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Paul Odendahl
Editor & Publisher

British Horology Times

NAWCC CHAPTER 159

News FROM CHAPTER 159

At our meeting at the 2001 national convention in New Orleans, new chapter officers were elected. They are:

President: Frank DelGreco (OH),
Vice President: Lee Yelvington (NC)
Secretary: Ken Johnston (NC)
Treasurer: Bernie Pollack (CA)

As your newly elected President I want to take this opportunity to welcome any new members and say hello again to those of you who have been with us for a while.

Don't forget our next meeting will be at the Orlando Florida mid-winter regional. We have tentatively scheduled the meeting for Saturday, February 16, 2002 at 10AM.

There are still a few openings left in the Tour of Stately Homes in England that Phil Priestley and I are arranging on behalf of our chapter. We are scheduled to visit National Trust homes as well as museums and other sights that are watch- and clock-related. The tour is set for May 17-30, 2002 and will cost \$1700 per person (based upon double occupancy). Airfare to/from England is not included. If you are interested please contact me for details as soon as possible at 440-338-8261 or HYPERLINK mail to: fdelgreco@aol.com

It's dues time! If your envelope shows "2001" your membership expires with this issue and there is a **Dues Notice** enclosed. While it is on your mind please renew now: per year US \$5; Canada \$5 and overseas \$6 - in US funds. You may renew for multiple years if you like and lock in the price and save the annual hassle.

-Frank DelGreco

EDITOR'S
CORNER

"... AMERICA, AMERICA,
GOD SHED HIS GRACE ON THEE,
AND CROWN THY GOOD
WITH BROTHERHOOD,
FROM SEA TO SHINING SEA."

-KATHERINE LEE BATES

A. WOOD, CLOCKMAKER

Don Levison (CA) gives us his analysis of a rare picture from the 1850s when life was harder and simpler.

I came across a rare ambrotype of a jewelery, clock and watch store and want to share it with our members. It gives us a little "slice of life" look at what appears to be a provincial English town jeweler who played multiple roles. I say England because of the many clues in the photograph pointing to an English, rather than an American, origin: the formality and clothes of the shopkeeper, the "frocks" on the children,

the style of watches and jewelery in the window and not least the proverbial roman numerals on the clock sign. On this trade sign above the door the words "A. Wood, Watch and Clock Maker" appear. In the window is another sign advertising "Spectacles". Below this is a cornucopia of pocket watches, chains and fobs, necklaces, rings and other jewelery displayed neatly on the multiple shelves. One can assume that he



Mr A. Wood proudly displays himself, his children and his wares in front of his shop in about 1850. (An estimate of the shop width is about 12 feet, with a 9 or 10 foot ceiling height. The window curtains indicate that upstairs was living quarters - perhaps for the Wood family. A lot to cram into a small space. But — no commuting. -Editor)

also sold silver since there is a silver toastrack in the upper left corner of the window.

The proprietor is standing in the doorway accompanied by what appears to be his two children, while the wife (or a nosey neighbor) peers down from the apartment above. Everyone wants to get in the act. (Where is the family dog?) The young man appears quite dapper in his dark suit and white collar, presumably not his everyday watchmaker's attire, but more suitable for a merchant.

Ambrotypes were popular in the mid-1850s so I went to Brian Loomes' Watchmakers and Clockmakers of the World, Volume 2. Allowing for a reasonable working lifespan and the age of the shopowner in the picture, the names in the book don't leave a lot of

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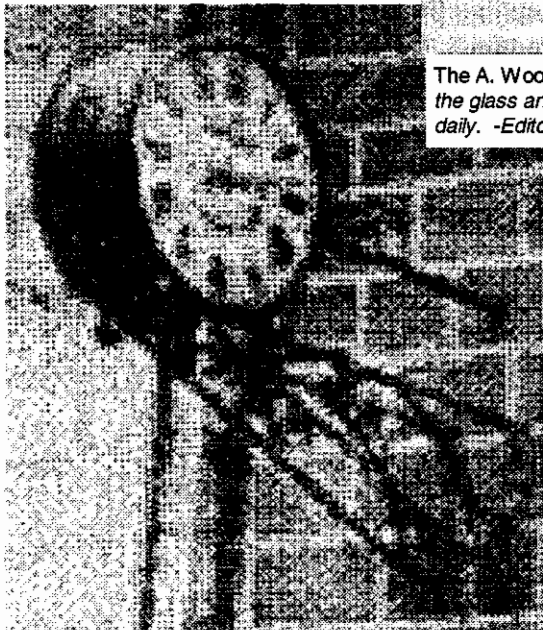
choice: Alfred Wood, London, 1851-81 (perhaps in an outlying suburb).

Could this be our man? The other "A. Woods" listed would presumably be either too young or too old to resemble a man in his mid-thirties to forty in 1855. There is an Alexander Wood listed as working in Sterling in 1834 and another, or the same, Alexander working in Glasgow in 1836. Perhaps a young apprentice could have obtained his "freedom" at that time and matured to operate his own store 20 years later? I welcome members' thoughts and input as to the origin and place of this early photograph, a microcosm of horological life in the mid-19th century. ☺

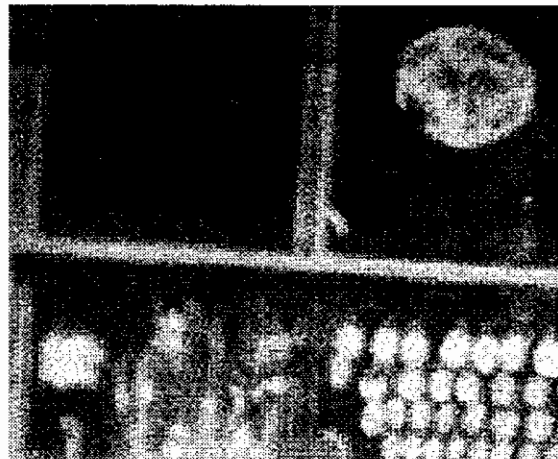
The Editor apologizes for the quality of the pictures in this article. The author of the article submitted excellent digital photographs. The fault lay in our equipment's inability to properly convert to a printable format.



The A. Wood display window. (There seems to be no metal guard in front of the glass and we hope Mr Wood didn't have to remove and replace the stock daily. -Editor)



The magnificent trade sign which fooled your Editor. He thought it was a real clock when he first looked at the picture.



The Author of this article has the advantage of greater magnification to identify the toastrack, the watches and the "Spectacles" sign in the window.

WINDOW INTO THE PAST

Doug Cowan (OH) discusses a jewel of an 18th century article entitled "Merits of the several candidates for the reward for discovering the longitude".

The accompanying illustration, Fig. 1, is the first page of *The Gentleman's Magazine* published in London England during October 1761. John Harrison was about to send chronometer H4 on its critical test sea voyage to Jamaica and back to Portsmouth. This edition carries a 2000+ word essay "On the Inventions for Discovering Longitude" written by "Astrophilus" (loosely: "friend of astronomy") and submitted October 22, 1761.

It has been quite pleasing to me to be able to read Astrophilus' essay from an original 240 year old copy of the magazine and I will attempt to give you an impression of the author's views and biases as felt at the time.

Astrophilus begins by reminding his readers of the prize scale: £10,000 for longitude accuracy within 60 miles; £15,000 for 40 mile accuracy; and £20,000 (a huge fortune) for accuracy within 30 miles. He notes that "the discovery of the longitude at sea (was) a problem formerly placed in the same degree of probability with the secret of extending life, perpetual motion and the squaring of the circle". I'm not sure what that last one has going for it— but then I'm not a mathematician.

Then Astrophilus reviews the status of Harrison's claim to the prize using H4, accurate to within one second per day. He is at first quite positive about Harrison as a person: "Among candidates

for this reward, Mr John Harrison (is) thought to stand foremost. Astronomers (are) indebted to (his) discovery of the compound pendulum". Astrophilus supports the premise that a watch constructed to keep excellent time on shipboard would do the trick. As a quick reminder, Harrison's method of determining longitude specified a watch that would tell the accurate time at the departure longitude. Then by comparing this time with local noon sun readings, the distance from the original longi-

tude is easily calculated.

Astrophilus then reports that Harrison "is of the opinion" that his clock (watch) is ready for trial and the criticism begins. Some quotes:

"ill effects (will be) occasioned by the friction (inherent in) this very complicated machine",

"the clock may gain in returning what it lost in going" (in other words, large compensating errors),

"the method can never be satisfactory",

"the season of arrival (in Jamaica) is far too advanced for observation of Jupiter's satellites" (this was the astronomer's main means of

measuring longitude on land), and so on until finally: "I am of the opinion that it (Harrison's method) can never be entirely depended on in very long voyages". Next, Astrophilus deals with what he obviously thinks is a better method "founded in nature". He means the use of astronomer's lunar observations and tables developed by the German Tobias Mayer. Oversimplified, this method requires rapid measurements of distances between the moon and other celestial bodies, followed by very complex calculations referring to the so-called Lunar Tables. The author admits that this may be difficult and error prone for the "common mariner", concluding that the Tables are "somewhat imperfect and must (also) be corrected for the effects of parallax and refraction".

Nonetheless he is confident that "an experienced observer will not (err) more than one minute (60 miles).

The Gentleman's Magazine :
St. JOHN'S GATE.

For OCTOBER 1761.

CONTAINING,

II. Merits of the several candidates for the reward for discovering the longitude.

III. Lending keys to a late discoverer.

IV. An account of the late Mr. Harrison's discovery.

V. A review of the late Mr. Harrison's discovery.

VI. An account of the late Mr. Harrison's discovery.

VII. Specimens of the nature of a new kind of wood.

VIII. A list of a dissected thigh-bone.

IX. Observations on a new kind of wood.

X. Further experiments on electricity.

XI. Account of two small plants lately introduced into the garden of the Royal Society.

XII. A list of a late Mr. Harrison's discovery.

XIII. A list of a late Mr. Harrison's discovery.

XIV. A list of a late Mr. Harrison's discovery.

XV. A list of a late Mr. Harrison's discovery.

XVI. A list of a late Mr. Harrison's discovery.

XVII. A list of a late Mr. Harrison's discovery.

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XIX. A list of a late Mr. Harrison's discovery.

XX. A list of a late Mr. Harrison's discovery.

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XXVII. A list of a late Mr. Harrison's discovery.

XXVIII. A list of a late Mr. Harrison's discovery.

XXIX. A list of a late Mr. Harrison's discovery.

XXX. A list of a late Mr. Harrison's discovery.

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XXXV. A list of a late Mr. Harrison's discovery.

XXXVI. A list of a late Mr. Harrison's discovery.

XXXVII. A list of a late Mr. Harrison's discovery.

XXXVIII. A list of a late Mr. Harrison's discovery.

XXXIX. A list of a late Mr. Harrison's discovery.

XL. A list of a late Mr. Harrison's discovery.

By STEPHANUS URBAN, Gent.

LONDON: Printed by D. HENRY, at St. JOHN'S GATE.

Fig. 1. The first page of the 240 year old magazine which contains the "reward essay" upon which this article is based.

On a sailing ship rolling and pitching due to wave and wind action? Astrophilus was definitely not a sailor!

Says he: "I flatter myself that this method (lunar observations) will go hand in hand with Mr Harrison's and will confirm each other". Does he want an astronomer to share the reward, or has he just said we do not need Harrison's method?

In the essay Astrophilus also criticises two other methods. The first was the gimballed deck chair invented by Christopher Irwin. This Marine-Chair was to stabilize the telescope enough to enable accurate reading of the satellites of Jupiter. Not worth the reward, says Astrophilus, it's a chair, not a method, since it still requires use of already existing tables for calculation. Second was the method of Mr Whiston who tried to expand the window of observation of Jupiter's satellites and also used "stabilized" telescopes. They tried it, says the author—it didn't work.

I think it's likely that Astrophilus was James Bradley (1693-1762), the third British astronomer royal. He worked very hard to support and improve the observations and tables of the German astronomer Mayer, which were to be the basis for the lunar difference method for determining longitude. This was the best hope for an astronomer's solution to the problem, and the reward. An early Harrison supporter, he ultimately shifted to Harrison's nemesis Nevil Maskelyne, and did so in 1761, just as Harrison was about to test H4 by sea voyage.

If H4 had failed, Astrophilus' essay suggests that it would only, by previous rules, be allowed that one chance. But it did not fail, being successful both in timekeeping and navigational use, leading the initially skeptical ship's captain on arrival in Jamaica, to requisition the first Harrison chronometer to be commercially manufactured. ☺



THE RAKE'S PROGRESS.

PLATE 2.

SCENE IN BEDLAM.

Figs. 2 & 3. This scene in Bedlam insane asylum from William Hogarth's work in the 1730s shows that the search for longitude was on the public mind. Dava Sobel's "Longitude Lunatic" draws celestial pictures on the back wall while his cohort looks through a paper telescope.



Doug Cowan, NAWCC's President finds the time to research and write articles amidst his NAWCC duties.



For more about this article, please see page 12.

TIDES AND TIDAL DISPLAYS

Tom Spittler (OH) explains why there are tides and how to read clock dials that show the time of high tide. Put on your thinking cap and read on.

Tides are controlled by the moon and many longcase clocks incorporate a "time of high tide" indicator in their lunar displays. Such a clock recently came to my attention and I thought I would take this opportunity to explain how the moon and tides are related and how to tell the time of high tide from such a clock's lunar display. The clock is not British but American and made by a noted clockmaker. Isaac Pearson of Burlington N.J. is one of America's earliest clockmakers, working alone from about 1710 to 1740 and then from 1740 to 1748/49 in partnership with his son-in-law Joseph Hollingshead. He was born in 1680 and was New Jersey's first clockmaker and among the earliest in America. I date this Isaac Pearson dial to about 1735.

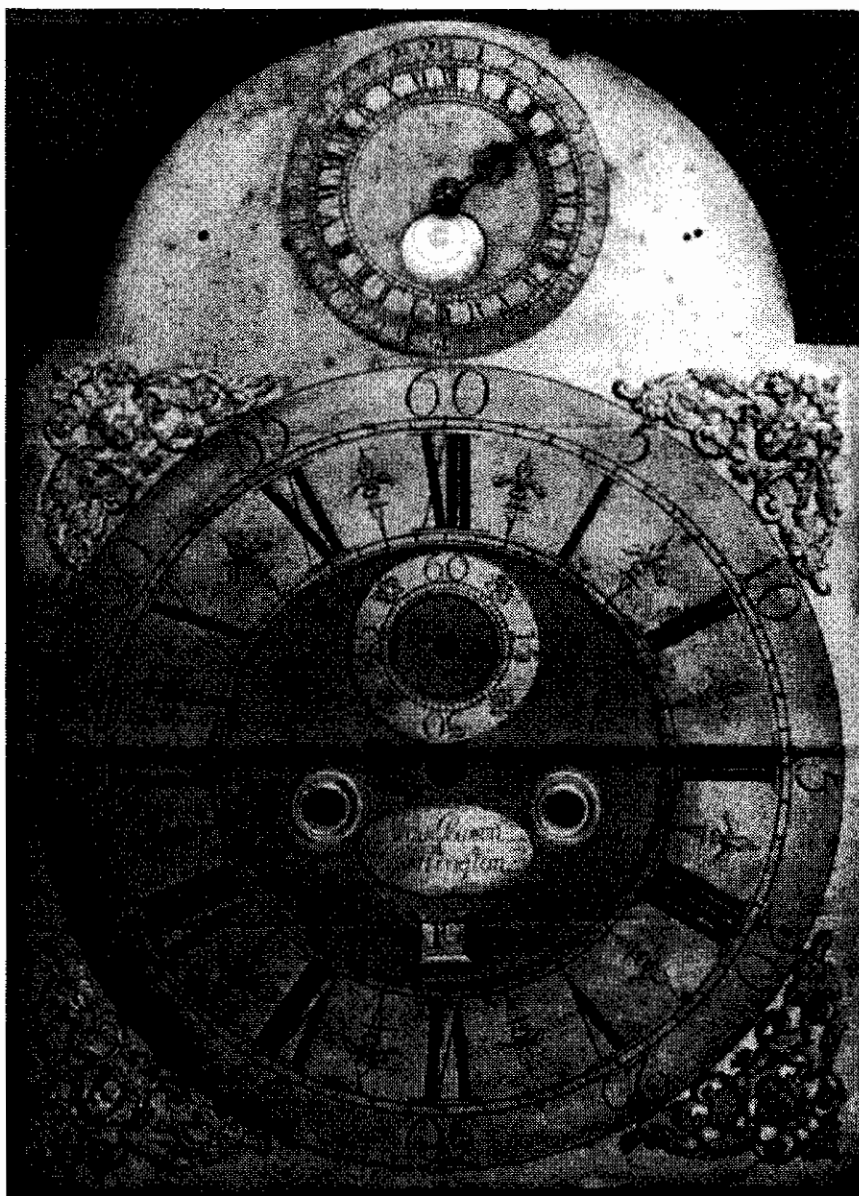
A lunar cycle from one new moon to another is $29\frac{1}{2}$ days. That explains the outer numbering track from 1 to $29\frac{1}{2}$ days around the small "penny" moon displayed in the arch of the Isaac Pearson dial. On all the moon dials I have observed the moon shows as a new moon the 0 day, full on about day 15 and back to a new moon on the $29\frac{1}{2}$ day. On this dial, and again on all the others I have seen, the 0 day and the $29\frac{1}{2}$ day are at the same point and the 0 is not marked. This is the same with a normal clock which starts its day at midnight which is marked XII and not 0.

The track of numbers inside the $29\frac{1}{2}$ day track on the lunar display when used with the outer

track predicts the time of high tide. The tide and the moon, along with every other heavenly body, have a relationship. The bodies outside our solar system are negligible in their effect upon our tides and the planets

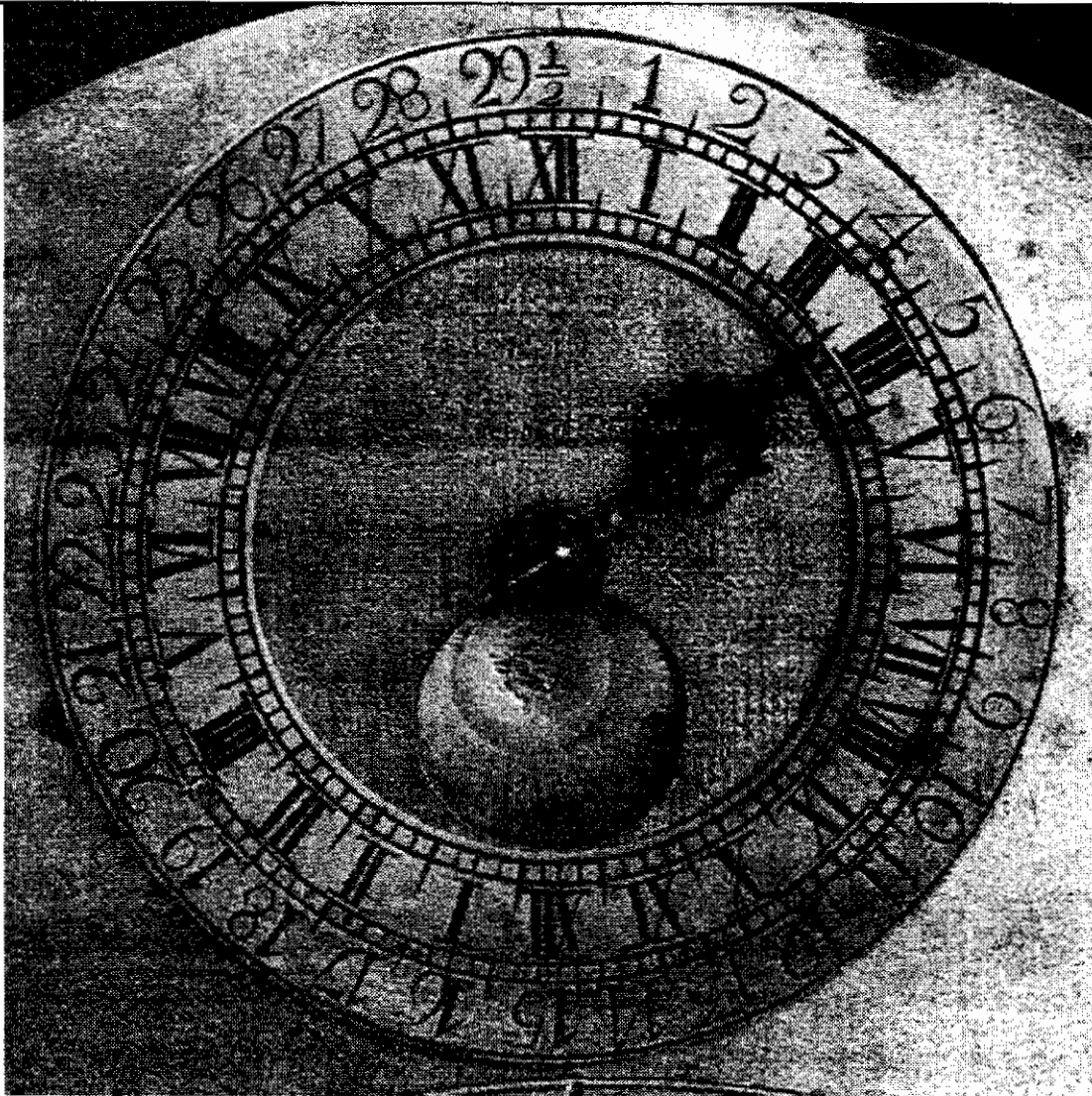
only affect it very slightly. The sun does play a role mostly upon how high a tide will be, but for the purposes of this article the effects of the sun's gravity will also be ignored and it will be the moon, which is the major player concerning the earth's tides, that will be discussed.

The tide is high when the moon passes overhead and about 12 hours later when it is exactly opposite overhead; I guess that would be



Dial of the Isaac Pearson, Burlington N.J. clock showing lunar and tidal display in arch. (Arch spandrels missing.)

Photo by Mervin Brubaker



Tidal display in the arch of the Isaac Pearson clock.

Photo by Mervin Brubaker

directly under your feet. There is a high tide when the moon is overhead because the moon exerts a maximum upward gravitational pull on the water on the earth near the observer as well as an upward pull upon the whole earth. The earth itself moves slightly towards the moon but the water around the observer, being closer to the moon than the solid portion of the earth which acts as a point mass at the center of the earth's gravity, that water near the observer is free to rise up a few feet above the earth. That is a high tide. But how in

the world can there be another high tide about 12 hours later when the moon is over a spot half-way around the world? The moon is then exerting a strong pull on the earth and the water on the other side of the earth. That side experiences a high tide and again the earth moves slightly towards the moon, pulling you down slightly assuming you are standing on the ground. The water on your side, however, does not experience as much of a pull as the solid portion of the earth and is thus not attracted downwards as much as

the earth, leaving the water on your side again a few feet higher than the earth—another high tide. That is why there are two high tides in about a day, one when the moon is overhead and another when it is underfoot.

In reality the situation is much more complex especially around the British Isles where complex features of the Atlantic Ocean, the North and Irish Seas and the English Channel create delays in tides and sometimes four tide cycles in a day, i.e. Southampton.

A noon high tide occurs when

the moon is directly overhead at noon: a new moon, and another high tide occurs when the moon is directly overhead at midnight: a full moon. These are the two conditions when the sun, earth and moon are in alignment. The full moon has the earth between the sun and the moon and the moon is flooded with full sunshine at night. The new moon has the moon between the earth and the sun and the moon is only slightly edge lit at night.

At this point we have established that there are two high tides in about a day and it takes $29\frac{1}{2}$ days for the moon to go through one lunar cycle. Another fact is that the moon appears to us on earth to rise $50\frac{1}{2}$ minutes later each day. That means that after we have established that the tide will be high at both midnight and noon on both a new and full moon, it will be $50\frac{1}{2}$ minutes later on the clock for each day of the moon's cycle. This leads us, thankfully, to the inside track on the lunar display and how to read the time of high tide from that display.

Remembering that day $29\frac{1}{2}$ and 0 are the same, there is a XII on the inner track at $29\frac{1}{2}$ meaning that there will be a high tide at both XII noon and XII midnight on the clock at the new moon. On day 1 of the outside track it shows almost I, or just before one o'clock on the inside track. Actually it shows $9\frac{1}{2}$ minutes before one o'clock or 12:50 $\frac{1}{2}$ to be precise to account for the moon rising $50\frac{1}{2}$ minutes behind the sun each day. This continues along for all of the first 14 days of the lunar month, and then on the 15th day, straight down on most of these penny moon dials, we find alignment between the 15 and the XII again—now a full moon—and the tide is again high at XII noon and XII midnight. Again, for each day after the 15th day the time of high tide is delayed by $50\frac{1}{2}$ minutes.

Any moon dial can be used to tell both the phase of the moon and the tide. Most clocks, however, do not have the second set of numbers marked on the dial to

show the tides. With British clocks and some American clocks there is a complication based upon the geometry of the local coast and waters. The high water time does not occur at the time of calculated high tide. Therefore one finds clocks marked "High Water at Bristol" as an example, and these clocks are made to compensate for a specific port. I have even seen dials marked for two or even three nearby ports to show the variation in high-water times at specific locations. To make Isaac Pearson's clock accurately predict tides one must set the clock with a sundial and routinely reset it to sun time. No clock keeps sun time but using this method it will approximate sun time. The lunar display must then be set to show a full moon when the moon is full. This is how the clock would have been used and set when it was new. People in 1735 were aware of the equation of time which corrects the sun time to mean time and vice versa, but except for scientific purposes, clocks were set to and corrected to local sun time. By definition, noon at sun time is when the sun is at its zenith and that is twelve o'clock. Stick a straight stick in the ground on a sunny day at your location and track the stick's shadow. When the shadow stops getting shorter and starts getting longer — that is noon. Things like time zones and standard time within a time zone did not exist in 1735. Assuming the clock was set to sun time and the moon phase indicator was correctly set, predicting the time of high tide is as easy as looking at the clock and reading the time indicated by the pointer on the lunar display. The Pearson clock shows that high tide will be at 3:30. Today we could predict the high tide by converting the sun time shown on the inner track of the lunar display to local mean time using the equation of time. We could then correct local mean time to standard time knowing one's location in degrees of longitude within the time zone. Making those two conversions we would know the time of high tide in standard time from the Isaac Pearson clock assuming the moon dial was set correctly for the phase of the moon. ☺



Tom Spittler draws upon his experiences in England and his vast knowledge to produce captivating articles for this and other publications.

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HENRY - Part 3

This tale by Paul Odendahl (LA) has followed Henry through his time in Cromwell's 17th century New Model Army and his introduction to the Buffingtons and to the Tompion family. He is working now in the Tompion forge with the younger Thomas, under the supervision of Thomas the father.

Abridged from *The First Henry*, copyright © by The Royal Archivists. Used with permission.

The days rolled into weeks. Henry became a daily visitor to the Tompion forge. He and Tom fell into a routine between the manual work in the forge and the learning in the Tompion library. At first Tom didn't seem like he realized what was in those books but following Henry's lead and with the plodding use of the dictionary he became enthralled with the scientific and technical information they contained.

Henry, on the other hand, seemed caught up with the historical content of the books. He was quite surprised to read, that in

1286 St Paul's Cathedral in London paid to "Bartholomo Orologiaro", the clock keeper, an allowance of bread at the rate of a loaf daily for $\frac{3}{4}$ of a year and 8 days. ("Umm...Clock keeper," thought Henry.)

1371 Edward III paid to John Nicole, keeper of the great clock of the Lord the King, within the Palace at Westminster, taking per day sixpence for his wages for the custody of the clock aforesaid, for 80 days from 24 October to 11 January

1371 ("Umm...*Custody*", thought Henry.)

1410 Henry IV appointed a salaried clockmaker to keep the above Westminster clock in order. ("Umm...*Keep in order*," thought Henry.)

1413 Henry V appointed a

clock keeper, Henry Breton, "valedictus camere Regis" for the "horologii Regis infra palatium Westminster". ("*Keeper* again.")

1425 Henry VI appointed Thomas, a clockmaker, who received 13s. 4d. per year as his salary for the general *superintendence* of the Westminster clock. He was, moreover, paid 8s. for making the sail when it was broken; 6s. 8d. for amending the spring of the barrel; 12d. for the wire of the stobil; and 7s. for amending the nut and spindle.

1426 Henry VI gave the *keeping* of this Westminster clock, with the tower, called the clockhouse, and the appurtances, to William Warby, Dean of St Stephen's, together with sixpence per day remuneration to be received at the exchequer.

After 1450 William Senet, who was mayor of Canterbury in 1450 and who had been at various times before one of the bailiffs of that city, by his Will gave to the parson and wardens of St Andrew's Church there 4s. 4d. per annum to *keep* and maintain the clock forever.

1559 Elizabeth I had her own clockmaker and clock setter.

1603 So did James I. ("Umm...*Setter*.")

1624 Ben Jonson has an actor say in his play *Masque of Pan's Anniversary* "There is annexed a clock-keeper, a grave person as Time him-

self, who is to see that they all keep time to a nick...; he is to wind them up and draw them down, as he sees cause". ("*Keeper*, again.")

1625 "Clockmakers and *keepers*" are named in a list of the artificers who followed the remains of James I at his funeral.



Weeks melted into months. Mr Tompion was delighted with his two apprentices. There was no doubt that they were his apprentices in fact, if not legally. They were both developing skills in smithing as well as in studying. Mr Tompion urged them on, kept a close watch over them and taught them the tricks and secrets of the blacksmith's trade. The three of them turned out a prolific amount of ironwork, including clocks, and as a reward Mr Tompion indulged them when they turned to working brass.

One day in December 1653 Major Buffington asked Henry to hitch Nellie to the carriage so they both could go to the Tompion's together. Henry went directly to the forge as usual and the Major found Mr Tompion in his vegetable garden.

"Good morning, John. It's doubly pleasant to see you because I want to talk to you about Henry."

"Good morning, Thomas. Hope he hasn't been into any trouble."

"Oh no, nothing like that. It's just that I feel guilty. Henry is now producing work for me far in excess of the value of his daily meal. I cannot in good conscience continue to accept your regular payments for his tuition.

The Major drew back: "You haven't told him about that, have you?"

"I haven't told anyone. I have carefully observed your wish. He is productive and I am profiting from it."

The Major thought for a minute. "Is he helping to make clocks as well as other blacksmith work?"

"Yes, he is. He is making an iron clock right now which is destined to go over to Buckinghamshire in a month or two. And then there are the brass clocks which he and Tom like to work. Experimentation, I call it."

"Do you think Henry could make a clock alone by himself?"

"Well, no — he needs guidance and he needs help with the calculations, but he is well along toward that."

The Major thought in silence. He reckoned that Mr Tompion had an annual net profit of about £200-300. With that he had to support the family of five plus a maid.

"Thomas, let's continue as we are. After all you are giving him the benefit of your knowledge and experience. Next month Edward East will visit us in Bedford and I ask your permission to bring him here and let him observe some of Henry's work." What the Major did not say was that he knew that clocks manufactured in London were several years ahead of provincial clocks. Henry may be ready to move up.

Edward East was born in Southill and Mr Tompion had done work for him over the years so Thomas readily agreed to a visit.

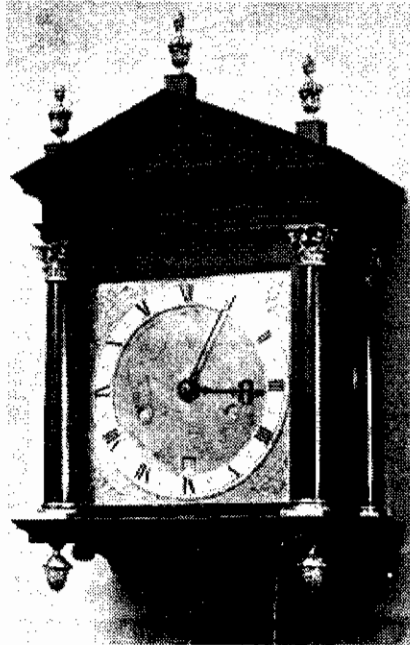
On 25 January 1654 Edward East and Major John Buffington were in the carriage bound from Bedford House to the Tompion forge. Henry had preceded them and was already at the forge. There was a subject which stuck in Edward East's throat and which, before now, he had never dared to broach to the Buffingtons.

"John, have you ever considered having a good English clock in your home? I'm thinking of the spot where that troublesome French hall clock is now. A good stout English brass clock would look good

there and I'm now making them to keep good time."

"You know my mother," replied the Major. "She is enamoured of all things French. Just look at our furniture — much inlay and curves and gilded mounts. I'm afraid she's lacking in patriotism when it comes to the familiar furnishings that surround her. She would rather tolerate that erratic French clock. Sometimes I believe she thinks it is a thing of beauty and not a clock at all."

"Some day," said Edward East prophetically, "there will be an English clock in Bedford House."



The clock that Edward East had in mind for the Buffingtons and Bedford House

At the forge things were active. Smoke was pouring from the big front door and banging was heard from inside. The three men were hard at work.

Now Edward East was a distinguished looking man of age 51. He had an unruly shock of white hair, strong build, even features and his smile was disarming. He was always well dressed and when he entered a

room, full of noise and smoke or not, he took command.

"Are you Henry?" Henry was filing another brass plate.

"Yes, sir."

"My name is Mr East. Let me see your work."

Henry put down the file, wiped his hands on his leather apron and led Mr East over to a pile of bits and pieces of iron and pointed at it. Mr East bent over and silently examined each piece, picking them up as needed. Henry noticed that Mr East didn't mind getting his hands dirty.

Mr East said nothing. Neither did Henry. The only sound was clank-clank as Mr East threw back down the various pieces one after the other. All activity and sound in the building had ceased.

Mr East continued his leisurely examination still not saying a word until:

"Harumph!" dusting off his hands on each other.

With that he whirled around and marched to the door and out with the Major following. Work in the forge came to life as if on cue.

"Well?" asked the Major when the carriage moved away.

"Well, what?" answered Mr East. "He's just another muscular lad pounding his arms off on all that iron. Just like Thomas' son except that Thomas' son has a head start."

"He tells me he likes to work brass."

"I saw. The trouble with taking on someone who has worked elsewhere is that I would have to untrain him from all his bad habits. Why don't you bring him down to see Fromanteel? He does a lot of work."

If Edward East's visit proved useless, consider the mistakes made by each of the men: Major Buffington thought that leaving the tutorage of the Tompions would be "moving up". Edward East worried that Henry

might have learned "bad habits".

That evening, back at Bedford House, Major Buffington had a talk with Henry about "moving up". He said there was a clockmaker in London named Fromanteel and asked Henry if he thought a move to London would be good for him. He said he would provide for the journey if Henry desired to apply to Fromanteel.

"I know about Fromanteel," stated Henry. "There is a whole family of them. Tom heard of them and Mr Tompion has told us about them. The older Fromanteel is an experimenter. Mr Tompion says a lot of his work goes for naught. Besides, there are so many relatives that he can put to work that I doubt he would have room for me."

After that the Major reckoned the boy would simply continue at the Tompion forge. However, the very next day Henry cornered Mr Tompion to ask him for all the information he had about Mr East. Mr Tompion had only praise for Mr East, like: "work of the highest caliber"; "he's been free of the Clockmaker's Company for over 20 years"; "well liked"; "did work for the King".

A plan was forming in Henry's mind.

On the first day of March 1654 Henry decided to put his plan into action. First he approached Mr Tompion and told him he wanted to travel to London and try for an apprenticeship with Mr East. Then he went to his dear friend Major Buffington and asked him for permission to approach Mr East. Of course, both men approved and wished him good luck and the Major even renewed his offer of transportation and added an offer of money for lodging for he knew that Henry wanted to do this alone.

The transportation was Nellie. Henry packed some wheels and pinions he had made, a brass plate, a post and some screws (all with Mr Tompion's permission) and, on 3 March

1654, off he rode toward the capital. He elected to approach the city from the south and crossed the Thames on London Bridge. London was all bustle and quite different from Southampton or Bedford.

When he did get to the East shop, Mr East was attending the King at tennis so Henry had to find lodging.

Entering the shop the next day, Mr East didn't recognize Henry who had got there early and was waiting. "Who are you?"

Henry told him.

"Oh yes, you're the boy who doesn't say anything."

("Neither do you,") thought Henry.

Henry opened his samples. Mr East looked, unimpressed. One encouraging sign was that Henry noticed that there was nobody working in the shop.

"Try Fromanteel," said Mr East.

Then as Henry was leaving: "Did you make that post?"

"Yes, sir."

All of it? You made it completely?"

"Yes, sir."

"Leave it here. I want to look at it. Goodbye."

Henry wondered to himself out on the street, "What was so good about that post?"

Then back to Bedford, the Buffingtons, the forge and the Tompions.

It was easy for Henry to slip



In the time of Charles II tennis was quite different from the game as we now know it

back into the routine of being part of the Buffington family and spending most of the days at the Tompion forge. Both Major Buffington and Mr Tompion were sympathetic about Henry's failure to gain Mr East's attention and they solemnly counseled him to be patient — they were certain he would become a clockmaker one day.

"But apprenticing to a master is the only way to become an accepted clockmaker and I haven't been able to do that."

"Patience," said Major Buffington.

"Maybe there is another way," said Mr Tompion mysteriously.

There was one person who was bright and happy with Henry's continued presence at the forge. It was young Margaret. She had nothing but smiles for Henry.

A month went by and on 16 April 1654 Mr East appeared at the forge. He spent a lot of time with Mr Tompion examining some small parts that Mr Tompion had been working and they both talked in earnest while making drawings on Mr East's notepad. Just as Henry began thinking that Mr East was going to ignore him completely, the master, apparently satisfied with his discussion with Mr Tompion, came directly to Henry's bench.

"Good morning, Henry." Mr

East was smiling broadly.

"Good morning, Mr East."

"I am returning to you the post you left at my shop. It's a nice piece of work."

Silence.

Mr East just stood there smiling and the silence could have been embarrassing except that Henry was not the least embarrassed. He was thinking. His training in the New Model had given him self-confidence then. He overcame and accomplished anything that the sergeant told him to do. He remembered how he admired the way the sergeant went on the offensive when things looked glum and undecided. Henry now summoned up that self-confidence. Henry went on the offensive.

"Mr East, I want to be your apprentice so I can become a good clockmaker. I have a plan that will make it easy for you to accept me and that should give you a source of income almost at once."

"Heavens," Mr East said to himself, "how can this lad possibly know that I am sadly in arrears with what I owe and that I need additional income?"

Henry continued: "Are you aware that clock *keeping* (Henry accented the word) has been a source of income for hundreds of years? That one need not be a journeyman clockmaker to *keep* a clock?"

"Keep?" thought Mr East. "What's he talking about?"

Henry plowed on. "Since 1286 there have been churches and other owners of clocks which have been glad to pay a fair amount for someone to wind, oil, keep clean and in general look after their clocks. St Paul's Cathedral did it then. James I did it until his death in 1625."

Mr East opened his mouth as if to say something but Henry would not pause.

"In between those dates, Ed-

ward III had a clock keeper; so did the Henrys IV, V and VI; so did Eliz..."

Mr East sat down and looked up at the ceiling.

"And Mr East, it is not only royalty who need the service. There are church clocks in all parts of the country. I know because I have seen many of them. They need *keeping*. And there must be privately owned domestic clocks wanting for attention."

Mr East was now nodding his head. He had stopped smiling during the part about St Paul's and James I.

"My plan* is this: You make me your apprentice. Our object will be that I become a skilled clockmaker. I will stay the course. In the beginning, at least, you will set me out keeping clocks for some of the time. For that you will make a charge. Income to you, not to me. Your personal acquaintanceship with a wide variety of important people should make it possible for you to offer services to those whose clocks need attention. Have I made it clear that there is a precedent for the service? Why one of Ben Jonson's plays refers to..."

Mr East's head was reeling. He arose and held his right hand palm out toward Henry.

"Stop!" he said. "I understand what you are saying and I shall take it under consideration."

With that he made for the exit door. Henry was the one who smiled now. Didn't Mr East roll and sway a bit as he walked?

* Henry's plan turned out to be more profitable than Henry imagined for Edward East: In the *Calendar of State Papers* there is an entry for a grant in 1662 to Edward East of the office of "Chief Clockmaker and Keeper of the Privy Clocks, fee 12d per day and £3.6s.8d livery".

To be continued



This story by Paul Odendahl is based on historical fact and is spiced with fanciful everyday activities.

MORE ABOUT 'WINDOW INTO THE PAST'

Doug Cowan has had correspondence with David Penney:

Doug: "Any idea who Astrophilus was? Bradley, Astronomer Royal stood to share the prize if the astronomy method was adopted."

David: "I don't know, though I am sure that Col Quill, author of the best work on Harrison, did. I would not want to question Bradley's or Maske-lyne's motives who, quite rightly I believe, continued to ask questions about the 'practical' aspects of Harrison's timepiece - the fact that Kendal (one of maybe only 2 or 3 people then capable of doing the work) charged over £500 to make a copy, took years to do it, and then refused to make another for even more money is some indication of the 'hard' evidence the Board had to go on. This and the fact that there needed to be at least 3 such timekeepers on any one ship is even more reason."

MART

MART ADS are free to members and should pertain to British or Anglo-American horology.

Killian Robertson wants Irish horological items including watches, clocks of any type, papers, ephemera or anything else relevant to Irish horology. Phone 336-725-7251 or email kcbpr@aol.com

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