William Mountaine, F.R.S., Mathematician

BY CAPTAIN W. R. CHAPLIN

WILLIAM Mountaine was born at Clint, a mile from Ripley in the West Riding of Yorkshire, between the years 1700 and 1705. The local tradition is that he was self-taught but it is probable that he had first attended the Free School at Ripley which was founded in 1702 and that he subsequently went to a higher school where his flair for mathematics was developed. Nothing however can be traced of his early life, and the first we learn of him is in the early 1740's when he was already well established as a teacher of mathematics and navigation, and about to become the mathematical examiner to the Trinity House.

This latter office was not a new one. The need for an examiner first arose in the latter part of the seventeenth century when Pepys had interested himself in the Christ's Hospital School and in encouraging the boys to be apprenticed to the sea service, and when he became Master of the Trinity House the Corporation assumed the duty of examining the scholars in mathematics before being bound apprentice, which duty was confirmed in their Charter by James II in 1685.

The Corporation were already examining the masters and mates in the Royal Navy, reporting to the Navy Board on the candidates' proficiency and for what rate of ship they were qualified. These examinations continued to be held at the Trinity House for nearly 150 years and only gradually ended owing to changing conditions.

Furthermore, when the Earl of Pembroke was Lord High Admiral,[1] it was ordered in 1702 that schoolmasters be appointed to certain ships of the Royal Navy above a stated rating, to teach the young officers the art of navigation, and that the qualifications of candidates should be certified by examination at the Trinity House before they made application for appointment to a ship. Seymour's 'Survey of London,' 1735, describing the various duties of the Trinity House refers particularly to this, saying 'All Mathematical Teachers have their respective Qualifications and Learn-

1 Thomas, Eighth Earl of Pembroke, had been Master of the Trinity House, 1692-1694.

ing examined and certified, who have been of late appointed aboard by the Lord High Admiral, for the teaching of Volunteers that go on board the King's Ships.'

The examiners appear to have been appointed exclusively from mathematicians and teachers of navigation most of whom during the seventeenth and eighteenth centuries had their schools around Tower Hill and the riverside parishes. It was a part-time office; the emolument was small but the fees compensated for that, and coincident with the appointment they continued their teaching establishments, so that it would frequently happen that the tutor of one day was the examiner of the next, a pleasant arrangement evidently acceptable at that period. It seems, too, that both prestige and influence attached to the office of the examiners.

The names of the first examiners cannot be traced, but one, Thomas Weston, was appointed assistant mathematician in April 1719 and in due course became the principal. He was succeeded by John Weston (probably his son) in June 1728. The latter, who is described as of Greenwich, Co. Kent, died in June 1744. He bequeathed his mathematical instruments and books to his brother-in-law, James Rossam, and his estate to three trustees, James Rossam, Henry Edwards and James Gunter.

A month later (in July) the Trinity House selected his successor and, of the three applicants, James Rossam was appointed, William Mountaine being one of the others. Rossam, however, died only six months later, in December 1744 and, on 5 January following, William Mountaine was appointed in his place; the entry in the minute book is 'William Mountaine, Teacher of the Mathematicks at Shad Thames, appointed at the salary of Twenty Pounds a Year.'

Shad Thames, adjoining Rotherhithe on the south side of the river and opposite Tower Hill and Wapping, was then one of the principal shipbuilding parishes on the Thames-side, and around it were established all the ancillary trades to shipbuilding and the homes of mariners and shipwrights.

The inconsiderable salary of twenty pounds a year—although equivalent to a much larger sum today—appears to have been only a retaining fee as there is good evidence that a fee attached to every examination. However, two months after his appointment, Mountaine petitioned for an increase 'owing to the increase of my business, since the Lords Commissioners of the Admiralty have invited more School Masters into the Navy.'

His salary was then increased to thirty pounds a year but, two years later when the extra work seems to have ended, at least temporarily, it was

reduced to twenty pounds, but in September 1756 again increased to thirty, Mountaine petitioning 'that the business of Mathematical Examiners had increased to equal to what it was during the late War.'

Together with his duties as examiner, Mountaine continued his private practice as a tutor, and a contemporary advertisement by him is, 'Teacher of the Mathematics, in Shad Thames, Southwark. Young Gentlemen boarded.' From the advertisements of others it appears to have been the custom during the eighteenth, and in fact well into the nineteenth century, for the London teachers of mathematics and navigation to board and lodge their pupils.

A recently published diary of one of his candidates, 'The Journal of Nathan Prince, 1747' is of particular interest in that it is probably the only intimate impression of this scholarly and withal very kindly person, as well as of his examination at the Trinity House and subsequent interview at the Admiralty.[2]

Nathan Prince, of Massachusetts, who had graduated from Harvard was evidently attracted by the call for schoolmasters in the Royal Navy, and went to England in H.M.S. *Vigilant* as schoolmaster for the voyage to Portsmouth, where he left the ship and continued by road to London with the intention of sitting for the Trinity House certificate enabling him to present himself to the Board of Admiralty for a permanent appointment.

He gives a vivid description of his journey to London before the days of regular stage coaches, and of his meeting with William Mountaine, to whom he had a letter of introduction from a friend in New England. Mountaine invited him to dinner, during which he gave him an outline of the examination syllabus. He also lent him books from which to prepare himself, and gave him considerable encouragement by saying that, if he was deficient in some subjects and good in others, allowance would be made.

In due course he was examined at the Trinity House, and Prince's account of it leaves the impression that the examiner was easy to one whom he appreciated had had a good grounding in the subjects. His passing was sent to the Board, and the Trinity House minute book records, 27 June 1747, 'Mr. Nathan Prince producing a certificate of his Sobriety and good Affection to his Majesty, he was examined, and being found qualified for a Schoolmaster in his Majesty's Navy, was certified accordingly.'

William Mountaine wrote several works in the field of mathematics and navigation, and revised some earlier ones. In 1744, he revised and corrected James Atkinson's *Epitome of the Art of Navigation,* of 1694. It was

2 THE AMERICAN NEPTUNE, XVI (1956), 81-92.

published by Mount and Page,[3] of Tower Hill, and was still being reissued by them nearly forty years after. Two years later, in 1696, Mountaine compiled, in conjunction with James Dodson, an eminent scholar who had earlier written a standard work on mathematics, *An Account of the Method used to describe Lines on Dr. Halley's Chart of the Terraqueous Globe.* In the same year, the *Sea Man's Vade Mecum and Defensive War by Sea* was a revision of R. Park's *Defensive War by Sea* written in 1704, and was reissued four times until 1783. Mountaine's *The Mariner's Compass Rectified, with Tables of the Sun's Declination,* in 1755, was largely a revision and correction of the same work by Andrew Wakely, first published in 1633, and *The Mariner's New Calendar,* published two years later, was also a revision and improvement of an earlier work by Nathaniel Colson, in 1675.

The Practical Sea Gunner's Companion was written about the same time. On the last page of this work Mountaine makes known his school, and that he teaches 'The Classics, Writing, Accompts, Book-keeping after the Italian form, Navigation, Astronomy, the Use of the Globes and other Branches of the Mathematics . . .' and 'Gentlemen boarded by William Mountaine in Gainford Street, Southwark.'

In recognition of his work in the sphere of navigation Mountaine was elected a Fellow of the Royal Society in 1751. His contributions to the *Philosophical Transactions* were: 'On the Variation of the Magnetic Needle,' 1757; 'A Short Dissertation on Maps and Charts,' 1758; 'Extraordinary Effect of Lightning,' 1759; and 'A Defence of the Mercators Charts,' 1763.

His last published work was *A Description of the Lines Drawn on Gunter's Scale,* in 1778. In April of that year the Trinity House minute book records a letter from him asking the Corporation to accept a copy of the work. A year later his name appears for the last time when the Elder Brethren recorded with regret his death on 2 May 1779, and that he had been their mathematical examiner for many years. He had died at his home in Gainsford Street, Shad Thames, where he had lived for many years, and was buried in the Parish Church of St. John's.

Throughout his life he had given his services freely in the realm of education as well as in charitable works, and for several years was a Governor of St. Thomas's Hospital. Although many years a resident of London his interest in his birthplace in Yorkshire continued throughout his life and it benefited by his legacies.

[3] Mount & Page, one of the principal publishers of nautical works and charts during the eighteenth century. For an account of the 250 years of this firm see 'A Seventeenth Century Chart Publisher,' THE AMERICAN NEPTUNE, VIII (1948), 302-324.

About 1750, one William Coates, of Ripley, was much concerned at the state of the road between Clint and Ripley, being so bad that the children of Clint were deprived of the benefit of the school at Ripley during the winter months, and he donated a sum of money towards the building of a school at Clint. In this he was supported by the rector, who made an effort to augment Coates's gift by public subscription.

This, however, meeting with a disappointing response, Coates decided to try and get some further donation from outside the district, and wrote to his old friend, William Mountaine, asking his assistance and also that he would approach Rear-Admiral Robert Long,[4] another native of Ripley then living in retirement in London, for a contribution. Admiral Long favored the project and agreed to subscribe to it. Later on, in 1760 he gave further assistance by endowing the school with the rent of a farm and some land in the locality, of the value of £45 a year, and appointed trustees including William Mountaine and the Rector of Ripley to administer it. With these various gifts the School of Burnt Yates in Clint became safely established.

William Mountaine became also one of the school's principal benefactors. In addition to gifts during his lifetime he bequeathed much to it, as well as making legacies to friends in the neighborhood. His wife, having predeceased him, and apparently having no family, much of his estate was left to schools and charities. The Parish Church at Southwark, the churchwardens, the poor of the parish and the charity school there were all remembered in his will, with a legacy to the Librarian of The Royal Society. His principal bequest, however, was to the Burnt Yates School. It included a sum of money in trust, and £140 a year from the tolls of a turnpike road at Wetherby in Yorkshire.

Mountaine gave his library to the school, and desired that his executors should have printed labels pasted in all the books 'having a neat scroll around the inscription: The Gift of William Mountaine, F.R.S. to Clint School.' In addition, he gave a pair of globes, two telescopes, manuscript charts and his mathematical instruments. A separate legacy provided that the interest on it was to be paid to successive schoolmasters for the care of his books and instruments.

Before his death he had given, to be hung in the trustees' room at the school, full length portraits of King George II and Queen Caroline. These are still at the school, together with the portraits of himself and his wife

[4] Rear-Admiral Robert Long: Captain of *Russell*, 80 guns, in the Squadron under Admiral Rowley, in 1739, and thereafter served in the Mediterranean for some years, after which he returned to England and retired with the rank of Rear-Admiral in 1747, and lived in Holles Street, Cavendush Square, London, until his death on 6 June 1771.

which had been bequeathed by his will. There is also a portrait of Admiral Long.

The library contained an interesting collection of over 560 volumes, mainly on mathematics, navigation and science. It was, however, eventually sold, in 1898, to a Leeds bookseller for a very small sum, and is now probably scattered far and wide.

As a result of subsequent educational enactments the school has been brought into the general scheme for education, but the traditions of its founders are preserved by the retention of the former Trustees' Room, with the portraits of those who had given generously to it so long ago.

Captain William R. Chaplin has been a member of Trinity House for over thirty years and is now Senior Warden of that venerable institution. He went to Trinity House in 1928 *from the command of S.S.* Jervis Bay, *a ship which made a name for herself in the late war. Captain Chaplin has contributed several important articles to* NEPTUNE *since its inception.*

Note abstracted from a notarial record kept by Daniel Moulton of York, Maine, 1746-1784.

CONTRACT TO BUILD A VESSEL. On 4 September 1750, William Hight of Berwick, Trader, entered into an agreement with Stephen Paul of Kittery, Shipwright, to build a vessel 'Fifty Feet Keel, Twenty & a Half Feet Beam Nine and a half Feet in ye Hold, Double Deck, Four Feet betwixt Decks & to Caulk the said Vessell & finish her to a Cleat, head excepted, & to have the said vessell ready to be Launched on or before July 1st Next.' Hight was to furnish all materials for the building and Paul was to be paid £133.6.8 Lawful money in Bills of Credit equal to £1300 Old Tenor, one-half in West India goods and provisions and one-half in Hampshire money, to be paid on or before 1 July 1751 at the house of Thomas Mogridge in Sommersworth. Hight failed to provide materials as required and Paul 'protested' the agreement on 22 May 1751.

Contributed by L. W. Jenkins