught by Mike Barry during his first appointment on the staff.

On the Closure of the CNAA

It was quite clear to the Dean that without rapid action, the college would have been left without any degree-awarding mechanism. It was too small and specialised to bid for degree-awarding powers in its own right. Failure to transfer the validation of its degree programmes to another body would have undone several decades of academic progress, as the only fall-back position would have been reversion to the awarding of a Manadon diploma, which would not have received the necessary accreditation by the professional engineering institutions for its holders to have become Chartered Engineers.

This led to a 'beauty contest' between several universities to determine which should provide the academic top cover for the college. All had their advantages and disadvantages, which were explored by the Academic Board. After a close vote the Dean was authorised to complete negotiations with the new University of Plymouth. Proximity was not the main determinant in this choice but rather the opportunity offered for senior members of the faculty staff to sit on the key committees of the university, thus ensuring that Manadon's interests were heard, understood and protected.

Fortunately there were few changes to be made to transfer to the new awarding body, and the first Manadon students graduated with a degree from Plymouth University in 1996.

Closure of the College

The future of engineering training in the Royal Navy and, therefore, Manadon, had been studied many times in the past. However, by the early-1990s it was decided to close the college in 1996. This affected several entries:

- Those who joined in the 1992 academic year completed their course as planned in 1995.
- Those who joined in the 1993 academic year completed two years at the college and finished their final (third) year at Plymouth University in 1996.

• Those in the 1994 academic year did not go to the college; instead, those 25 officers went on mainly to Southampton University. However, in the September before going to Southampton, they completed the short mathematical shakedown that had been instituted by Mike Barry.

Subsequent university entrants attended Southampton University, where Commander Peter Hadden, a former head of Materials Technology at Manadon, was the Officer-in-Charge of the RN contingent.

Student Project Work

From the inception of the CNAA degree, it was the Instructor Officers who were responsible for finding and supervising a programme of imaginative, challenging and worthwhile student projects. This required setting up and nurturing the links with the naval research establishments. In a climate of some distrust, where some felt that letting Manadon do anything could undermine their viability, this needed real effort and diplomacy on the part of the staff. Some of these collaborations, such as optical signal processing, led to long-running programmes where students from successive cohorts were able to build on the work of their predecessors, in a similar way to a conventional university. Without the traditional resource of research students, staff members learned to use their undergraduate and postgraduate students to further their own research interests. This led to several students having papers published before they graduated and many more seeing their work appear subsequently in print.

Perhaps the greatest vindication of the Manadon educational system came in 1991 when two students got through the regional round of the national competition for Young Electrical Designer Awards to appear in the final at the Science Museum. The Director of Studies, Nic Brown, and the Dean, John McGrath, were there to support their entrants and were stunned when Peter Hoe-Richardson was awarded second place. They thought this was pretty good for such a small place competing with the big boys, but then the unbelievable happened and Steve Brown gained the first prize. The reader is left to imagine the euphoria that followed.

Research

The pioneering efforts of George Emmons and Colin George have already been mentioned, and, as staff turnover brought a different spectrum of officers to the college, the number who pursued active, long-term research programmes grew. On the mechanical side, Lieutenant Commander Graham Reader investigated the Stirling engine, a mantle that he passed on to Lieutenant Commander Gary Hawley. Lieutenant Commander Peter Whelan's research into propeller design led to the offer of a visiting chair at a Canadian University; an offer he was unable to take up. Over on the electronic side, Lieutenant Commander Kit Reeve worked on his optical signal processing. The control fraternity is not to be left out, and Lieutenant Commanders Bob Sutton and Geoff Roberts both pursued an interest in fuzzy logic, not the post-mess dinner variety! These types of research needed strong mathematical and computing support, and this did much to enhance the status of the Mathematics and Computing Department. From this came a massive two-volume work of undergraduate mathematics, authored by Mike Barry. Another support department that entered enthusiastically into research was Materials Technology, and Lieutenant Commander Ken Trethewey was the principal co-author of a textbook on corrosion.

One problem dogged attempts to fund active research programmes, and that was the insistence that any money generated had to go to the Treasury and could not be retained by the college to improve the research environment. When he was the Dean, Colin George was determined to change this situation, and his efforts bore fruit in the form of a mechanism known as 'appropriation in aid'. This enabled his successor to offer researchers the carrot of retaining all the funds they could raise, which they could then use to fund their equipment and travel to conferences to present papers. This was an immediate spur to activity among some of those who saw the potential benefits, resulting in the research income increasing from nothing to a quarter of a million pounds in just three years. There is little doubt that had the college not been closed, it could have substantially reduced its annual running costs by this mechanism.

Too late in the day, its research potential was recognised by other players and, in 1992, a centre of research excellence was established that linked the Royal Naval Engineering College with Plymouth Polytechnic and the Plymouth Marine Laboratory. In January 1993 a memorandum of understanding was signed in St Petersburg between the college and the Krylov Shipbuilding Research Institute. John McGrath and Commander Paul Gregory represented Manadon during these negotiations.

Perhaps the clearest indication of the quality of the research being conducted by the staff can be seen in the number of Instructor Officers who went on to be awarded chairs at various universities. Bob Whalley probably started the ball rolling at Bradford, followed by Graham Reader at Calgary and Alan Johns at Sussex. Gary Hawley (Bath), Bob Sutton (Plymouth) and Geoff Roberts (Wales) all became professors; many others joined universities as lecturers and senior lecturers.

Non-Degree Education

It is sometimes forgotten that the faculty also provided the academic foundation for the Special Duty Officers before they went to their first jobs as officers. This led to their acceptance as Technician Engineers by the major engineering institutions. A large element of the Manadon course consisted of engineering mathematics with applications specifically dedicated to their sub-specialisations. The mathematical elements, as well as all the others, were subject to rigorous external moderation by the vocational councils.

Raising the Academic Profile Internally

As the training of Engineering Officers moved increasingly into line with that of other engineers, a problem identified by some members of the specialisation was the lack of understanding that the college was a seat of learning as well as a Royal Naval establishment. This was first addressed by the institution of a Degree Ceremony to be held on the same day as the Passing Out Parade and the Summer Ball. Initially this was quite low key but, as students increasingly came to see it as an important milestone in their careers, it became more formalised and colourful. Nic Brown remembers the Registrar, Lieutenant Commander Bob Moss, describing it as being like organising 400 simultaneous weddings, since it was attended by the graduands' extended families and consisted of a formal ceremony followed by a 'liquid' celebration on a large scale.

An academic mace was designed and manufactured by the staff in the workshops and carried in the academic procession by the Academic Registrar. To emphasise this component of the college's life, an Academic Dinner was introduced and held a few days before the graduation. Senior members of the faculty attended the dinner where the rig was black tie and academic dress; the dinner was discontinued during Captain Brian Leavey's time as Dean.



Royal Naval Engineering College, Manadon - Graduation Tea

Graduation Day was special and became better and better. In 1983 the Queen came and awarded the degrees, perhaps the one and only time she has done this during her long reign. Princess Anne came in 1989 and later wandered though the throng outside the Wardroom in the hot summer afternoon. On meeting Mike Barry and his guest, Professor Sir Hermann Bondi, she asked what they were talking about. When Hermann Bondi replied, 'Mathematics', she told them with some delight that she'd never needed to learn any mathematics.

Cultural and Sporting Contributions

Outside their formal duties, Instructor Officers were important in developing and maintaining strong cultural and sporting traditions. The cultural activity that springs to mind is drama, where officers contributed towards both the productions and their performance. Philip d'Authreau will be remembered as a talented and dedicated producer who was able to stage complex and demanding material in a way that made it enjoyable and accessible. There was also a deep seam of acting talent. Mike Barry's performance of the blind father in 'Voyage around my Father' was absolutely outstanding. This talent in the college achieved many successes in the RN Drama Festival.

On the musical scene, Commander Quintin Des Clayes was noted for his performances as a flautist and Lieutenant Commander David Way as the leader of an impressive string quartet. These two, along with many others, contributed to the very popular Musical Evenings in the Wardroom. Musical talent was varied with Graham Reader and Ken Trethewey running a high-quality pop band called 'Funktion', which played at the college and at charitable events elsewhere. The formation of the Manadon Volunteer Band gave another opportunity for Instructor Officers to shine both as performers and, in the administrative role, as Band Officers. Commander Laurie Redstone and Lieutenant Commander John Davies filled both these roles with distinction. This was another area of competitive success, with the Manadon band regularly winning prizes at the Volunteer Band Festival.

Current affairs were not neglected either. In 1975 Commander Bob Ditchfield established the Fisher Society as an afterdinner seminar in defence and related studies. After his departure, members of the Liberal Studies Department ran the society and they secured a succession of distinguished speakers. Lively debates followed these talks, and many benefited from hearing and discussing the views of prominent people enticed to Manadon.

Sport was another activity where Instructor Officers made a great contribution. The long-term continuity of the faculty staff meant that they were able to develop ongoing coaching programmes. Among the sporting luminaries were rugby internationals Alan Meredith, who was capped for Wales, and Brian Vaughan, capped for England. John McGrath competed for Wales at fencing in the 1970 Commonwealth Games and Alec Wallace played hockey for Scotland. Other activities in which Instructor Officers played prominent roles were the Dartmoor Mountain Rescue Team and Plymouth sailing.

Manadon Closure and the Effects on the Specialisation

The final Graduation Ceremony took place in July 1995. The closure of Manadon had a major impact on the Instructor Specialisation by reducing the upper academic level at which its officers operated and curtailing the rigour of academic thinking and challenge available to them. Also, at one stroke, the requirement for one captain, eight commanders and a large number of lieutenant commanders and lieutenants was eliminated.

This may well have been one of the most important causes of the demise of the Specialisation.

RNIOA postscript 2025



Service biography of Captain John Neilson McGrath

Joining the RN on 2 January 1967, John completed the two new entry courses; a month at the RN Divisional School at HMS *Victory* (Barracks) and the remainder of the Spring Term at Royal Naval College (RNC), Greenwich. Then followed a period as a Schoolie gypsy starting with an appointment to the Metallurgy and Chemistry Department of RNC for a term during which the highlight was being present in Grand Square when the late Queen knighted Sir Francis Chichester using the same sword that Queen Elizabeth I had used to perform a similar ceremony on Sir Francis Drake. He then headed to the apprentices training establishment of HMS *Fisgard* at Torpoint in Cornwall. After getting settled in nicely, he was recalled to England to fill a vacancy in HMS *Drake* that had been caused by sickness. During his time there he enjoyed a spell at sea in the A Class submarine HMS *Artful*.

Just as he was beginning to think that COs were playing pass the parcel with him there came an appointment to the Daring Class destroyer HMS *Dainty*. While in Gibraltar the Captain, Commander Miles Rivett-Carnac, asked if he would be interested in taking a party of junior ratings through Morocco. He didn't need to be asked twice and, a few days later, John plus

one CPO and four junior ratings set out to travel around the country by second class bus; not a mode of transport to be recommended if comfort or speed are priorities.

In September 1968 he joined the Materials Technology Department of the Royal Naval Engineering College (RNEC), Manadon. The key events during his time there were being selected to represent Wales at fencing in the Commonwealth Games held in Edinburgh (1970), shipping his half stripe and transferring to the Permanent List of IOs. After a very happy four years there, John returned to RNC, Greenwich, as a student on the Nuclear Advanced Course, an MSc in Nuclear Science and Technology, for which he was awarded the Herbert Lott Prize.

It was now time to put this new found knowledge to use in the Nuclear School of HMS *Sultan*. He relished explaining the intricacies of the physics of pressurised water reactors to the CPOs who were to become reactor watchkeeper, so much so, that one class asked Lt(I) Clive Miller, teaching mathematics to: "Take it easy please, Sir, we have Lt Cdr McGrath next and he is so enthusiastic that it hurts". Intended or not he took this as a compliment. In 1975 it was back to Greenwich this time on the Physics staff of the Department of Nuclear Science and Technology (DNST). During his time there, the Training Commander, Commander (I) Ken Tucker, spent a period sick on shore and the experience of covering for him was invaluable. During his spell in the DNST he spotted that, while there were plenty of technical courses, there were none covering the responses required should there be an accident to either a weapon or a reactor. When he drew this to the attention to Professor Jack Edwards, he was told to investigate to see what could be done to fill this gap. The Professor was happy for a "quick and dirty" version of a course to be designed and run to test the reaction of the intended audience. Nuclear Accidents Procedure Course 1 was born with students from both naval and civilian organisations which would be involved in the response to such an event. Despite its many flaws, the potential for development was recognised and, as far as is known, this series of courses is still running today.

1978 saw a complete change of emphasis when John took over as the Part II Training Officer in HMS *Collingwood*. This appointment was curtailed by his selection for promotion. He now, reluctantly, realised that there would be no more sea time but consoled himself by concluding that he must have been deemed too valuable to risk in that unpredictable environment. John moved to HMS *Sultan* where he became the Training Commander, Career Training (TCCT), the abbreviation of which sounded like some form of disinfectant. His policy of denying requests for leave for sporting and social events from those who had failed examinations until they had passed a re-take resulted in an increased pass rate and earned him the reputation of being a heartless bastard, which he much enjoyed.

Time now for a return to RNEC, Manadon, this time as Head of Materials Technology. John liked to get to know each year as it joined so taught the First Year peppering the science of heat treatment of steels with gory stories which persisted long after the true subject matter had faded. One student even produced a cartoon but failed to spot that John is left-handed.



The opportunity to pursue research was very welcome and he directed his efforts to the study of impressed current cathodic protection systems. He pioneered a physical scale modelling technique for predicting the performance of these systems in both static and dynamic circumstances. The RN was uninterested, preferring to spend large sums of money with consultants for computer simulations. However, the USN was quick to see the advantages and mandated that future ship systems be developed using a version of this method. The Dean, Captain (I) Colin George, tasked him with absorbing the Training Workshops and the Design Section into the Materials Technology Department to create a single unit, a process that used all his diplomatic skills to achieve. For the visit by Her late Majesty the Queen and the Duke of Edinburgh in 1983, the Workshop staff produced a

model of HMS *Thunderer* in which her grandfather had served. John was a member of the Manadon Volunteer Band that performed in the marguee during lunch.

Leaving Manadon in early 1986, he spent time in MoD conducting a study on the WRNS Weapons Analyst Branch. Who could ask for a more pleasant assignment? This was a prelude to completing the Joint Service Defence Course at Greenwich which he found unsatisfactory because no attempt was made to explore the ideas presented by some fascinating external lecturers. Halfway through the course he was selected for promotion to Captain and spent the first months of 1987 completing a series of courses in preparation for taking on the role of Head of Computing (Manpower) at HMS *Centurion*. Among other tasks was the implementation of On-line Assistance to the Naval Secretary involving installing the hardware in a Grade I listed building and transmitting data via fully encrypted lines. He also identified a need to have a recovery system in place and negotiated a contract to have a fully operational computer suite delivered and installed in 24 hours should the need arise. This system won the Technology in Personnel Award of the Institute of Personnel Managers for 1989.



Then it was back to Manadon, this time as the Dean; John had now served there in every rank from Lieutenant to Captain. This was an unsettling period. The Council for National Academic Awards, through which Manadon awarded its degrees, was being wound up. This meant negotiating another academic partner and, after a "beauty contest", that role was taken on by the University of Plymouth. On top of that, the threat of closure of the College was increasing. With the income generated from its research activities rising rapidly, there was little doubt in John's mind that the College could have been covering a major part of its running costs within about five to ten years; an opportunity it was not to get. International partnerships beckoned and an agreement was reached with the Ecole Supérieure des Ingénieurs des Etudes et

Techniques d'Armement (ENSIETTA) in Brest. This allowed final year students to complete their dissertations in the other country and language. John's final task before leaving Manadon in February 1993 was to travel to St Petersburg, just a year after the fall of the Soviet Union, to negotiate a research agreement between the Krylov Shipbuilding Institute and Manadon. Sadly, the closure of Manadon in 1995 ended these initiatives. John was declared redundant or, as he preferred to put it,

Services No Longer Required (SNLR), a casualty of the Peace Dividend, which is now (2025) being regretted in the face of increased international tensions. His last day on pay was 29 June 1993.

Throughout his naval service ran the thread of his sport, fencing. As well as the 1970 Commonwealth Games mentioned earlier, he had won the Welsh Foil Championship in 1970, the Welsh Epée title in 1965 and competed in the Commonwealth Games of 1966. John won the RN Foil Championship in 1976 and the RN Epée Championship in 1970, 1978 and 1990. He also competed at the Royal Tournament and Inter-Services events at home and abroad and coached fencers throughout his career.

Rank	Name	Decorations & Post Nominals	Dates
Instructor Captain	A J Bellamy	OBE, MA	3.6/57 - 1/5/60
Instructor Captain	H E Dykes	BSc, PhD, ADC, MIMechE	2/5/60 – 29/2/64
Instructor Captain	D E Mannering	ВА	1/3/64 – 6/12/64
Instructor Captain	B J Morgan	BSc	7/12/64 – 1/12/69
Instructor Captain	H J Hair	ACGI, FIEE	1/12/69 – 19/11/72
Instructor Captain	M Moreland	OBE, MA, MBIM	20/11/72 – 18/11/73
Instructor Captain	P J Poll	BA, MSc, CEng, MIERE	19/11/73 – 24/8/75
Instructor Captain	H E Morgan	BSc (Eng), CEng, FIMechE, FIMarE,	25/8/75 – 2/6/78
Captain (I)	J E Franklin	BSc(Eng), DIC, CEng, FI MechE, FIMarE	2/6/78 – 23/2/79
Captain (I)	T O C Praggs	ADC, BSc(Eng), ACGI, CEng, FIEE	24/2/79 – 10/10/80
Captain (I)	C J Howard	MSc, DIC, CEng, MIEE	11/10/80 – 16/12/82
Captain (I)	A O Holding	BSc, CEng,MRINA	17/12/82 – 11/10/84
Captain (I)	G C George	MSc, CEng, FIMarE, MIM	12/10/84-11/1/90
Captain (I)	J N McGrath	MSc, PhD, CEng, FIMarE, MIM	12/1/90 – 4/2/93
Captain (I)	B M Leavey	MA, MSC, FBIM	5/2/93 – ?/?/95

DEANS OF THE COLLEGE

Source: Compiled by John McGrath