Biographical Notes on Henry Briggs (1561 - 1630).

This introduction is related mainly to the professional life of Henry Briggs, and in particular to his work in table production. Briggs was the inaugural professor of geometry for many years at Gresham College, London. These notes are based partially on the chapter devoted to Briggs in J. Ward's : *Lives of the Professors of Gresham College*, (1740). In addition, the earlier work by T. Smith (1707), *A Memoir of the Life and Work ..... Mr. Henry Briggs*[1] has been consulted and quoted from. There is a fair amount of overlap of the material presented, and we will mainly use the first reference. Ward himself was professor of Rhetoric at the college at a later time, and he had available to him far more contemporary material than we can readily muster to-day, so we must trust to his good judgement as to his selection. (According to Smith, most of Briggs' material had disappeared by the time he wrote his book). However, Ward was not a mathematician, and there were certain things to which he was oblivious, and there we must augment his presentation; and occasionally he got his dates wrong, and these we correct without further ado. This chapter has nothing to say about the actual mechanisms Briggs used to create his tables, instead it sets the stage historically on which this development was played out. Inevitably, the works of John Napier (1550 - 1617) are examined in addition to those of Briggs, in the unfolding of the story of the development of logarithms in the British Isles. Square brackets within the quote marks of Wade's story denote additions by the present writer, while sentences in italics have been rendered from their original Latin into English.

'Henry Briggs was born at Warleywood, a small hamlet in the parish of Halifax in Yorkshire; but the time of his birth is uncertain. Dr Smith [the earlier biographer] places it at about the year 1560 [1]; which, I presume, he might collect, from what is said by Mr. Wood [2], that he died on the 26th of January, aged 70 or more; and likewise by Mr. Gellibrand, who speaking of his death, calls him *'our septuagenarian'*. But in a letter from Mr. Joseph Mede of Christ's College in Cambridge, dated 6th of February 1630, it is said, Mr. Briggs of Oxford, the great mathematician, is lately dead, at 74 years of age [Ms. Mr. Baker]. '

However, another source[3] reveals that his birth is recorded in the Halifax parish register as February 1561; hence, all we can surmise about these dates is that Briggs was a little vague when discussing his age. To continue: ' After his education in a grammar school in the country, [where he had shown outstanding promise as a scholar]he was sent to St. John's College at Cambridge about the year 1577, and admitted as a scholar of the house on the 5th of November, 1579. In the year 1581, he took the degree of Batchelor of Arts, that of Master in 1585, and he was chosen a fellow of the college on the 29th of March, 1588. His chief study was the Mathematics, in which he excelled, and in the year 1592 was made examiner and lecturer in that faculty, and soon after reader of the physic lecture founded by Dr Linacer.

Upon the settlement of Gresham College, he was chosen the first professor [or public reader] of geometry there, about the beginning of March, in the year 1596. And some time after he made a table, by the help of which the magnetic declination being given, the height of the pole may easily be found [that is, the latitude of the location]. This table was fitted in an instrument in Dr. Gilbert's fifth book "Of the load stone", and published by Mr Blondeville in 1602'.

Later Briggs was to correspondence with academics on the continent[4], including Kepler on the astronomical uses of logarithms and Lucas Holsten (the German chronologer and geographer, who became keeper of the Vatican Library in 1627). To continue with Wade's account: 'In the year 1609, he contracted an acquaintance with the learned Mr. James Usher, afterwards Archbishop of Armagh, which continued many years by letter, two of which are extant[5]. In the former of these, which is dated August 1610, he tells him, amongst other things, that he is "engaged in the subject of the eclipses". But in the latter , dated the 10th of March, 1615, he acquaints him with his wholly being taken up and employed about the noble invention of logarithms, then lately discovered [6] ; in which he had afterwards so great a concern, that it will be necessary to give a more particular account of it. Mr Wood tells us, that " One Dr Craig, a Scotchman, coming out of Denmark into his own country[7], called upon John Nepar (sic)[8], baron of Merchiston, near Edinburgh, and told him, among other discourses, of an invention in Denmark by Longomontanus, as is said, to save the tedious multiplications and divisions in astronomical calculations. Nepar being solicitous to know further of him concerning this matter, he could give no other account of it, than that it was by proportional numbers. Which hint Nepar taking, he desired him at his return to call on him again. Craig, after some four weeks had passed, did so, and Nepar show'd him a rough draught of what he called, "Canon Mirabilis Logarithmorum". Which draught with some alterations he printed in 1614, it came forth into the hands of our author Briggs, and into these of William Oughtred, from which the relation of this matter came[7]. As this story is told, one can imagine it came from Mr Oughtred. But there is no mention of it in his writings. And it seems strange, that Longomontanus, had he any pretensions to it, should have nowhere laid claim to the honour of this admirable invention'

Wade then proceeds to refute the claims made in this story at length. Unknown to Wade, one Jost Burgi (1552 - 1632), a German clockmaker, and maker of globes (some still extant) and mathematical instruments, had been granted a privilege by the emperor Rudolph in 1602 to publish a set of *Tables of Progressions*. However, Burgi's tables did not get published until 1620 in Prague[8]. Whither Craig had got wind of Burgi's early work on what became known as logarithms is an open question, though of course the idea of associating an arithmetic progression with a geometric progression dates from antiquity and a work of Archimedes (*The Sand Reckoner*), a fact acknowledged by Briggs in the dedication of his *Arithmetica*, one of the subjects of this book. Certainly Kepler in the preface to his *Rudolphine Tables* had some harsh words to say about Burgi's tardiness in publishing his work, and indeed no one cried foul when Napier eventually published his tables, after some 20 years in the making. We may therefore safely assume that Napier's construction of his canon was sufficiently different to whatever other ideas were circulating at the time to be considered original. Indeed, around 1594, Napier had written to Tycho de Brahe a letter in which he promised that a method was underway to alleviate the tedium of calculations: swings and roundabouts.

To return to Wade's account: 'This invention was no sooner known than it gained the general applause of all the eminent mathematicians of that age, who found it to answer, what the noble author had said of it in his dedication to Prince Charles, that "*....of this aid, for the space of one hour more mathematical questions being resolved, than otherwise can be done with the generally undertaken forms of the sines, tangents and secants, even for a whole day*". But no one extolled it more than Mr. Briggs, who speaks thus of it in the letter above mentioned: "Naper, lord of Markinston (*sic*), hath set my head and hands a work with his new and admirable logarithms. I hope to see

him this summer, if it please God, for I never saw a book, which pleased me better, and made me more wonder." He kept his resolution, and when summer came on, in the year 1615, he took a journey into Scotland to converse with him on that subject; and the summer following made him a second visit. The following year [1617] the baron published his *Rabdologia*, [in which the calculating devise known as Napier's Bones is presented] in the dedication of which to the lord chancellor Seton he mentions another species of logarithms, different from what he had published in 1614, and which he invented since that time. Napier's words are these, mainly following MacDonald's translation: *I have always endeavoured according to my strength and the measure of my ability to do away with the difficulty and tediousness of calculations, the irksomeness of which is wont to deter very many from the study of mathematics. With this aim before me, I undertook the publication of the Canon of Logarithms which I have worked at for a long time in former years; this canon rejected the natural numbers and the more difficult operations performed by them, substituting others which bring out the same results by easy additions, subtractions, and division by two and by three. We have discovered now another kind of logarithms by far more excellent, and the method of creating together with the use of these, we have deciding to make public, if God should grant the use of a longer life and good health. But we leave the computation of the new canon itself, on account of the infirm health of our body, to men skilled in this kind of study; especially to be sure Master Henry Briggs of London, public professor of geometry, and for a long while a most dear friend to me.* It seems from this passage, as if the baron, being then sensible of his declining health, was desirous by this public notice of his new method of logarithms, and his expectations from Mr. Briggs, to engage him more firmly in the prosecution of that useful, but very laborious work, here mentioned. Soon after the publication of the *Canon mirifici Logarithmorum*, it was translated into English by Mr. Edward Wright, who sent it to the author into Scotland for his perusal, who approved of it very well. But Mr. Wright dying before the book was returned from Scotland, the care of the impression was both by him, and the baron, committed to Mr. Briggs, who published it in the year 1616, with a preface of his own, containing some account of its excellent uses; and a description of the instrumental table to find the part proportional [established by Wright], placed at the end. But in the year 1617 after the discovery of the second sort of logarithms, Mr. Briggs, for the sake of his friends, and hearers at Gresham College, printed his *Logarithmorum chilias prima*, [the logarithms of the natural numbers from 1 to 1000 to 14 places], which was of that kind, as is intimated in the preface, where he says: *but these logarithms which shall be different from these others, which the* [late] *most illustrious discoverer, always in our thoughts, published in his own* Canone mirifici, *hoping this latest book to give us ample satisfaction before long*.' Wade informs us that Napier's son Robert [9] saw to the publishing of Napier's last work, *The Construction of the Magnificent Canon of Logarithms*, being an explanation of how his tables were constructed[10].

To continue Wade's narrative: 'We find by the passage transcribed above from the baron's dedication of his *Rabdologia,* that what he proposed to do himself in relation to the second species of logarithms, was only to give an account of how they were made, and explain the use of them; and to leave the labour of their calculation to others, and particularly to Mr. Briggs. But he did not live to go through what he intended; and therefore after his decease the manuscript being sent to Mr. Briggs, he made several additions to it, as will appear in the following contents of the book itself. *1. The Construction of the Magnificent Canon of Logarithms, and the form of these* [i.e. how they are related] *to the natural numbers themselves.*

2. An Appendix [by Napier] *about a different, and that more excellent, kind of the logarithms to be construed, in which the logarithm of one is zero.*
3. Some lucubration of the most learned Mr. Henry Briggs provided on the foregoing Appendix.
4. Certain most eminent propositions for spherical triangles resolved with wonderful facility.
5. Some annotations on the foregoing propositions provided by the most learned Mr. Henry Briggs.

Concerning these pieces of Mr. Briggs the editor has given the following account in his preface [i.e. to *The Construction of the Wonderful Canon*]: *Some studies of the most excellent mathematician Mr. Henry Briggs, public professor in London, on the above-mentioned propositions, and we have been entrusted to look after the figures of this new kind of logarithms; who has himself undertaken the most serious of labour in the computing of this new canon, with the most willing mind, on account of the singular friendship which has existed between him and my father; with the method of its being created, and with the explanation of the uses to be left to the author. But now, with himself summoned from this life, all of the pain of the load to fall to the arms of the learned Briggs, and with this Sparta to be adorned* [a classical reference]*, that perhaps seems certain to have fallen as his lot.* From this account it appears, that the baron not living to finish, what he had undertaken in relation to the new logarithms, not only the labour in calculating them, but the other part also, came now to be devolved on Mr. Briggs; both which he admirably well performed afterwards in his *Arithmetica Logarithmica (A. L.)*. But as the baron had before claimed to himself the invention of these logarithms, so we find his son here repeats the same claim. And therefore it may be proper to hear in what manner Mr. Briggs himself relates this matter, in the preface to his book last mentioned, where he professedly treats of it.'

Part of this preface to the *A. L.* is set out as follows:

Because those Logarithms are different from these which that most distinguished man the Baron of Merchiston published in his Canon Mirifici, you need not wonder about that. For I, with my audience publicly at Gresham College, London, while explaining the principle of these; had realized the most suitable long term future, if 0 were kept for the Logarithm of the whole sine (as in the Canon mirifici). But the Logarithm of the tenth part of the whole sine , surely the sine of 5 degrees, 44 minutes, 21 seconds were 10000000000 [2]*. And I wrote at once about this matter to the author himself, and as soon as possible according to the time of the year, and it was permitted to bestow a vacation from public teaching, I went to Edinburgh; where I accepted much kindness from him and his company for a whole month. But in the talk between us he would express concern about changing these, and he said to have felt and desired the same about them for some time: nevertheless these he had prepared and now published most carefully, then others more fitting would be accomplished , if other business and good health permitted.* [These conversations took place in the summer of 1615]. *But now the change that should be made to these was thought to be, 0 to be the Logarithm of unity, and 10000000000 the whole sine* [the length of the radius of the circle in which the ratios were set up, without the use of fractional parts for the sine]*: since I could not but be able to acknowledge this to be by far the most convenient approach. Rejecting those which I had previously prepared, I began at his suggestion to consider seriously how to calculate these Logarithms; and in the following summer* [1616] *I again went to Edinburgh to show him these principal parts which I exhibit here*[3]*, the same also about to be effected by*

the third summer with the greatest pleasure, if God had wished him to survive so long for us. [Unfortunately, Napier had died in April, 1617].

But at what a price the labour has been, to find the Logarithms of two, and of the remainder of the nearby prime numbers; it can be done easily for any other numbers from these primes, which chapter six and the preceding strive to show. But at last with the whole complete Chiliad[4], whereby before it had been more than enough trouble, now, to have these [Logarithms found] *with hardly any difficulty. For the Differences, of which the maximum use had been for me twenty years ago in making a new Canon of Sines,* [now] *with these, the Logarithms have been calculated by me from a much better perspective and understanding. In short, it allows the labour of which* [calculations] *not to be increased; nevertheless all the difficulties have been increased[5]. As chapter 13 has shown. Thus, if there is anyone, who wants to complete the gap between the Twentieth and the Ninetieth Chiliads, and on the calculation of these, the value of the work accomplished would itself be considered, to make me sure that it had been carried out in a worthy manner; I will show him how easy it is to add a Chiliad, lest the venture should fall by an ineffective attempt; in the same way that another* [Chiliad] *be undertaken and completed by someone else. I even have the paper, which has been prepared with this end in sight, and with squares with distinct straight lines, this I can carefully send. And when all the intervening space has been filled up, I will give the work, if it has been done properly, to be printed again.*

Now, apart from remarking that Napier's scheme proved to be extremely tedious to use, Briggs never got beyond the base ten logarithms of a few small prime numbers. It takes up Chapter 5 of the *A. L.,* with all due acknowledgement, and was a useful prop for the accuracy of Briggs' own scheme. Chapter 6 is based on the square root scheme, which seems to be the work of Briggs alone, although the *A. L.* does not explicitly state this to be the case: however, Briggs had made a great thing about Napier in Chapter 5 and the first method of calculating base 10 logarithms, yet did not mention Napier for the second method. People at the time generally believed that Napier had invented logarithms, and Briggs only finished off the work of the master. Although this is true in part, it is not an accurate assessment, as a brief perusal of Briggs' works indicates: for not only did he invent the Ch. 6 method, but he also had to invent a number of sophisticated numerical procedures to enable the tables to be finished, as far as he wanted to go, in a reasonable time interval (around 6 years). How much help he had from others, if any, we do not know: one would imagine that Thomas Harriot was interested in these things, although the declining state of his health would have been his main concern by the late 'teens of the 17th century; certainly Harriot's associate, Walter Warner, had an interest, and lived nearby. No mention is made of Harriot, so we must assume he was not involved. It is also relevant to what follows to say a little about Gresham College.

Gresham College was established in 1594 in a mansion house that had belonged to Sir Thomas Gresham in Bishopsgate, London; on a site now occupied by the NatWest Tower. (It was funded by a portion of the money made by Bourse, later renamed the Royal Exchange, founded by Gresham, who had come to prominence as a financier after successfully looked after the Royal Debt, a seemingly onerous task). Professors from the College's inception in 1594, in accordance with Gresham's will, were paid 25 pounds sterling every 6 months and given a house or rooms in or close to the college. The original subjects were Rhetoric, Law, and Physic, with the professors selected by the Mercers' Company, while the Lord Mayor & Corporation

selected the four remaining professors of Divinity, Geometry, Astronomy, and Music. These subjects had been selected as appropriate by Gresham, and would seem to be based on those of Plato's Academy, with a few additions. The lectures were to be attended by members of the general public, professors were not allowed to marry, the lectures had to be given in Latin (changed to a Latin lecture followed by the same in the vernacular of the time), etc. It provided a base for such luminaries as Briggs, Wren, Hooke, and Barrow to develop their ideas; and later was the initially meeting place for the Royal Society. According to Hooke's diary, as noted in Ref. 4, someone crept up to the door of the lecture room, looked in, saw it was empty (apart from Hooke), and bolted. In hindsight, it appears the college was more successful as an institution for research rather than being noteworthy for its teaching - as it did not award degrees; however, the geometry/astronomy lectures were expected to be of a practical nature, and to address the navigational problems associated with long sea voyages. Before the college was established, Harriot had been involved in navigation classes for sea captains, as was the John Wright mentioned above. It was in these circumstances that the work of Briggs on logarithms was sustained.

We return to Wade's discourse:

'In the year 1619 Sir Henry Savil, warden of Merton College, having founded both an astronomy and geometry lecture in Oxford, gave the former to Dr. Bainbridge, and offered the latter to Mr. Briggs, which he accepted, and became his first professor in that science. Sir Henry had himself for some time discharged that province, and read thirteen lectures upon the first eight books of Euclid's *Elements* (which were afterwards printed), and then he surrendered the chair to Mr. Briggs, taking leave of his audience in his last lecture with these words: *I hand over the torch to my successor, who will lead you through the innermost mysteries of geometry.* Mr. Briggs entered upon this new province January the 8 that year, which he opened with an eloquent oration, and the week following began his lectures with the ninth proposition of Euclid, where Sir Henry Savil had left off. However, he continued to hold his professorship at Gresham College till 25 of July 1620, and then resigned it.

Upon his going to Oxford he settled himself at Merton College, and soon after was incorporated master of arts into the university, where he continued till his death. In the year 1622 he published a small tract of the *Northwest passage to the South sea,* through the continent of Virginia, and by Hudson's bay; prefixing to it only H. B. the initial letters of both his names. The reason, which led him to this, was probably that he was then a member of the company trading in Virginia, the first English colony in America. His next performance was the great and elaborate work above mentioned, containing (as is said in the title) thirty thousand logarithms, from one to 20,000 and from 90,000 to 100,000; with the addition of another thousand from 100,000 to 101,000, not expressed in the title. .....To these Mr. Briggs has prefixed a large dissertation of the nature, construction, and use of the logarithms; which part of the work, as he has said, was devolved upon him by the death of the baron of Merchiston. In this dissertation he laid down a method for supplying the intermediate numbers from 20,000 to 90,000; which, as he shows, had no remaining difficulty, and required only the time and labour of calculation. And in order to encourage some skillful persons to undertake this, he offered to supply them with paper he had by him, ready prepared, and divided into columns proper for the purpose; as likewise to inform them as to what part to begin, that they might not interfere with one another; and promised, when the whole was finished, to endeavour to procure a new edition of the work so completed. But he was eased of this trouble by the great pains and industry of Mr.

Adrian Vlacq of Targou [Gouda really] in Holland, who performed this task with such expediency, as to complete the canon and to publish it in the year 1628.'

In reality, Briggs was far from happy with this new development, which he commented on in his subsequent book, the *Trigonometria Britannica.* For Vlacq and his associate de Decker had eased the task by reducing the number of places to which the logarithms were calculated, from 14 to 10, in which case the simple subtabulation scheme that Briggs had used for his 30,000 logarithms could still be used. The more complex scheme was not mentioned in Vlacq's edition, though it was to interest the mathematicians of succeeding centuries: thus, two whole chapters of the *A. M.* were omitted, and other material was moved around. We mention more of this travesty at appropriate points. To continue with Wade's account:

'The reason why Mr. Briggs omitted to do this himself, seems to be indicated at the end of his dissertation, where he says: *Yet the most noble use of logarithms remains, in the science of spherical triangles, and certainly the most necessary, which I hope to present with my own book, separately.* Considering his age at that time, he could scarce expect to live long enough to go through both; and therefore leaving to others that, wherein his singular skill and abilities were now less necessary, he thought it best to employ them, in what they were more peculiarly required. Accordingly, he engaged in this other grand design, *De doctrina triangulorum,* which he proposed to complete in two books, but lived to write only the first; leaving the second to his old friend Mr. Henry Gellibrand, who finished the work, and published it under the title *Trigonometria Britannica*, as has been related before in his life [in Wade's book]. In the preface to this treatise, Mr. Gellibrand has given a just encomium of Mr. Briggs, expressed in such good language, and fine a manner, that it might deservedly claim a place here, was the length of it consistent with my design. Thus lived and died this celebrated mathematician, inferior to none, whom he left behind him. He finished his life on the 26 January 1630 in Merton College, and was buried in the choir of the chapel there, under the honorary moment of Sir Henry Savil, a plain stone was laid over him, with his name only inscribed on it, which has since been removed, upon the new paving of the choir.

The following account of him stands yet in the college register.

The teacher Henry Briggs of our common table has died with us, a man indeed with the most wholesome manners and way of life; who himself from the time of his youth had been well disposed towards geometry with eagerness, in the first place in the society of St. John's College, Cambridge. Then for many years, he supported the position of public reader [prelector] at Gresham College, London, the most learned of all men of his time. Sir Henry Saville called him to Oxford, in order that from the first he might perform the duties of professor of geometry from his gift foundation: whose funeral procession of the following 29th day, with the meeting managed by Master Sellar, and with the oration of the funeral by Master Cressy, we have celebrated together with the foremost of the academic staff. The learned Mr. Thomas Gataker, who attended his lectures, when he was reader of mathematics at St. John's College in Cambridge, and continued his friendship with him afterwards, when professor at Gresham College, and he himself a preacher at Lincoln's Inn, represents him as highly esteemed by all persons skilled in mathematics, both at home and abroad; and says, that desiring him once to give his judgement concerning judicial astrology, his answer was, that he conceived it to be *a mere system of groundless conceits.* And Mr. Oughtred calls him "the mirror of the age for excellent skill in geometry". But his successor at Gresham College [some 40 years later in 1662], Mr.

Isaac Barrow, has given his character more fully, in his oration there upon his admission, where he speaks of him thus:

I bear admirable witness to your Briggs [the first Professor Geometry]*, because the name, with learning, acumen, and skill, all the more celebrated with praise and encomiums, leads the procession in our tables, that splendid artifice of logarithms, which indeed was not your good fortune to have discovered (which Briggs had dedicated especially to the glory of God); but, because of what you have accomplished with diligence, and with all the numbers you have resolved, you are awarded the praise equally* [with Napier]. *Because perhaps hitherto with the work being useless, and it* [i.e. a revision] *might have been thrown together unfinished, with the loose features of its foundations covered up* [here Barrow makes unkind remarks about Napier's original logarithms]*, had not you, of the finest talent and with the diligence of an indefatigable hand, devoted yourself to a revision. Whereby you have constructed in a regular manner such thick phalanxes of numbers just as in the line of battle, and prepared for us so immense a number of canons; at the expense of your own time, you have brought back leisure to us; from your labour you have supported our weariness, so you must forbear our sleep, for you yourself have softened the troublesome vigils. Therefore worthy is the gratitude you may have carried back to you, whereby innumerable calculations before kept from us, are now also computable, not in the lest through your logarithms.*

But though his life was thus spent in close and severe studies, more for the benefit of mankind, than his own private interest; yet they do not seem to have affected, or had any bad influence upon his temper; for his letters not only reveal an ease and sedateness of mind, but likewise an agreeable cheerfulness and pleasantry'.

References & Notes.

1. *Vit. Hen. Briggii*, p.1. (Dr. Smith). Translated by J.T. Foxell (1943), and available as Appendix (i) of A.J. Thompson's *Logarithmica Britannica* (C.U.P. 1952)
2. *Athen., Oxon. V.1, c.550. Hist. et ant. Ox. L11, p.41.*
3. *The MacTutor website article on Briggs.*
4. *A Brief History of Gresham College,* by Richard Chartres and David Vermont. Obtainable in the free Lecture Archive CD from the present day Gresham College. Also published in book form (1998).
5. Usher's *Letters,* p.12, p.35.
6. *Mirifici Logarithmorum Canon descriptio, ejiusque usus, in utraque Trigonometria,.... Joanne Nepero, Baron Merchestonni, Scoto*. Edinburgh (1614).
7. He was a medical gentleman, and had accompanied James VI of Scotland on his expedition to Denmark to collect his bride, a Danish princess: in the course of this journey, on account of inclement weather, they had visited the island of Uranisburg, the home of Tycho de Brahe and his observatory. See *Memoirs of John Napier of Merchiston...* Mark Napier. Blackwood, Edinburgh (1844), p. 364- 365, who goes to some length to refute this story.
8. See, *Les Savants du XVII^{e} Siecle et La Mesure du Temps,* by L. Fossez. (Edition du Journal Suisse D'horlogerie et de Bijouterie. Lausanne,1946), pp.52-71, for an appraisal of Burgi's work.
9. Napier had two children, a boy and a girl, by his first wife Elizabeth Stirling, who unfortunately died in 1579 after 7 years of marriage; his second wife Agnes Chisholm survived him, and they had 10 more children, 5 boys and 5 girls. Napier's second son Robert, who edited his father's work, was by his second marriage; the eldest son Archibald by the first marriage had gone off to London with James VI in 1603 as an aide, on his becoming James I of England on the death of

Elizabeth, and Archibold was to become the first Lord Napier; however, the family did not fare well in the strife of the civil war, and the ancestral home of Merchiston castle was lost. John Napier himself had been born to a very young father of some 16 years of age: this meant that running the estates were largely managed by his father, leaving John with ample time for his studies.

10. John Napier, "*Mirifici logarithmorum canonis constructio*", (Originally printed by Hart, Edinburgh, 1619. (The translated cited in the text by W.R. MacDonald has been reprinted for Dawsons of Pall Mall, London,1966).