

**Some Further Biographical
Details of the Holden Tide Table
Makers.**

Philip L Woodworth

December 2002

DOCUMENT DATA SHEET

<i>AUTHOR</i>	Philip L. Woodworth	<i>PUBLICATION DATE</i> 2003
<i>TITLE</i>	Some Further Biographical Details of the Holden Tide Table Makers	
<i>REFERENCE</i>	Proudman Oceanographic Laboratory Report No. 58	
<i>ABSTRACT</i> <p>This report provides some additional biographical information on the brothers Richard and George Holden, and of George's son and grandson (also called George), who produced the famous Holden Tide Tables at Liverpool for almost 100 years from 1770, and who gave their name to the 'Holden Almanack and Tide Table', which was published until the 205th edition in 1974. It should be read alongside the paper called Woodworth (2002) below which was published in the <i>Transactions of the Historic Society of Lancashire and Cheshire</i>.</p>		
<i>ISSUING ORGANISATION</i> Proudman Oceanographic Laboratory Bidston Observatory, Birkenhead, Merseyside, CH43 7RA, UK (from September 2003) Proudman Oceanographic Laboratory 6 Brownlow Street Liverpool L3 5DA, UK Director: Prof. A.E. Hill		<i>TEL:</i> (0151) 653 8633 <i>FAX:</i> (0151) 653 6269 <i>EMAIL:</i> PLW@POL.AC.UK
<i>KEYWORDS</i> Tide Tables, History of Science, Liverpool and Lancashire Local History		<i>PROJECT</i> LLT00 <i>PRICE</i>

Copies of this report are available from:
The Library, Proudman Oceanographic Laboratory.

Acknowledgements

My thanks go once again to the people mentioned in Woodworth (2002). That paper resulted in valuable correspondence with Miss Cathy Wilson from New Zealand (a descendant of Richard and George's younger brother Christopher, and of their cousin, also called Christopher) and Mr. Lawrence Holden of Birkenhead (a descendent of Procter Holden, younger brother of Richard and George). I am grateful to them both for important pieces of information. Correspondence with Dr. John Rowlands of Maghull and Dr. Reginald Yorke of Formby is also much appreciated. As many times before, I would like to thank Robert Smith of POL for technical help.

Introduction

This report is a longer version of Annex 1 of a paper published last year (Woodworth, 2002) on the work of the brothers Richard and George Holden, and of George's descendants whom I denoted as George-2 (son) and George-3 (grandson). The Holdens produced some of the first high-quality, publicly-accessible tide tables in the UK, and the paper was concerned with how they may have acquired their knowledge of the ocean tide, and with the details of the methods which they used. Those methods were always closely-guarded family secrets.

The requirement to keep the paper to a reasonable length meant that I had to leave some of the biographical details out of the Annex 1. Therefore, an edited version of the original text is given below, together with some maps and pictures which also had to be left out of the paper. The opportunity has also been taken to include some pieces of information which have come to light recently, mostly about Richard Holden who, in my opinion at least, is the most interesting of the Holdens.

Francis Holden

Our story can start with the marriage of Francis Holden, from Champion in the parish of Slaidburn, and Hanna Prockter, of Clapham at Thorton-in-Lonsdale on 17 September 1716. Champion is shown on 19th century Ordnance Survey (OS) maps as a small section of hill-farming land in the Forest of Bowland area of Lancashire (but at that time in Yorkshire) to the east of Slaidburn and to the north of Easington Fell. Twentieth century OS maps still show a Champion Farm. Clapham is a small town to the north-west of Settle in the Craven area of Yorkshire, while Thornton-in-Lonsdale is further again to the north-west (see maps at the end of this report).

The Slaidburn parish records show that Richard was their first child, baptised on 9 March 1718.¹ In the record, Francis is said to be from Swallowscars, which is at the west end of the Champion area and which is still marked on modern maps. Mary (or Maria) was the second child (1719), after which the family moved to Kettlesbeck Farm near Eldroth in the parish of Clapham and Austwick. The Clapham parish records list the baptisms of a steady stream of children: Elizabeth (1721), George (baptised 12 May 1723), Katherine (1725), Procter (1727), John (1729), Thomas (1731, died same year), Francis (1732, died same year), another Thomas (1734), Christopher (1735), another Francis (1737) and Robert (1740).²

Francis is described throughout the parish records as a 'yeoman', which implies that he was of 'middle class', either owning the freehold of his farm or being a manorial tenant, and could vote. He was buried on 15 December 1741 at Thornton-in-Lonsdale, being described in the parish records as a 'householder of Westhouse' (to the west of Thornton). No record of a will has been found.

¹ Cathy Wilson has researched that he was named after his grandfather, a Richard Holden of Slaidburn, of whom Francis was the eldest son. Modern style of dates has been used throughout this report. Parish records occasionally give the date of birth as well as baptism, but not in these cases. The civil registration of births in England did not begin until 1837.

² I am grateful to Rev. John Dalby, Vicar of Clapham & Austwick for information from the parish records. He reports that there are now three Kettlesbeck Farms near Eldroth. However, Mr. Lawrence Holden maintains that the farm concerned was what is now known as High Kettlesbeck Farm.

Richard Holden

As Francis's eldest son, Richard might have been expected to inherit the farm and stay in Yorkshire. However, nothing is known of him between his birth and appearance in Liverpool in the 1750s well into middle age. A search of the records of all the then Scottish and English universities showed no evidence for someone of his name having attended.³

The earliest reference to him in Liverpool can be found in his will. That document refers to an indenture, or agreement, made on 20 January 1756 between Richard Holden of Liverpool and Jonathan Gouldson, a feltmaker from Chester. If marriage to Gouldson's only daughter Esther took place, Richard agreed to leave one third of his estate to her in his will (in the event, he left two-thirds). Marriage must have followed soon afterwards, although the place and time have not been found, for the records of St. George's parish in central Liverpool refer to the baptism of Richard's daughter Hannah on 8 February 1757. So far as we know, Hannah was Richard's only child. In both the indenture and in the parish records, he is referred to as a 'brazier' (brass worker), while in the parish records he is shown to be living in Castle Street, one of the main Liverpool streets connecting the Town Hall to the old Castle.

The time at which the Castle Street establishment turned into a school is not known exactly. In Woodworth (2002), I noted that this must have occurred before 1764 when Richard helped in the observations of a solar eclipse. However, since then I have found an advertisement for the school dated 27 November 1761 (see Appendix below), the last sentence of which implies that the school must have been in existence for at least a year or so by then. Therefore, it seems that it must have been established between 1757 and 1761. A search through all copies of *Williamson's Liverpool Advertiser* from the start of 1756 to the end of 1761 discovered no other advertisement or reference to the school (although I cannot promise not to have missed one).

It is also unclear as to why Richard may have been free to give up brass working and turn to school teaching. However, it is known that by this time he was becoming increasingly involved in 'scientific' pursuits with people such as William Hutchinson and James Ferguson (see Woodworth, 2002 for details). Cathy Wilson has researched that his younger brother Christopher had a brass foundry in Brook Street off Old Hall Street (the site of the old Liverpool Eye Hospital) and opposite a brewery of another brother, Thomas (the site of the Liverpool Echo offices). In addition, Brook Street is marked as Holden's Weint ('weint' being a local name for a small street) on some maps. Therefore, her suggestion, that the Holden family was by this time becoming very well established in Liverpool and that Richard could safely leave the brass foundry side of the business to Christopher, is plausible.

Gore's Liverpool Directories (lists of householders, business people and the like) for 1766-73 all contain an entry for the school in Castle Street. Advertisements in the Liverpool newspapers (see Appendix) give an impression of the subjects taught and the costs to pupils.

³ At Edinburgh, unlike other ancient Scottish and English universities, records were poor until the 19th century, and only a few class lists for the 18th century survive. Therefore, while it is unlikely that Richard attended university at Edinburgh, it cannot be excluded. Mr. Lawrence Holden maintains, quite plausibly, that Richard, George-1 and others in the family must have received a good education from an excellent local schoolmaster. This possibility requires further research.

The teaching of the 'lunar distance' method of navigation implies that lessons extended beyond the most basic.



The Golden Lion Inn at Rainford on a drab day. This building was Richard Holden's 'Academy'. The wall on the left surrounds the grounds of All Saints church where Richard is buried.

On 24 December 1773, *Williamson's Liverpool Advertiser* carried a long announcement that the school would be moving in May of the following year to Rainford, outside Liverpool and near to St. Helens. The building chosen had been constructed a few years earlier by John Brain, a local brewer, and came with 23 acres of land. The building is now the Golden Lion Inn.⁴

Notwithstanding the success of the Castle Street school, Richard was "very sensible of the superior advantages of a country retirement, both for learning and morality" and had purchased a house in "a very pleasant and healthy situation ... which he intends to fit up ... with all suitable accommodations for an Academy where youth will be boarded and instructed (by the most approved methods) in the English, Latin and Greek languages, writing and arithmetic, merchant accounts, algebra, geometry, trigonometry, navigation, surveying, astronomy, natural philosophy, mechanics etc."

⁴ The Golden Lion moved to this building from another site in Rainford in the 1870s. A history of the building is in preparation by Mr. Ron Dagnall of Rainford. It is interesting that this pub name reoccurs throughout the Holden story: the Golden Lion in Dale Street, Liverpool was where lectures by James Ferguson were given (Woodworth, 2002) and a Golden Lion can be found in Horton-in-Ribblesdale alongside George-2's church.

The move seems to have been successful, and an announcement that “Mr. Holden begs leave to acquaint his friends and the public that the Academy at Rainford will be opened for the ensuing year on the 9th of January 1775 where he continues with his affiliates to instruct youth in the living and dead languages, writing, arithmetic etc. on the usual terms” appeared in *Williamson’s Liverpool Advertiser* on 30 December 1774 and 6 January 1775. The 9th January turned out to be the day that he died. He was buried in the graveyard of the Old Chapel at Rainford, his gravestone reading:

Here lie the remains of Mr. Richard Holden. Master of the Academy in Rainford who died January 9th 1775 in the 57 year of his age. His abilities in the mathematics, astronomy and other branches of natural philosophy have been seldom equalled. As a husband, father and friend he was truly amiable. In his disposition and manner he was mild, pleasant and humble. And of his rational piety, strict honor (*sic*), steady integrity and simplicity of manners there are better and more lasting testimonies than this perishing inscription can give. *Quando Ullum Invenies Parem.*⁵ Esther, wife of the said Richard Holden, died October 26th 1800 in the 77 year of her age.

The Old Chapel at Rainford was demolished and replaced by All Saints’ church in 1878. Richard’s gravestone can no longer be seen, although it is possible that it survives under the grass of the present graveyard between the church and the Golden Lion. A photograph of the gravestone of uncertain date (and of not good enough quality to reproduce here) can be found in the Pope Collection at St. Helens Local History and Archive Library.⁶

Richard’s will was proved at Chester and still survives. In the event of the early death of his daughter Hannah, his nephews George (i.e. George-2) and Francis (son of Procter) were to inherit part of his estate. The Academy struggled on: *Williamson’s Advertiser* on 13 January said that “We hear that the Academy will be carried on by Mr. Foster and Mr. Haworth, assistants to the late Mr. Holden” and by April it was carrying advertisements for the school under the new masters and with “the business of the house managed by Mrs. Holden”. Local history evidence at Rainford suggests that the Academy may have survived until the end of the 18th century, with some involvement by sons of Richard’s cousin Christopher (not to be confused with his brother Christopher).⁷

There are many interesting questions about Richard which remain. For example, how did he and his brother George receive their early education and their obvious enthusiasm for mathematics? When and why did he move to Liverpool? What motivated his change from brazier to schoolmaster? Was the stated reason for decamping from Liverpool to Rainford the real one? Insofar as these courses of action led eventually to the tide tables, they are of interest to the history of tidal science.

⁵ “When will you find an [or: any] equal?”

⁶ Mr. Ron Dagnall has suggested that, while the photograph is probably of a gravestone, a strong second possibility is that it is of the top of a raised vault which can be seen in a 19th century view of the Chapel. In either case, even if it were to be rediscovered, it would almost certainly not be its original position owing to a ‘tidying up’ of the graveyard some years ago.

⁷ I am grateful to Mr. Ron and Joan Dagnall of Rainford for much of this local information.

George-1

In common with Richard, nothing is known of George's early life until his marriage to Jane Brooks (or Brookes) of Bentham on 20 September 1755. Bentham is a small town in north-west Yorkshire on the Lancashire border, and George had been appointed as Usher (under-master) of Bentham Grammar School at some point before this date (Huddleston et al., 1976).⁸ Jane was said to be the daughter of Marmaduke and Alice Brooks of Higher (High) Bentham, with Marmaduke 'a man of good position'.

George relinquished his position at Bentham in 1758 to take up an appointment as curate of the chapel at Pilling near Fleetwood in Lancashire. The Chester diocese records show that he was ordained deacon on 2 July 1758 (giving no details of a university degree as would have been normal if he had one) and licensed to the chapel at Pilling the next day. Holden had a sun-dial mounted over the south-west door with the inscription "Thus eternity approacheth. G.Holden 1766". The sun-dial and inscription are still in good condition over the door of old St. John the Baptist church, a short distance from the new church of the same name. An item in *Williamson's Liverpool Advertiser* in 1764 (see Appendix) implies that George not only had a school at Pilling alongside his clerical duties, as might have been expected, but also taught advanced topics such as 'lunar distance' navigation. This advertisement is the only reference I know of to any kind of school supervised by George at Pilling.



St. John the Baptist old church at Pilling and George-1's sun dial

⁸ I am grateful to Mr. John Wilson of Tatham for additional information on the school and on the Bentham parish records.

After nine years at Pilling, he returned to the Bentham area to live at the Green at Tatham, taking the perpetual curacy of the Fell chapel on 11 May 1767.⁹ He was to hold this position for the rest of his life, being joined by George-2 as assistant curate at some point before 1783. Tatham parish was described in the early 19th century as “wholly agricultural and pastoral, a great part of it being wild fell and mossland. Of trade, manufactures and commerce, it is destitute” (Baines, 1868). Tatham Fells chapel is about three miles from the Green and five miles from Tatham itself, and dates from before 1577, with the old Roman road from Ribchester to Over Burrow passing a little to the west of it.¹⁰



The fell chapel at Tatham rebuilt in the 19th century. A board from the earlier chapel can be found at the west end dated 1783 and containing the Lord’s Prayer and the Creed together with George’s name.

Fishwick (1878) contains short descriptions of many of the clergy of north Lancashire, although with a number of errors in dates. He writes:

Local tradition says that [Holden] was a little hump-backed man, with one arm shorter than the other... One Sunday, having nearly completed ... his walk from his house to the chapel, he suddenly discovered that, in one of his tide calculations, he had left out a cipher; back he at once turned and ... there was no preaching at Tatham Fell that day. Holden was also somewhat of a religious controversialist... he was called into the Punch Bowl Inn to argue with the Roman Catholic priest, who, getting the worst of the discussion, lost his temper, and on Holden’s saying that “God made man upright at first,” he thundered out in reply, “then who the devil made the hump-backed ones?”

⁹ A ‘curate’ was usually understood as being a deputy or assistant of the incumbent of a parish, or a person in actual charge of a parish of which the beneficed clergyman was non-resident or infirm. A ‘perpetual curate’ was the incumbent of a chapel or church of an ecclesiastical district forming part of an ancient parish, appointed by the patron and licensed by the bishop; in effect they ranked as vicars.

¹⁰ Tatham Fell(s) is referred to in the plural in most records.

George and Jane's family included sons Francis (1756, died same year) and George baptised 29 December 1757 (i.e. George-2) and daughters Hannah, Elizabeth, Jane, Catherine and Alice. George-1 was buried at St. John the Baptist, Low Bentham on 21 May 1793, where a marble plaque was erected to his memory in the church reading (in Latin):

Sacred to the memory of the venerable and learned George Holden, who departed this life in the year 1793, aged 70, and with private and public sorrow was fittingly mourned, and of Jane, his wife, a worthy woman to such a husband, who passed away in the year 1781 at the age of 50.

There is no headstone with George's name and the exact position of the grave is not clear. The large, black, slate-like plaque can still be found on the inside west wall of the church, high up above the Children's Corner and difficult to read.¹¹

George's will was proved at Lancaster on 11 June 1793 and still survives. He left to George-2 "my three book cases with all my Latin and Greek books, my mathematical books, either printed or in manuscript, my Hadley's quadrant sector and scales, and all the books and instruments useful in navigation, and ... all my books, papers, and instruments used in calculating the Liverpool Tide Table, upon condition that he will give to my daughter Alice Holden all the profits of the Tide Tables for the two first years after my decease". Alice inherited most of George's property at Bentham, while George-2 acquired an estate called Birch Hill situated in Easington Dale Head in the parish of Slaidburn, suggesting a continued link with the area of Francis Holden's first farm. His grandson (George-3) inherited a silver watch.¹²

It is worth noting at this point that all of George's tide table calculations were made in the remote, pastoral and 'otherwise destitute' region of the Lancashire-Yorkshire Pennines far from Liverpool. Fishwick claims that he received a 'government grant' for his work, which might be a reference to a grant from Liverpool town council (George-3 certainly received such a grant). Those funds, together with profits from the sale of the tables, must have constituted a major fraction of his income, as the curacy of a small chapel such as Tatham Fells could not have provided much. The family, however, were clearly 'middle class'. His son (George-2) attended Glasgow University while his nephew, Francis Holden (son of Procter), attended both Glasgow and Cambridge Universities. Huddleston et al. (1976) describe the importance of the Bentham school in educating a generation of students who had no need to remain in the area and take up their fathers' occupations. Many of those students seem to have travelled to Glasgow rather than to English Universities.

George-2

George-2 apparently had a similar physique to his father, with one arm shorter than the other, and their personal histories were similar in some respects. The records of the Borthwick Institute of York University show that on 21 August 1783 George Holden, clerk, was licensed to the Free Grammar School at Horton-in-Ribblesdale in Yorkshire.¹³ He had married

¹¹ I am grateful to Mr. David Johnson of Low Bentham for pointing out to me where the now almost illegible, if rather large, plaque is to be found.

¹² Cathy Wilson has researched that Birch Hill was located to the north of the Stocks reservoir near Slaidburn.

¹³ Fishwick says that he obtained the mastership of the school 'around 1781' and that in 1798 he became Vicar of Horton. (The Borthwick Institute records are the authoritative ones.)

Ann Procter of that parish on 14 September 1782. The similarity of the unusual surnames of Ann and of George's grandmother (Hanna Prockter) cannot be a coincidence; George's sister Hannah also married a Procter (Christopher) from Skipton and they had a son, George Holden Procter, who received £5 in George-1's will. It seems that the Holden and Procter families were thoroughly entangled.



St. Oswald's church at Horton-in-Ribblesdale. The tablet on the wall commemorates George-2's wife Ann. The flat stones beneath mark their graves.

The Roll of Graduates of Glasgow University shows that George graduated with a LL.D. (Doctor of Law) in 1778. This was very unusual, as only fifty law degrees were conferred by the University before 1800. Brown and Moss (2001) explain that in the 18th century most students at Glasgow were the sons of the 'middling sort', rather than of lords and lairds, most of whom went to Oxford or Cambridge, if they received university education.

The Borthwick Institute records show that on 21 May 1798 George was instituted as perpetual curate of Horton in York diocese "on his own petition asserting that he was patron thereof in full right" (i.e. he held the advowson, or patronage, of the church). Previously, he

had been appointed as deacon in Chester diocese in 1780 and priest on 26 May 1782. In 1793, he had succeeded his father to the perpetual curacy of Tatham Fells, which he continued to hold until his death, continuing to live at Horton. George was “a man of high classical and mathematical attainments” who “educated a greater number of clergymen for the Establishment than most men in a similar situation” (Anon, 1821).

A marble tablet can still be seen in an alcove inside the church at Horton, although it is not in good condition. It reads:

In memory of the Rev. George Holden, LL.D., for many years head master of the Free Grammar School of Horton-in-Ribblesdale, and minister of this church; he died 31 December 1820, aged 63 years. This monument was erected by some of his pupils as a tribute of grateful respect to his memory.

Outside the church, as one walks towards the Golden Lion Inn, two adjoining flat gravestones can be found with ‘Revd. George Holden’ on the left stone, and ‘Ann Holden’ on the right (buried 7 July 1794). Above them, on the outside wall of the church can be seen a stone tablet (the only such tablet on the church) reading:

Near this place lie the remains of Ann, wife of the Revd. Geo. Holden and daughter of the late Thos. Procter of Fauber; who departed this life in the year of our Lord 1794 aged 36.

George-3

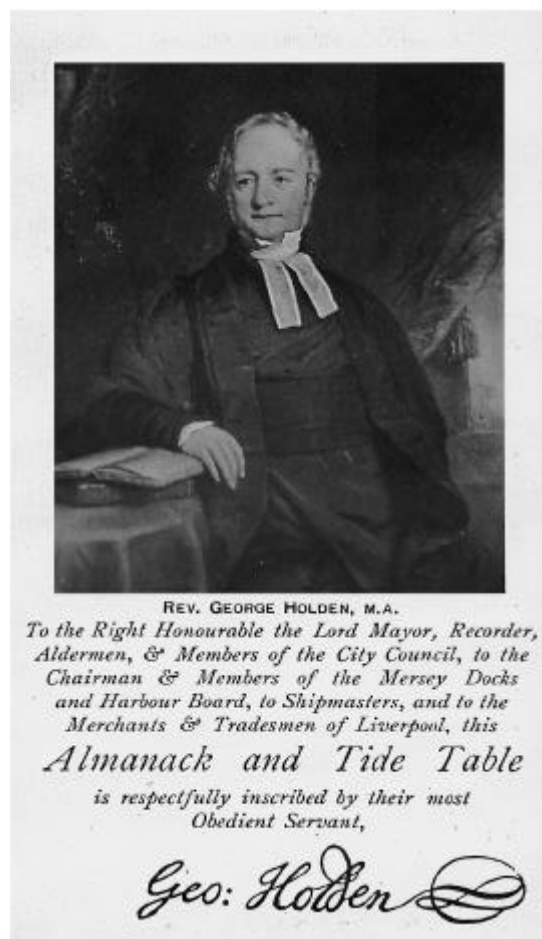
George-3 was born in Horton-in-Ribblesdale soon after his parents’ marriage and baptised on 12 June 1783. He took an M.A. from Glasgow University in 1805 having matriculated in 1798. The M.A. studies probably consisted of courses in Latin, Greek, Mathematics, Logic and Moral Philosophy (Brown and Moss, 2001).

The Borthwick Institute records show that George Holden, clerk M.A., was ordained deacon at Carlisle (in Chester diocese) on 14 September 1807 and ordained priest in York diocese on 14 August 1808. On 20 September 1807 he was licensed to the curacy of Brafferton near Thirsk on the nomination of the vicar, but the records do not indicate when he resigned that position. In 1811 he was appointed as perpetual curate at the Ancient Chapel of Maghull near Liverpool where he remained until he died on 19 March 1865. From June 1821-June 1825, he also held the perpetual curacy at Horton-in-Ribblesdale made vacant by the death of his father.

Holden oversaw many changes to the 13th century Ancient Chapel of Maghull and built a rectory, both of which still exist alongside the late 19th century St. Andrew’s church. In between his clerical duties (and for at least a part of his office he had the use of assistant curates), he was a Justice of the Peace. He never married. His grave can be found a few yards east of the Chapel.¹⁴ Shown below is a portrait which was reprinted in early 20th century

¹⁴ Next to George’s grave is that of a Mary Ann Holden who, according to the Liverpool newspapers, died at the Glebe House in Maghull in May 1849 aged 52 and was the only daughter of a Rev. Thomas Holden, late of Halsall a short distance from Maghull. The ‘Glebe House’ was probably the name at the time of the present rectory. Mary Ann was probably the granddaughter of Richard and George-1’s first cousin Christopher (not to be confused with their brother Christopher). However, more work is required to confirm the family connections. Healy (1993) provides a short history of the Chapel.

Holden tables, and which is almost certainly a copy of the painting by Jones of Chester presented by grateful parishioners and friends.



Portrait of George-3 which appeared in many 20th century editions of the Holden tables, beneath which was inserted the signature of George-1 copied from earlier tables.

George “always walked in the old paths, believing what was true once remained so for all time” (Anon, 1865; Dictionary of National Biography, 1885). He was known nationally as a writer on Biblical matters. He wrote over 15 theological works with titles such as ‘A Dissertation on the Fall of Man, in which the Literal Sense of the Mosaic Account of the Event is Asserted and Vindicated’ which can found in Leeds University and other libraries.



The Ancient Chapel of Maghull in the grounds of St. Andrew's church. George-3's grave is behind the low wall to the left of the picture.



George-3's grave at Maghull in the centre of the picture next to that of Mary Ann Holden.

Holden was a moderately wealthy man, and one assumes that part of this wealth came from inherited property and writing, in addition to the income from the curacy of the Chapel and from the tide tables. His will extended to five pages with many bequests to servants, cousins and friends, including the gift of the family properties at Horton-in-Ribblesdale and Birch Hill near Slaidburn to one Christopher John Geldard of Settle, and the reversion of the patronage of the parish church at Horton to the Bishop of Ripon. The largest item concerned the bequest of all his printed books and manuscripts towards the formation of a library for the benefit of the clergy of the diocese of Ripon, in which diocese he had been born. He also left a sum of £3,300, the income from which was to be used for the custody and augmentation of the library. That library eventually passed from Ripon Cathedral to form the present-day Holden Library, which is a component of the Brotherton Library at Leeds University. Neither the will nor the library contain references to the tide tables.

Appendix:

Advertisements and Articles in Liverpool Newspapers concerning Richard Holden's School

WLA (Williamson's Liverpool Advertiser & Mercantile Chronicle) 27/11/1761 and 4/12, 11/12, 18/12, (no edition on 25/12), 1/1/1762 and 8/1

TAUGHT

At the Mathematic School in Castle-Street, Liverpool by Mr. R. Holden and Assistant (with whom Youth may board)

Writing in all the hands useful in business; arithmetic in all it's [*sic*] branches; merchants accounts, suited to a trader, merchant or factor; geometry, superficial, solid and curvilinear [*sic*]; mensuration [*sic*], surveying, gauging; trigonometry, plane and spherical; navigation in all it's [*sic*] kinds; astronomy, dialling [*sic*], perspective, mechanics, statics, hydrostatics, pneumatics, optics, algebra, conic-sections and fluxions; with the uses of the globes, planispheres, charts, sector's [*sic*] sliding rules, and all other mathematical instruments used in any of the above mentioned sciences &c.

He hopes (as it is done only for the information of those who are unacquainted with him) that he will be pardoned for observing, that his scholars were acknowledged by Mr. Robert Heath, late author of the *Ladies Diary*, to be some of his principal correspondents and contributors.

WLA 27 January 1764 (page 2 bottom of column 2)

We are credibly informed that Mr. Holden, in Castle-Street, Liverpool, is now teaching some of his students, an easy method of finding the longitude of a ship at sea by observing the Moon's distance from a known and fixed star; which method is performed by drawing a few straight lines upon a chart, and measuring certain parts of them, upon scales constructed for that purpose: and that the same method is likewise taught by the Rev. Mr. George Holden, at Pilling, near Lancaster.

WLA 3 February 1764 (page 2 bottom column 2 and top column 3)

To the Publisher of the Liverpool Advertiser

What you mentioned in your last paper, as to our teaching an easy method of finding the Longitude at sea, is truth; and we propose to teach any person (who knows the common rules in navigation) this method of finding his Longitude, for half a guinea each.

As a confirmation of the truth of what is above asserted, I beg you will acquaint the Public, that Sir Isaac Newton, gave it as his opinion, to the Hon. House of Commons, about fifty years ago, viz. in 1714, that when more accurate tables for calculating the Moon's place was invented and published; the Longitude at sea might then be determined, by observing her distance from any fixed Star.

These wish'd for tables, are what Mr. Meyer, of Gottingen, hath lately given us; but it must of consequence be concluded, that some use is to be made, either of them, or others constructed from them; therefore besides drawing the lines upon the chart (as mentioned in your last) it is necessary the student or practitioner, should be able to find the Moon's place, &c. for any given time, which may be done from tables by easy arithmetical operations, &c.

The whole of these calculations, and the geometrical operations, may be performed for one observation, by a person accustomed to them in the space of about 40 minutes, as there is not half the trouble by this method than other yet published requires; excepting by Mr. Harrison's time-keeper; which, (if proved to equally fast in all climates and all motions of the ship) must yet be purchased at great expense; whereas this method requires little apparatus or expense, as a chart ready constructed, and a printed pamphlet of the use of the chart, and the necessary tables may be afforded for five shillings. If a large copper-plate was once engraved, for printing oft upon strong and large paper, the chart and necessary scales, which I have some thoughts of getting done, in order to make the method more publick; not doubting, but the sale of such charts and directions, would soon repay me the expense, if not unrivalled by others doing the same things.

Richard Holden.

General Advertiser 29 December 1769

Conditions and Terms at Mr Holden's School in Castle St.

Entrance	5/-
English writing and maths with pen and ink per year	3/4/-
Meat drink lodging	15/-/-
Washing put out	1/4/-
Sitting in Gallery of St. Paul's church	0/6/0
Also fees to drawing master	10/6 per quarter

WLA 24 December 1773

An Academy

Mr Holden presents his most grateful thanks to his friends and from the great encouragement he has hitherto met with has the pleasure to think that they are satisfied with his diligence and abilities in the education of youth. Notwithstanding this his success, being very sensible of the superior advantages of a country retirement, both for learning and morality, he has lately purchased a house in Rainford (a very pleasant and healthy situation, five miles from Prescott, and five from Ormskirk) which he intends to fit up by May next with all suitable Accommodations For An Academy where youth will be boarded and instructed (by the most approved methods) in the English, Latin and Greek languages; writing and arithmetic; merchant accounts; algebra, geometry, trigonometry, navigation, surveying, astronomy, natural philosophy, mechanics etc. Proper instruction will be procured (if required) for french, drawing, dancing etc. N.B. His school will be continued in Castle St. (as usual) until May next, at which time either the whole or the half of a divided seat in Saint Paul's Gallery No. 5 (rated at seventeen shillings) may be either rented or bought.

WLA Friday 30 December 1774 and 6 January 1775 (advertisement)

Rainford Academy

Mr Holden begs leave to acquaint his friends and the public that the academy at Rainford will be opened for the ensuing year, on the 9th of January 1775, where he continues with his affiliates to instruct youth in the living and dead languages, writing, arithmetic etc. on the usual terms. As many of the pupils, that accompanied him from Liverpool have finished their studies, there is now a vacancy in the said Academy.

WLA Friday Jan 13th (in a set of short notes which was normal in each edition)

We hear that the Academy will be carried on by Mr Foster and Mr Haworth, assistants to the late Mr Holden.

WLA Friday April 14 and 28 1775

Rainford Academy

The approbation which this institution hath met with from the parents and friends of the pupils, encourages the assistants of the late Mr Holden to offer their services to public. The English, Latin and Greek languages, writing, arithmetic, merchants accounts, navigation, geography, algebra and other branches of the mathematic [sic], will be taught as usual. The retired situation of the place hath been found by experience to contribute much to the diligence of young gentlemen in their studies, as well as to the security of their morals, and constant attention will be paid to their future improvement. The languages are taught by Mr Foster, writing, arithmetic etc. by Mr Haworth, and the business of the house is managed by Mrs Holden – the terms are for boarding, 16 guineas, and for tuition, 4 guineas a year. For a character of the tutors and every other requisite particular, please to apply to John Smeathman, Esq, Collector of Excise, Pitt Street; Mr Lace or Mr Waln, St Paul's Square, Liverpool.

References

- Anon, 1821. Obituary of George Holden. *Gentleman's Magazine* 1821, pt. xci, 189.
- Anon, 1865. Obituary of George Holden. *Gentleman's Magazine* 1865, pt. i, 657-659.
- Baines, E. 1868. *The history of the County Palatine and Duchy of Lancaster (The history of Lancashire)*. London: George Routledge & Sons. (2 volumes).
- Brown, A.L. and Moss, M. 2001. *The University of Glasgow: 1451-2001*. (Reprinted and corrected from 1996 edition). Edinburgh: Edinburgh University Press. 122pp.
- Dictionary of National Biography, 1885. London: Smith, Elder & Co. The Holden and Hutchinson entries were written by C.W. Sutton and J.K. Laughton respectively.
- Fishwick, H. 1878. *The history of the parish of Garstang in the county of Lancaster*. Chetham Society, Volume 104. (Volume 105 in 1879 contains an index.)
- Healy, B.S. 1993. *The ancient Maghull chapel, a brief history*. Maghull: Ancient Maghull Chapel Trust. 32pp.
- Huddleston, R.E., Wilson, J.R. and Warbrick, J.S. 1976. *The history of Bentham Grammar School, 1726-1976*. Bentham: Bentham Grammar School. 188pp.
- Woodworth, P.L. 2002. Three Georges and one Richard Holden: the Liverpool tide table makers. *Transactions of the Historic Society of Lancashire and Cheshire*, 151, 19-51.

Map Captions

Some locations mentioned in the text: Pilling (P), Tatham Fells (T), Slaidburn (S), Eldroth (E), Horton-in-Ribblesdale (H), Maghull (M) and Rainford (R). Areas of land above 300 m are shown shaded.

Some locations in North Lancashire and Yorkshire: Thornton-in-Lonsdale (L), High Bentham (B), Tatham Fells (T), Clapham (C), Eldroth (E), Horton-in-Ribblesdale (H), Swallowscars (W). Ribchester and Over Burrow were two ends of a Roman Road passing through Tatham Fells. Areas of land above 300 m are shown shaded. The dashed line indicates the present Lancashire-Yorkshire boundary.

