A Norfolk Gentleman - Thomas Blundeville

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In March 2019, in an attempt to compensate for my somewhat isolated astronomical existence in the clear skies of Andalucia in Spain at Albox Observatory, I rented a converted barn in Norfolk for the month, adjacent to the village of Newton Flotman. This was so I could attend meetings of the Norwich Astronomical Society, based at nearby Seething Observatory, and also pursue my daytime interest of photography with all the opportunities that Norfolk offers. What I had not realised, when I chose the location, was that 497 years earlier a man named Thomas Blundeville (1522 – 1606) was born at Blundeville Manor in the village, less than a mile from my temporary residence in Norfolk. Blundeville, an expert horseman, was a man of many talents including mathematics, astronomy and logic and was a prolific author. He is credited by some with having invented the protractor – well known to all of us as an essential requirement at school. Looking closely at his published scientific works gives the reader an insight into a man attempting to educate others in mathematics, geography and astronomy to be used for practical purposes such as navigation. He explained the movement of the Sun, Moon and planets, identifying appropriate supporting resources such as the astrolabe, maps, and tables, using the work of others and translating books or articles as he deemed necessary to support understanding for his readers. In this article I take a glimpse at the astronomical writings of Blundeville and try to visualise his life in the context of the significant events taking place in Norfolk, in England and across the world in the 16th Century.

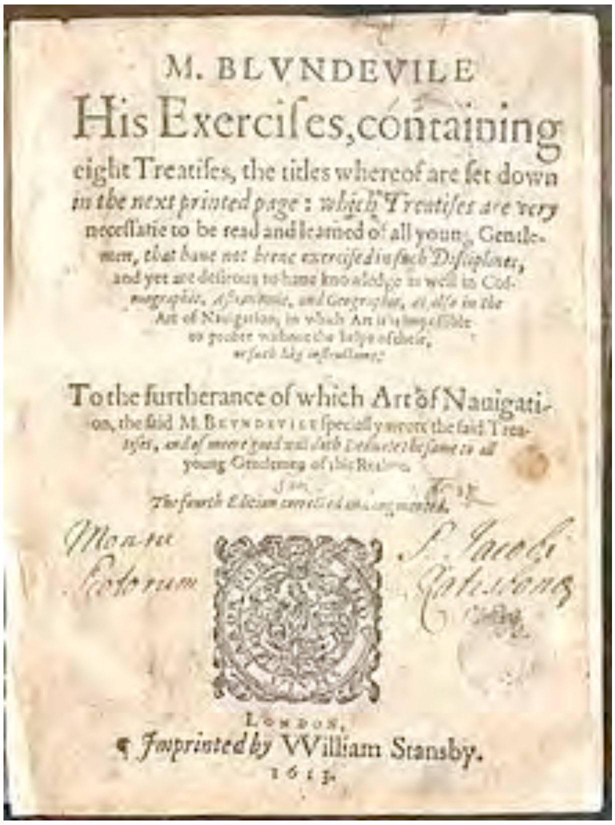

Figure 1: A later printing of Blundeville's Exercises

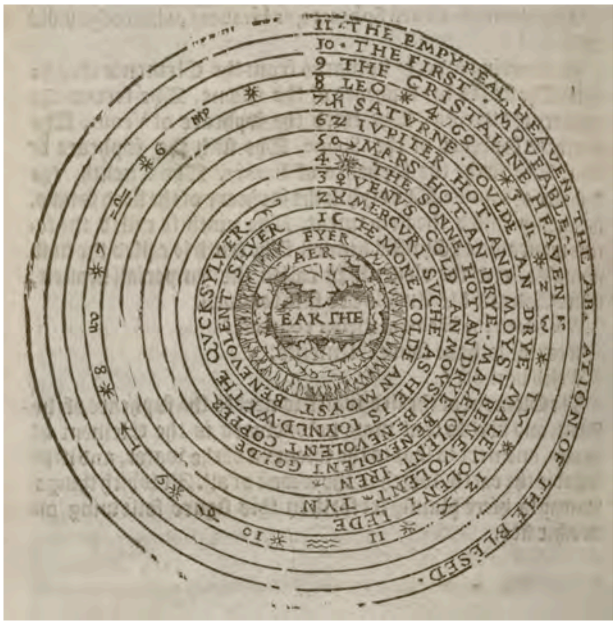

Figure 2: Blundeville's Geocentric portrayal of the Universe

Astronomy during Blundeville's Lifetime.

Thomas was born into a period when astronomy, traditionally based on the assumption that the earth was at the centre of the universe, was being challenged by the emergence of Copernicanism[1], supporting the Sun centred model promoted by Aristarchus almost 2000 years earlier. Only 8 years before Thomas's birth Copernicus had privately circulated a manuscript entitled 'Commentariolus'[2] outlining the heliocentric theory that would (perhaps diplomatically some might say) not be generally published in its final form, with mathematical explanations, until 1543, the year of his death, in his work "On the Revolutions of the Heavenly Spheres". (De Revolutionibus Orbium Coelestum)[3].

Blundeville made references to Copernicus and his heliocentric theory in his writings but continued to use the geocentric model in his book '***M. Blundeville His Exercises'*** This was probably as a result of interpreting Osiander's preface to 'De Revolutionibus' in the belief it was written by Copernicus – which was not the case[4]. This preface, written after Copernicus had become ill in 1542 and probably published without his consent, effectively implied that the heliocentric model was merely a contrivance to simplify calculations. The front cover of Blundeville's book is shown in Figure 1. The 'exercises', developed from his work as a personal tutor, were first published in 1594 and were designed to support practical applications. In addition to providing a grounding in arithmetic and algebra in the book, Thomas describes the geocentric view of the universe with the earth at the centre surrounded by layers or 'heavens' as shown in Figure 2.

*"**In ascending orderly vpwardes from the Elements they bee these, The first is the Spheare of the Moone, The seconde the Spheare of Mercury, The third the Spheare of Venus, The fourth the Spheare of the Sunne, The fift the Spheare of Mars, The sixt the Spheare of Iupiter, The seuenth the Spheare of Saturne, The eight the Spheare of the fixed Starres, commonly called the firmament. The ninth is called the second moueable or Christall heauen, The tenth is called the first moueable, and the eleueuth is called the Emperiall heauen, where God and his Angels are said to dwell**."*[5]

Figure 3: Thomas Allen - Astrologer

Significant astronomers of the period were Tycho Brahe (1546 – 1601) and his assistant Johannes Kepler (1571 – 1630). In 1572 Tycho Brahe observed a new star that appeared in the constellation of Cassiopeia[6]. The appearance of this Type 1a naked eye supernova contradicted the generally accepted theory that the heavens were unchanging so was major news in 16th century astronomy and astrology, (and wider) circles. The event piqued the interest of Queen Elizabeth 1st who summoned the astrologer and mathematician Thomas Allen for an explanation[7]. Thomas Allen, shown in Figure 3, also acted as astrologer to Robert Dudley (the Earl of Leicester) who was Thomas Blundeville's patron, (Figure 4). I know that John Dee was a favourite of Elizabeth and wonder why he was not her first choice as an advisor regarding the 1572 new star. Dudley's astrologer may have been more readily available. John Dee certainly contributed to the widespread discussion of the new object[8]. Incidentally, both Brahe and Kepler were also known as astrologers – as well as astronomers - the significance of which I will come back to later in the article.

In 1577 however Tycho Brahe observed another flaw in 'the unchanging heavens' in that he observed a bright comet – allegedly he first saw this as a reflection in his fishpond. Brahe was able to show, by measuring its parallax, that the comet lay beyond the Moon and was not an atmospheric effect that represented the traditional Aristotelian view. Queen Elizabeth was disturbed by the appearance of this comet and this time did send for her astrologer John Dee[9] who spent 3 days at Windsor with the Queen explaining his thoughts on this appearance[10]. At that time Blundeville, and all other watchers of the skies,


Figure 4: Blundeville's patron – Robert Dudley Earl of Leicester

with no telescopes available until about 1609, had no knowledge of the craters of the Moon, the satellites of Jupiter, the rings of Saturn or the phases of Venus and could not differentiate stars in the Milky Way. Blundeville died about 3 years before Galileo looked through a telescope.


Figure 5: The 1577 comet

Without the benefits of the telescope, astronomers of Blundeville's time could only see the Sun, Moon and larger 'nebulae' as extended objects. The Orion Nebula was clearly visible to the naked eye but the Andromeda galaxy would only be a faint blur without any optical aid. The stars and planets were all just single points of light so most observational work was based on measuring the position and movement of objects and angles between

them and comparing their brightness. An important clue to the true nature of things, that *could* be observed, was the significant retrograde motion of Mars, Jupiter and Saturn which is readily explained in the heliocentric model but which had been explained away by complicated epicyclic movement in the geocentric model. Another Blundeville book called the "**Theoriques of the Seven Planets**" was mainly but not exclusively concerned with astronomy[11]. By referring to the '7 planets' Blundeville means the Moon, the Sun, Mercury, Venus, Mars, Jupiter and Saturn. These had all been generally accepted as objects orbiting the stationary Earth. In his introduction to "The Seven planets" he explained his reasons for writing the book and his target audience:

"Being aduertised by diuers of my good friends, how fauorably it hath pleased the Gentlemen, both of the Court and Country, and specially the Gentlemen of the Innes of Court, to accept of my poore Pamphlets, entituled Blundeuiles Exercises; yea, and that many haue earnestly studied the same, because they plainly teach the first Principles, as well of Geographie as of Astronomie."

Regardless of whether the 'universe', was heliocentric or geocentric, Blundeville's aim was to provide practical tools that could be used by his readers and the geocentric model provided these. It did not matter if the Moon was just another 'planet' or if it revolved around the earth as long as you could predict its position with sufficient accuracy.

An example of a practical application of astronomy to navigation is described by Blundeville in his published '**Exercises**' in the form of a sketch of a device that would allow the determination of the position of the North Star (Polaris or Lodestar) in relation to the true pole at any time. This is how Blundeville described it:

"How to make an instrument which will show at any hour of the night how much the Lodestar rises above or beneath the pole.."

Figure 6 shows the instrument, which he called the "*Rectifier of the North Starre*". Blundeville follows up the introduction of the instrument with detailed instructions on how to construct it and how to use it. As a navigator on a ship in the 16th and 17th century, having a 'Rectifier of the North Star" would help you to locate the true pole and determine your latitude with greater accuracy. (I have an "app" on my iPhone that effectively does the same thing to allow me to polar align my telescope.)

Background to Thomas's Political Connections and events in Norfolk.

I will now try to put the period of Thomas Blundeville's lifetime from 1522 to 1606 into perspective. It is important to realize that Blundeville was no simple country squire. On the death of his father he became 'Lord of the Manor' with the power to allocate the clerical 'living' of the local church (advowson[12]) and associated glebe[13] and to hold local court. Thomas rubbed shoulders with nobility, politicians and great academic minds. He tutored the household of Francis Wyndham and also tutored Elizabeth Bacon in arithmetic – the daughter of Sir Nicholas Bacon, "sometime Lord Keeper of the Great Seale of England" as Thomas described him. (Francis Wyndham married Elizabeth Bacon). Nicholas became an adviser to Queen Elizabeth 1st. (Sir Francis Bacon who became Lord Chancellor was the son of Nicholas Bacon by his second wife.) As mentioned above, Thomas became a protégé of the Earl of Leicester – better known as Robert Dudley, suitor to Queen Elizabeth. In fact Blundeville dedicated

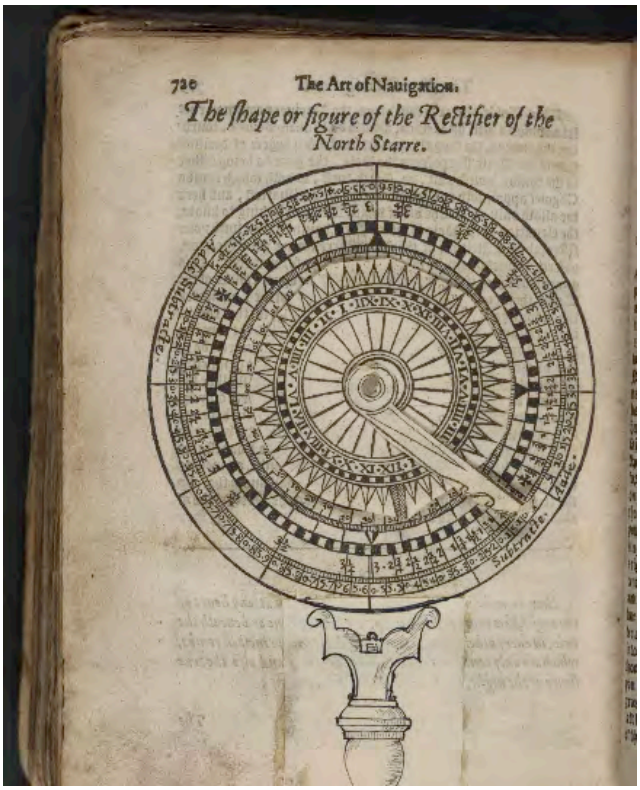

Figure 6: Rectifier of he North Star

one of his first written offerings to Queen Elizabeth[14] and others to Dudley. Henry V111 was on the throne when Thomas was born so he will have grown up against the background of the establishment of the Church of England and the dissolution of the monasteries following the Act of Supremacy enacted in 1534 when Thomas was 12 years old. The aftermath of the dissolution of Wymondham Abbey in 1538, less than 9 miles from Blundeville Manor, must have been followed closely by the Blundevilles. The demolition of this abbey managed by a royally appointed Sir John Flowerdew, was a partial cause of the Kett rebellion in 1549 with Norwich being held by16000 rebels for about a month. This ended at the Battle of Mousehold Heath when the Earl of Warwick and his 12000 - strong army defeated the rebels resulting in the hanging of its leader Robert Kett in Norwich followed by the hanging of his brother William from the Wymondham Abbey church tower, the remains of which still stand. Following the battle, the victorious Earl of Warwick (who was later to

become the Duke of Northumberland), and was Robert Dudley's father, visited Stanfield Hall, only a few miles from Blundeville Manor, with his young son Robert, who met the 17 year old Amy Robsart, resulting in a marriage at Sheen in 1550 attended by the young King Edward VIth. John Dudley, the Duke of Northumberland, was beheaded in 1553 – but that is another story! Amy was to die mysteriously at the age of 28 after falling downstairs leading to an unsubstantiated and undoubtedly false rumour that it was planned by Robert to make himself available for Elizabeth. Sir Walter Scott wrote the fictional novel 'Kenilworth' based around this event[15] which many took as an accurate representation of the facts but this was not the case. (Kenilworth Castle was gifted to Robert Dudley by Queen Elizabeth 1st in 1563.)

Elizabeth 1st came to the throne at the age of 25 in 1558 when Thomas Blundeville was 36. Elizabeth had stayed at Shelton Hall in Norfolk in her youth, only 5 ½ miles due south of Blundeville Manor, at the residence of Sir John Shelton and his wife Anne Boleyn, aunt to the second wife of Henry VIII of the same name who had been executed when Elizabeth was 2 years old.

Background to Thomas's Scientific and Academic Connections and Influences and his resulting publications.

Blundeville is believed to have been educated at Cambridge and is referred to in detail in Athenae Cantabrigienses[16]. This book published by Charles Cooper in the mid nineteenth century consists of the biographies of key figures associated with Cambridge University following the earlier example from Oxford of '*Athenae Oxoniensis'*. This is how Blundeville's biography starts in the Cambridge work:

"THOMAS BLUNDEVILE, eldest son of Edward Blundevile, esq., of Newton Flotman in Norfolk, by his wife Elizabeth daughter of Thomas Godsalve, was, as we believe, educated in this university, although we are unable to specify the period or the college or house to which he belonged. As early as 1560 he had acquired a reputation as a man of letters…."

During his time at Cambridge he would have met a number of significant academics and throughout his life he certainly became involved with scientists and mathematicians of note some of whom contributed to his books. He would have been at Cambridge at the same time as John Dee[17], Queen Elizabeth's adviser and astrologer. If you watch the film "Elizabeth- the Golden Age' you will see John Dee giving Queen Elizabeth 1st astrological advice prior to the attempted Spanish invasion. Six years after the Spanish fleet lay burning off Calais, Blundeville would publish his 'Exercises'. Blundeville was definitely acquainted with John Dee as he refers to him in his 'Exercises': "…….. *the true Kalender lately calculated by a most excellent Mathematician and mine old acquaintance M. Dee of Mortlake,"*

Contacts certainly included Henry Briggs (1561-1630), a graduate of St. John's College Cambridge who became the first Gresham College professor of geometry and inventor of logarithms with a base 10, William Barlow, the author of 'The Navigator's Supply', Edward Wright (1561-1615) the mathematician and cartographer, Lancelot Browne (1545 – 1605), doctor to Queen Elizabeth and to James 1st and his wife Queen Anne of Denmark and William Gilbert (1544 – 1603), also a protégé of the Earl of Leicester, a physicist, the person who coined the word 'electricity', who also became physician to Queen Elizabeth 1st and King James 1st. The name Gilbert will be familiar to those students of electricity and magnetism as 'the' Gilbert was at one stage used as the unit of Magnetomotive Force (MMF) – the magnetic equivalent of Electromotive Force (EMF or Voltage). Lancelot Browne was to assist Blundeville in the writing of his book "**The Theoriques of the Seven Planets**." In this book Blundeville stated that he would deliver "*a better understanding of the Prutenicall Tables*" as one of its aims. These tables, published in 1551, and widely adopted at the time, are alternatively known as the 'Prussian" Tables and were produced by Erasmus Reinhold (1511 – 1553) with the aim of improving the tables in De Revolutionibus by Nicolaus Copernicus. (Published in 1543). Although based on the work of Copernicus, Reinhold was not a believer in heliocentrism and his interpretation of the work of Copernicus was converted back to a geocentric system. In 'The Sleepwalkers" published by Arthur Koestler in 1959, Koestler implied that very few people had read De Revolutionibus. Owen Gingerich worked through all the annotations in Reinhold's personal copy of De Revolutionibus held at Edinburgh University and went on to locate hundreds of copies of the work, including may with annotations, throughout the world. This resulted in Gingerich publishing the book 'The Book Nobody Read' in 2004, invalidating Koestler's claim.

Jacquot[18] in 1953 refers to Blundeville's sources for 'the seven planets'.: "Le dernier ouvrage de Blundeville, Théories des sept planètes (1602), se fonde sur le traité de Purbach, Theoricae novae planetáriím, qu'il complète et met à jour à l'aide d'auteurs récents." (Blundeville's final work, Theories of the Seven Planets (1602), is based on Purbach's treatise, Theoricae novae planetarium, which he completes and brings up to date with the help of recent authors.)

Blundeville himself in "The Seven Planets" explains his sources: "*I thought I could not shew my selfe any way more thankfull vnto them, than by setting forth the Theoriques of the Planets, vvhich I haue collected, partly out of Ptolomey, and partly out of Purbachius, and of his Commentator Reinholdus, also out of Copernicus, but most out of Mestelyn, whom I haue cheefely followed, because his method and order of writing greatly contenteth my humor. I haue also in many things followed Maginus, a later vvriter, vvho came not vnto my hands, before that I had almost ended the first part of my booke, neither should*

I haue had him at all, if my good friend M. Doctor Browne, one of the ordinarie Physicians to her Maiestie, had not gotten him for me, with which good Doctor I haue had in times past at Norwiche many learned conferences, and haue receiued at his hands many good documents"

Gilbert and Briggs are mentioned in the appendix to 'the seven planets' written by Edward Wright

"*Because the making and vsing of the foresaid Instrument, for finding the latitude by the declination of the Magneticall Needle, will bee too troublesome for the most part of Sea-men, being notwithstanding a thing most worthie to be put in daily practise, especially by such as vndertake long voyages: it was thought meet by my worshipfull friend M. Doctor Gilbert, that (according to M. Blundeuiles earnest request) this Table following should be hereunto adioined; which M. Henry Briggs (professor of Geometrie in Gresham Colledge at London) calculated and made out of the doctrine and tables of Triangles, according to the Geometricall grounds and reason of this Instrument, appearing in the 7 and 8 Chapter of M. Doctor Gilberts fift booke of the Loadstone. By helpe of which Table, the Magneticall declination being giuen, the height of the Pole may most easily be found, after this manner. With the Instrument of Declination before described, find out what the Magneticall declination is at the place where you are: Then looke that Magneticall declination in the second Collume of this Table, and in the same line immediatly towards the left hand, you shall find the height of the Pole at the same place, vnlesse there besome variation of the declination, which must be found out by particular obseruation in euery place."*[19]

So, in reality Blundeville had obtained his material from a range of contributors, translating material when necessary and interpreting it for his readers. Ptolemy (AD 100-170) of course believed that the earth was at the centre of the universe and did not move – i.e. a believer in geocentrism. George Purbach (Purbachius) (1423-1461) was a highly respected mathematician, and astronomer, making great strides in the development of trigonometry and producing his definitive work "Theoricae Novae Planetarum" which was very well received and became a standard text. Of course this was based on a geocentric universe - remembering that Copernicus would not be born until 1473, 12 years after Purbach's death. With the increasing availability of printed books Reinhold published a well-received textbook, which reviewed Purbach's "Theoricae Novae Planetarum", thus Blundeville's reference to Reinhold being Purbach's "Commentator". This book was published in 1542. Blundeville made reference to "Mestelyn" as a source because he liked the methodical presentation of his work. "Mestelyn" is better known as Michael Maestlyn.

At the time these tables had a major application – in astrology. In this article I have already mentioned Dee, Allen and other as astrologers. Purbach himself was Court Astrologer to King Ladislas V of Bohemia. In mentioning Thomas Blundeville to Allan Chapmen he stressed that I should realise that astrology was wholly respectable at that time – 'for figures such as Blundeville and others openly wrote on medical astrology, as physicians believed that the bodily humours, which lay at the heart of health and illness, were influenced by celestial movements'. An explanation of the significance of astrology is given in Allan Chapman's book "Stargazers: Copernicus, Galileo, the Telescope and the Church. [20] Chapter 23 is called "The Long Death of Astrology" and explains that, considering the beliefs of the time, astrology would make perfect sense.

Thomas Sonar in his 2006 paper "Henry Briggs and the Dip Table" (https://tinyurl.com/y4tyw7n5) referred to the 'Gresham Circle' or the 'Briggsian Circle' of Briggs, Gilbert, Wright, Barlow and Blundeville, referring to Blundeville as a "great populariser of scientific knowledge."
Technology and access to information was developing rapidly in Blundeville's time. The increasing number of books produced by printing press was beginning to provide education to an expanding readership. Although the tradition of writing books in Latin meant that academics in different countries could understand them there were a growing number of books being translated or written in English, expanding the readership into the general population.

Blundeville Hall and and the local church

In my short time in Newton Flotman I attempted to track down as much local information as I could about Blundeville and his surroundings. The name of the village is said to be derived from New Town (Newton) and Flote which refers to the ferry used to cross the river Tas (when it was significantly wider) in the village with Flotman referring to the ferryman with references to the name Flotman going back to the start of the millennium. A medieval stone bridge, brick clad in 1838, replaced the need for a ferryman. In Figure 7 there is a photograph of the bridge that I took in March 2019, which happens to include a house, that was previously an inn, believed to date back to the early 16th century so would have been there in Blundeville's time. I can imagine Thomas Blundeville astride his horse riding to the south west through the village from the Manor House, crossing the bridge on his way to Cambridge University for his studies or taking the coach – perhaps starting from a nearby coaching house such as the Ram Inn on the road to the south of Newton Flotman towards Cambridge – although this is mere speculation!

Figure 7: The Bridge over the River TAS. Note the 16th Century house in the background that would have been present in the time of Blundeville. He could have ridden to Cambridge across this bridge.

I discovered that the 14th century Church of St. Mary in the village, a short walk from where I was staying, contained a monument set up by Thomas in his lifetime, under which he is now buried.

Figure 8: St. Mary's Church Newton Flotman

Norfolk is said to have the largest concentration of churches in the world[21], having originally contained over 1000 of which over 650 survive. With diminishing congregations and a large number of churches, many of these are closed permanently or for part of the week. St Mary's falls into the latter category and I must thank William Ball, the St. Mary's Church keyholder, for responding to my phone call and arranging to meet me and give me access and permission to take photographs.

Thomas Blundeville's father was Edward, owner of Blundeville Manor in Newton Flotman, which I discovered is long gone. When I enquired as to the location of Blundeville Manor I was instantly given directions but discovered that it is now merely a street name for a cul de sac of bungalows – a short walk from the church – not quite what I imagined! Search on Google for Blundeville Manor and you will be presented with a map showing the location of this street. However, at least this should keep the name alive in this small village. (See Figure 9.)

I had some success with a Norfolk Facebook group[22] enquiry that I put out asking about the location of Blundeville Manor. I was referred to the book "A General History of the County of Norfolk Vol. 2" published in 1829. In a footnote was the following information about the location of Blundeville Manor

Figure 9: Blundeville Manor cul-de-sac

"*Blundeville Manor House, commonly called Newton Hall, stood on the left hand of the road from Norwich to Newton, about a half mile north-east of the church*".

With this information I measured 800 metres along the road to the northeast from the church, approximately half a mile, on Google Maps and took the screenshot shown in Figure 10. The zero on the measuring line indicates that the Manor would be in the fields to the right of the road., although I think the vague estimate of about half a mile from the church needs to be assumed to be up to a mile to be certain! The 'north-east' direction also needs to be regarded as very approximate.

In studying the "Theoriques of the Seven Planets" I came across information regarding the location of Blundeville Manor from from Blundeville himself in using a device of Gilbert's to determine the latitude of his house.

Figure 10: Potential location of Blundeville Manor from the description in "A General History of the County of Norfolk Vol. 2"

"*As for example, M. Doctor Gilbert hauing found by the Instrument of Declination, as he wrote to me, the declination at London to be 72 degrees: then by applying the same to the Instrument of Latitude, in such order as is before taught, he found the latitude of London to be 51 degrees, 32 minutes. And I prouing the same at mine owne house at Newton Flotman, not distant aboue foure miles Southward from Norwich, I found the declination of the Needle to bee 73 degrees and a little more, and thereby I found our latitude here to be 52 degrees or thereabout.*"

On Google maps I measure Newton Flotman village to be over 6.5 miles from the centre of Norwich as the crow flies so that conflicts with Blundeville's value of less than 4 miles assuming he measured from the centre. Based on the

Figure 11: The Blundeville Memorial in St Mary's Church.

Figure 11: Part of the Blundeville Monument. In the centre is the kneeling Thomas Blundeville. To the left are his two wives and two daughters. On the right is a brass plaque

location of the remaining ruins of the southern boundary of the remaining city wall it would be closer to this figure. The latitude of Newton Flotman is about 52.5 degrees.

Edward Blundeville died in 1568 and Thomas, who was his eldest son, inherited Blundeville Manor[23]. In 1571 Thomas set up the monument in St Mary's church as evidenced by Thomas's dated inscription. At the time the monument was dedicated to Thomas's Great Grandfather Richard, Grandfather Ralph and his Father Edward in the form of a brass plaque, which incorporates their names, ages and date of death, fitted into a panel in the monument as shown in Figure 12. After Thomas's death, carvings and details were added to the monument in his memory. One panel shows Thomas kneeling on a stool (called a Faldstool) dressed in armour with his helmet and a book in front of him. There is also a pine chest with 'decorative iron straps' as described in the information booklet that I was given that I carelessly omitted to photograph. It is believed to have contained his papers and some scientific instruments. At the moment I am not sure of what happened to those papers or instruments. Perhaps a Bulletin reader has come across other references to them that I would be really interested in knowing about. The chest is referred to in his will of 1605 with a description. Thomas was married twice. His first wife, Rose Puttenham and his second wife Margaret Johnson are featured in another panel on the monument together with his two daughters. Thomas did have a son Andrew from his first marriage but he was killed as a soldier. Thomas had the two daughters, Elizabeth and Patience, by his second marriage.

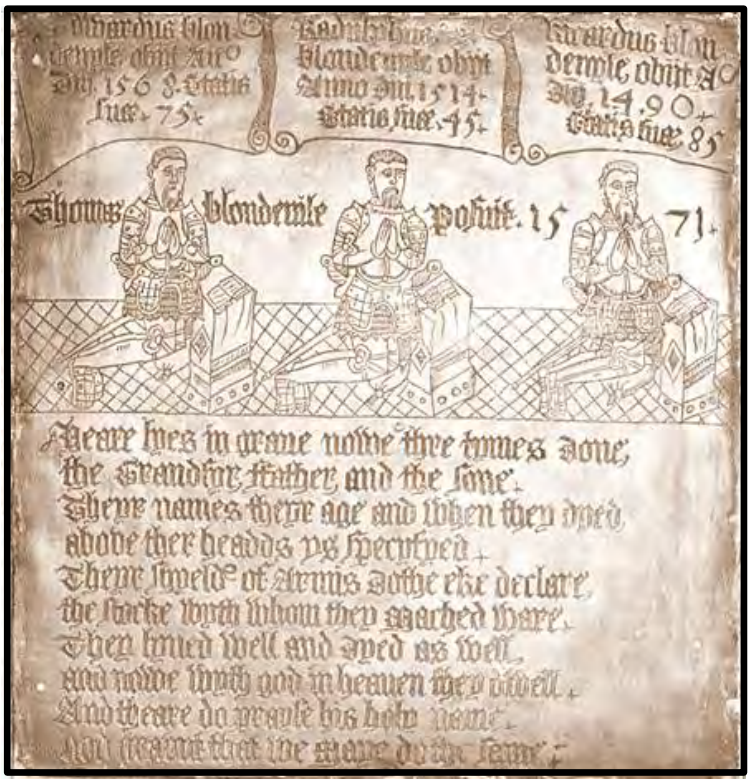

Figure 12: The Brass plaque that forms part of the Blundeville memorial.

REFERENCES

1 A useful reference on Copernicus can be found here: http://copernicus.torun.pl/en/

'NICOLAUS COPERNICUS THORUNENSIS is an academic portal devoted to Nicolaus Copernicus, developed through the collaborative efforts of Nicolaus Copernicus University in Toruń, the City of Toruń and the Institute for the History of Science, Polish Academy of Sciences'.

2 The translated text of Commentariolus is available on this website [https://tinyurl.com/y422y6wa] It includes the postulate that

"All the spheres encircle the sun, which is as it were in the middle of them all, so that the centre of the universe is near the sun."

3 At the recent SHA (Society for the History of Astronomy) Spring Conference delegates were able to view a copy of this work in the Upper Library of Christ Church College, Oxford.

4 David Deming in Volume 3 of 'Science and Technology in World History gave this as a likely reason for Blundeville sticking to geocentrism in that published work. (Page 138).

5 Blundeville lived in the same century as William Shakespeare and much research on the English language and original pronunciation (OP) has been carried out in association with the Globe Theatre to allow actors to replicate the spoken word of the time. I don't know enough about this to know if Blundeville spoke with a Norfolk accent as well! I particularly like the fact that by identifying the way some words were pronounced showed that some words in Shakespeare's plays are now found to rhyme! An Open University video illustrating the research can be found here: https://www.youtube.com/watch?v=gPlpphT7n9s

6 See this website regarding the 1572 supernova:

https://tinyurl.com/y4yv2rhj

7 a) John Aubrey in his "Brief lives" (1669 to 1696) wrote that "Queen Elizabeth sent for him (Thomas Allen) to have his advice about the new star that appeared in the Swan or Cassiopeia (but I think Swan), to which he gave his judgment very learnedly." (**NOTE:** It was Cassiopeia) https://archive.org/stream/in.ernet.dli.2015.76242/2015.76242.Aubreys-Brief-Lives_djvu.txt

b) Also see See Page 35 in the Chapter 'The Renaissance Supernovae' in the book 'Supernovae' by Paul and Lesley Murdin. Here there is a report of this meeting in a paragraph entitled 'Explosions in the mind of men.'

8 a) The Nova Stella and its Observers: P. Ruiz–Lapuente

https://arxiv.org/pdf/astro-ph/0502399.pdf

b) In 1573, following calculations to attempt to determine the distance to the new star using parallax in association with Thomas Digges, Dee published "*Parallacticae commentationis praxosque*".

9 SHA Members who attended the Spring Conference at Chethams School on 26th April 2014 may recall that John Dee became Warden of the priest's college on the site, associated with the nearby Manchester Cathedral.

10 See the reference in "London" Charles Knight 1842

https://tinyurl.com/yyea6ogu

11 The text of the 'Theoriques of the Seven Planets can be accessed here: https://tinyurl.com/y6fpgzgp

12 Advowson -Dictionary Definition

13 Glebe– The land belonging to a church. Details regarding Blundeville or Newton Hall are here: https://tinyurl.com/y4j23jou

14 Dedicated to Elizabeth1st – In 1561 Blundeville published a partial translation of Plutarch' Moralia entitled 'Three Moral Treatises', the first of which he dedicated to Queen Elizabeth 1st.

15 Kenilworth is available as a free e-book

https://www.gutenberg.org/files/1606/1606-h/1606-

16 See Athenae Cantabrigiones Page 342 for Blundeville entry.
https://tinyurl.com/yyxgtrj9

17 John Dee – You Tube Video:
https://www.youtube.com/watch?v=k-R4GacDtcw

18 Jacquot article: https://tinyurl.com/y6qzlsyy

19 Scroll to the bottom of the document to see the table.
https://tinyurl.com/y6fpgzgp

20 Refer to the chapter on "The Long Death of Astrology) in Allan Chapman's book – Stargazers: Copernicus, Galileo, the Telescope and the Church

21 See article: https://tinyurl.com/y6ja9pez

22 Facebook group Norfolk Tales, Myths and More!
https://tinyurl.com/y45oufsr

23 British History Online