

Biographical Encyclopedia of Astronomers

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Sharp, Abraham

Born Bradford, (West Yorkshire), England, 1 June 1653

Died Bradford, (West Yorkshire), England, 15 August 1742

Abraham Sharp was a highly skilled instrument maker contemporary with Isaac Newton and John Flamsteed, and several such eminent people seem to have relied on the instruments that he constructed for precise measurements of the positions of the stars. Sharp was born and died at Little Horton Hall in Bradford. (His birth year was given as 1651 by the *Dictionary of National Biography*, but W. Cudworth argued that 1653 is the correct date.) Like so much of Bradford's heritage, his birthplace has regrettably been demolished—the site is now occupied by a car park for Saint Luke's Hospital and the Unity Building of the University of Bradford.

Sharp attended Bradford Grammar School and worked for a period in the textile trade in York and Manchester before moving to Liverpool where he taught and studied mathematics. Here, he met

The eminent astronomer, Flamsteed, who used his influence to get Sharp employment at the Royal Naval dockyard in Chatham. From about 1684, Sharp was associated with Flamsteed at the Greenwich Observatory, and in 1688 he was employed to make a "mural arc," a large astronomical elevation-measuring device. Sharp developed a considerable reputation for the accuracy of his graduations on such devices, and this mural arc, which had a graduated scale with a radius of 2 m, was used by Flamsteed to make the observations from which the entries in the "British Catalogue" were deduced.

Sharp left the observatory in 1690 in order to teach mathematics in London, but in 1691 he moved to another naval dockyard, Portsmouth. Unfortunately, there appears to have been a problem with his health, and he retired to his family home in Bradford in 1694. His health recovered, but he inherited the family estate upon the death of his nephew, and Sharp decided to remain in Bradford, setting up a workshop for the construction of instruments. During these 49 years in Bradford, he made astronomical instruments and also undertook many extensive mathematical calculations, particularly for the generation of tables of astronomical events. Sharp also calculated π to 72 decimal places and logarithms to 61 decimal places. He appears to have obtained many contracts from Flamsteed, and several biographies are laden with quotations from Flamsteed's letters to Sharp, who seems to have been something of a sounding board for the former. A large proportion of the letters from Flamsteed are highly critical of Newton, but it is not clear whether Sharp shared these views. It may be noteworthy that there is a story that Newton visited Sharp at Little Horton Hall, and so it could be that the letters are primarily a reflection of Flamsteed's views. It is probably a fair assessment to say that Sharp made a major contribution to the refinement of astronomical measurement techniques, enabling Newton and others to test and refine their theories of planetary movements.

In the letters between Sharp and Flamsteed, there are several interesting references to striking observations of the aurora borealis from Bradford in the early 18th century. Sunspot and geomagnetic field conditions must have been very unusual indeed for this effect to have been seen so clearly so far south.

Although Sharp may appear to be "just" an instrument maker and mathematician, a measure of his significance in the astronomical community may be gained from the fact that there is a crater on the nearside of the Moon that is named for him.

Philip Edwards

Selected Reference

Cudworth, William (1889). *Life and Correspondence of Abraham Sharp*. London: Sampson Low.