

The following additional information has been provided by Carl Barry and Lilian Fletcher. All rights are acknowledged.

Astronomer William Crabtree of Broughton recognised

Copernicus [1473-1543] against existing belief, suggested that the earth-centric view of astronomy was incorrect, that the earth and other planets orbited the sun! Not all astronomers [e.g. Brahe 1546-1601] accepted this solar-centric system without proof. In 1639 a transit of Venus was observed passing in front of the sun's disc for the first time. Galileo's telescope made this possible.

January 2004

"The rare phenomenon of a transit of Venus will occur on June 8th" - so the media announce.

Two residents of Higher Broughton in Salford, Carl Barry and Lilian Fletcher considered this auspicious occasion an opportunity to honour the Astronomer William Crabtree of Broughton.

Carl and Lilian had the idea to have his name on a street nameplate near the site where they believed he had built his home and had observed the 1639 transit of Venus. This is just a few hundred yards from where they live.

Evidence

Hard evidence to establish the historical association was needed. Carl and Lilian studied J E Bailey's 'Writings of Horrox and Crabtree', the Palatine Notebooks, C P Hampson's 'Salford through the Ages', Axon's Annals, articles in 'Lancashire and Cheshire Antiquarian Society' and Crofton's manuscript. Most material dealing with the transit of Venus was about Jeremiah Horrocks of Toxteth, Crabtree was barely mentioned. Only Crofton's manuscript held much about Crabtree. The impression was that Horrocks was the first and only observer.

Jeremiah Horrocks, undoubtedly was a precocious youth, a brilliant mathematician with an amateur's interest in astronomy. He entered Emmanuel College, Cambridge, as sizar in 1632 where he acquired a much-prized copy of Philip Lansberg's Astronomical Tables. Leaving Cambridge in 1635 without a degree, but with his treasured Lansberg Tables, he returned to his home in Toxteth near Liverpool. His education allowed him to undertake some church duties leaving time for his observations of the 'heavenly bodies' - using his 'bible' the Lansberg Tables. His interests echoed those of William Crabtree of Broughton.

Born in Broughton, now a district of Salford, in 1610 and educated at Manchester Grammar School, William Crabtree was a cloth merchant whose business involved trips to Europe where he was able to acquire books and equipment.

Horrox began correspondence with Crabtree on 21 June 1636, though they never met. Horrox referred to him as "my learned friend, William Crabtree, who has few superiors in mathematical learning".

Crabtree was in contact with William Gascoigne of Leeds, the ingenious astronomer who invented the micrometer among other gadgets. History records that Horrox could not afford expensive equipment and improvised refinements to his telescope with 'the help of friends'. (Crabtree and Gascoigne?)

Crabtree, a mathematician, and careful observer of the movement of 'heavenly bodies', from his own observations and calculations, found serious defects in the Lansberg and other continental Astronomical Tables.

He wrote to Horrox warning him of the unreliability of the Lansberg Tables due to inaccuracies, urging him to -"put no further trust in that author. Lansberg's hypotheses would never agree with the heavens for all times, as he confidently boasts, no, nor scarce for any one whole year together".

After many attempts he eventually persuaded Horrox to adopt the more reliable Rudolphine Tables by Kepler. Kepler, Tycho Brahe's student, used Brahe's research material to calculate the tables for King Rudolph of Bohemia. Crabtree converted the Rudolphine Tables from fractions to decimals - this mathematical refinement was appreciated by following generations of astronomers.

Using these tables, Kepler successfully predicted a transit of Venus would occur in 1631. Unfortunately no Europeans could witness this phenomenon because it would occur when the sun was over America. Kepler also miscalculated the 'transit' of 1639 believing the planet would pass below/above the sun's disc.

Horrocks and Crabtree continued their observations of the heavenly bodies. Only a few weeks before the event, Horrocks calculated that a transit would occur on 24 November 1639, old style. He then wrote enthusiastically to Crabtree, adding: "I beseech you, therefore, with all thy strength to attend diligently with a telescope." That Sunday they spent hours watching for a projected image of the sun - but the day was cloudy!

Both men made the observation before the sun set. Horrox made his observation at Hoole, near Preston, benefiting from the November sky clearing 15 minutes earlier than at Broughton. More importantly, he wrote down his observations – whereas William Crabtree, reported as being 'overcome with emotion' - failed to record his measurements - and is side-lined. Two other astronomers, William Gascoigne in Leeds and John Horrocks (Jeremiah's younger brother) in Liverpool, also prepared to witness this solar-centric proof – but the skies remained cloudy for them.

Horrox and Crabtree calculated that transits would occur in pairs, eight years apart, and the pairs would occur in 112 year cycles. Viewing over the British Isles is even rarer than this.

'Opera Posthuma' is an account of the transit as observed by Jeremiah Horrocks at Hoole, near Preston. It was written and edited by Dr Wallis of Emmanuel College Cambridge in 1672, 31 years after Horrocks' death. This belatedly ensured the recognition of Horrocks as the first observer of the transit phenomenon. He is surely indebted to Crabtree.

Recognition for William Crabtree

The above information was gathered while researching the home of William Crabtree in Broughton. Seeing our evidence, Salford City Council approved our suggestion for a street sign. Priory Grove, originally 'Broughton Spout', which became Laurel Grove, then 'Priory Grove', would be officially renamed 'Priory Grove – late Crabtree Croft'. Priory Grove is the northern boundary of the Crabtree Crofts. And so William Crabtree's name has been restored to the area where he lived.

Professor Chapman and the Mayor of Salford unveiled the sign. Ken Irving videoed it. Members of Salford Astronomical Society, and residents attended the unveiling.

Success in this venture triggered another thought. Why not a new plaque on "Crabtree Lane" to commemorate William Crabtree's contribution to astronomy? The idea was approved by the city council. Joe Martin, the council's conservation officer, suggested that Lilian Fletcher should design a plaque.

Ken Irving, director of the Salford Astronomical Observatory, arranged for Dr. Allan Chapman, [below] Science Historian Wadham College, Oxford, to unveil the plaque in December 2005.

The Mayor of Salford, members of Salford Astronomical Society and members of Cliff Area Residents Association (who part-funded the plaque) were present.

What's next?

Having achieved their initial objectives, Carl Barry and Lilian Fletcher have now sought to have an English Heritage commemorative plaque erected on Lower Broughton Road so that future generations of Salford residents are made aware of the area's historical association. A decision is not expected from English Heritage before 2012.

Street naming in Salford

Salford City Council, as the statutory highway authority for the city, is responsible, in conjunction with Urban Vision Partnership Limited, for the naming of streets and the numbering of properties throughout the city.

Under the Public Health Act 1925, it is the council's responsibility to allocate house numbers and road names to new developments, as well as liaising with the Royal Mail to obtain postcodes for new properties. The Greater Manchester Act 1981 empowers Salford City Council to allocate postal numbers to properties as it sees fit.

For further information about street naming, including how to report missing nameplates, visit www.salford.gov.uk/streetnaming.

Acknowledgements

Carl Barry and Lilian Fletcher acknowledge and value the assistance of Joe Martin, Salford City Council's conservation officer, ward councillor Cllr John King, and Ken Irving, director of Salford Astronomical Society, in facilitating these projects.