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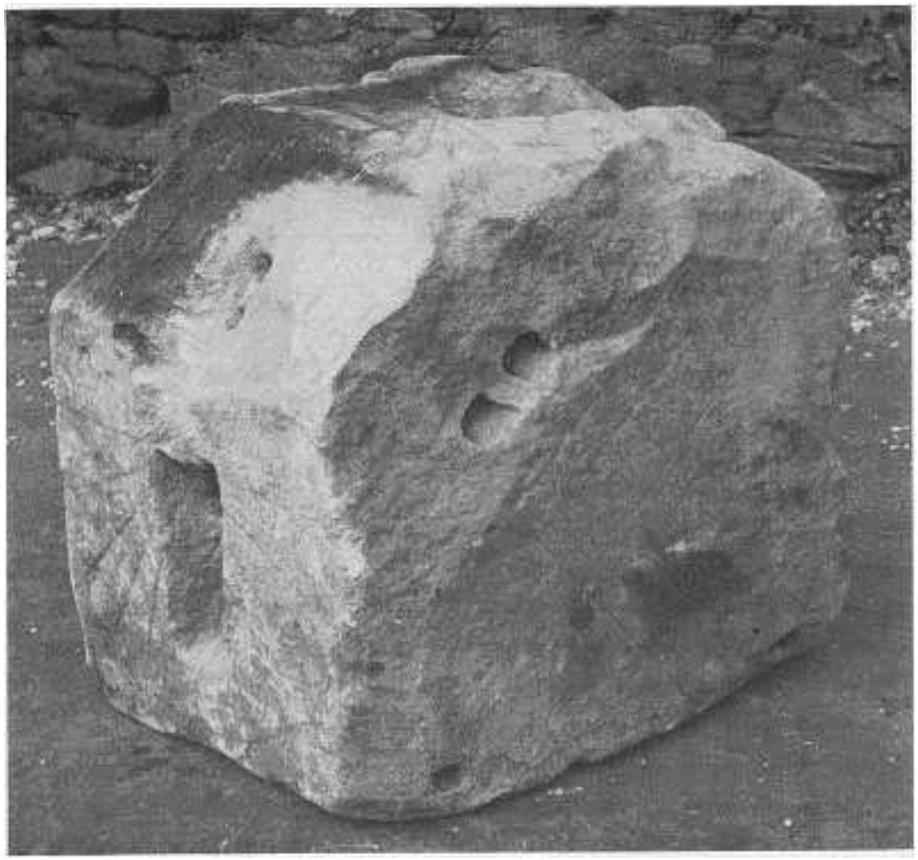


The Nicholas Kratzer sundial found at Iron Acton Court

Sundial is a symbol of eternal life, spirit of eternal love

International Gnomonic Bulletin

By Nicola Severino

nicolaseverino@libero.it

AN EARLY RENAISSANCE STONE POLYHEDRAL SUNDIAL FOUND AT IRON ACTON COURT, NEAR BRISTOL

by G. S. J. White

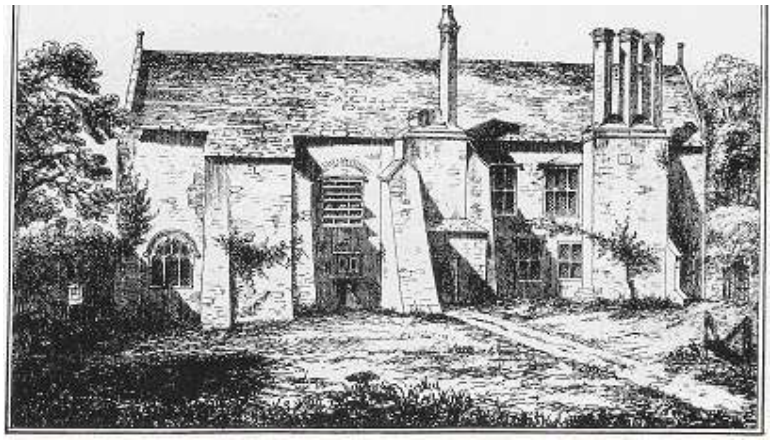


Fig. 1. Iron Acton Court from the East, drawn by Samuel Lysons in 1788.

DURING the summer of 1985, a stone polyhedral sundial was uncovered while a Youth Opportunity team were clearing undergrowth at Iron Acton Court, near Bristol, fig. 1. It was discovered by the secretary of the Bristol Visual and Environmental Trust, who own the building and identified by the author later in the year. It is made from a fine-grained oolitic limestone and now measures approximately 133/4/1 in height, *13314/1* in depth and is 1O1f2/1 wide. Once it was almost certainly cuboid, fig. 2.

Five incised dials survive: a horizontal dial of standard form, in addition to vertical north, south and east dials and a canted south facing dial, figs. 3 & 4. All five, though heavily weathered, retain most of their hour lines, the north, east and south dials retain some of their numbering. Traces of gnomon holes show that a west-facing dial once existed, but this has been roughly hewn away. As a result, both southerly dials, the north dial and the horizontal dial are now considerably out of centre. All six gnomons are missing. There is evidence that they were deliberately removed. Some were broken out of the block, others chiselled free. Fragments of lead which remain in one of the holes on the south facing dial indicate the original method of fixing.

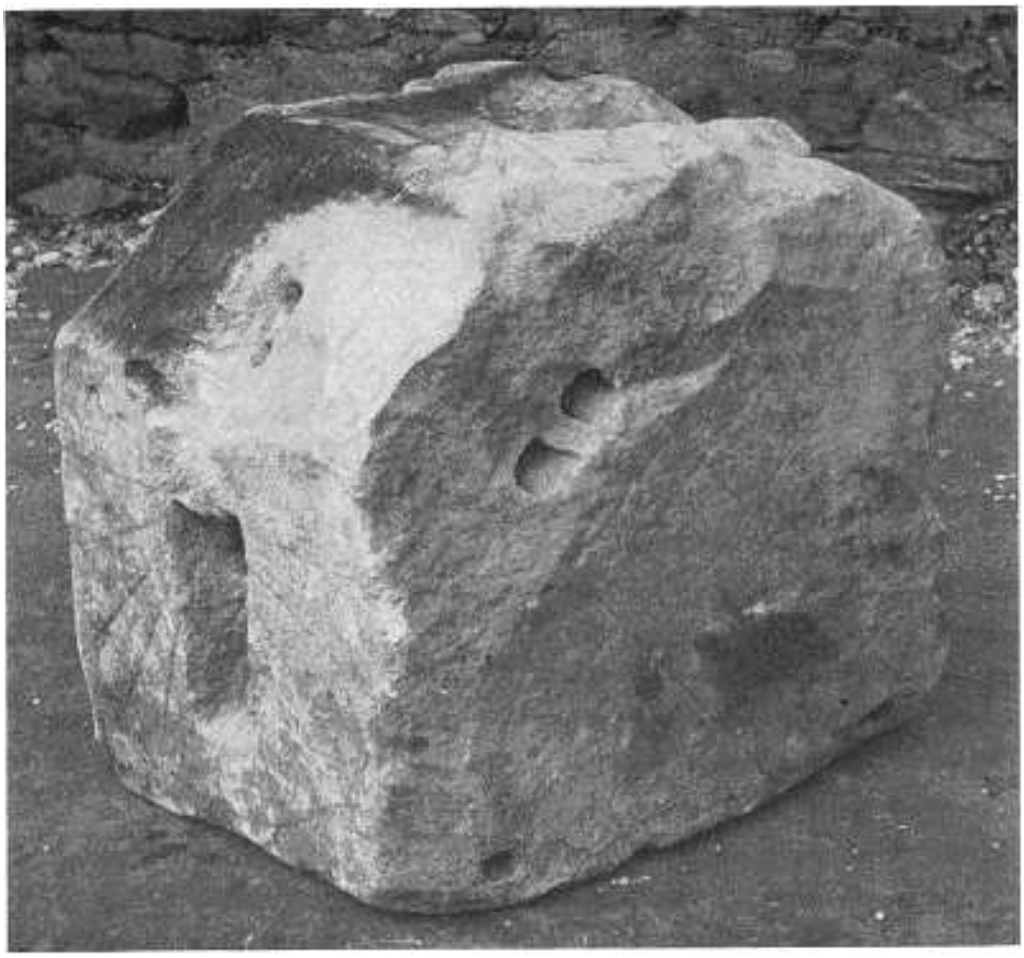


Fig. 2. The Acton Court polyhedral dial, showing the South, East and Horizontal faces.

The north vertical dial, which is by far the best preserved, fig. 5, is of particular importance as it bears the date "1520" and the initials "N .K.". "Mathematical Practitioners of Tudor and Stuart England", by E.R.G. Taylor, confirms that the only major mathematician and astronomer working in England as early as 1520, was Nicholas Kratzer1. The initials on the north dial may fairly be assumed to be his. Dr. John North's "Nicholas Kratzer - the King's Astronomer" 2 describes how Kratzer, a Bavarian, was believed to have come to England in 1517 or 1518 and by 1520 was described by Tunstall as "deviser of the King's horologes". He had been born in Munich, matriculated at the University of Cologne in 1506. He moved to the University of Wittenburg but by 1517 he was undertaking mysterious errands for Erasmus. He posts in England included Tutor in Mathematics to the children of Sir Thomas More, lecturer in astronomy at Cardinal Wolsey's new Oxford college as well as horologer and part-time diplomat to Henry VIII. He was well known to Thomas Cromwell and a friend of Hans Holbein, whose portrait showing Kratzer surrounded by the tools and impedimenta of the dial maker, hangs in the Louvre. A second version hangs in the National Portrait Gallery, London and is reproduced in Cedric Jagger's book "Royal Clocks" (1983)3.

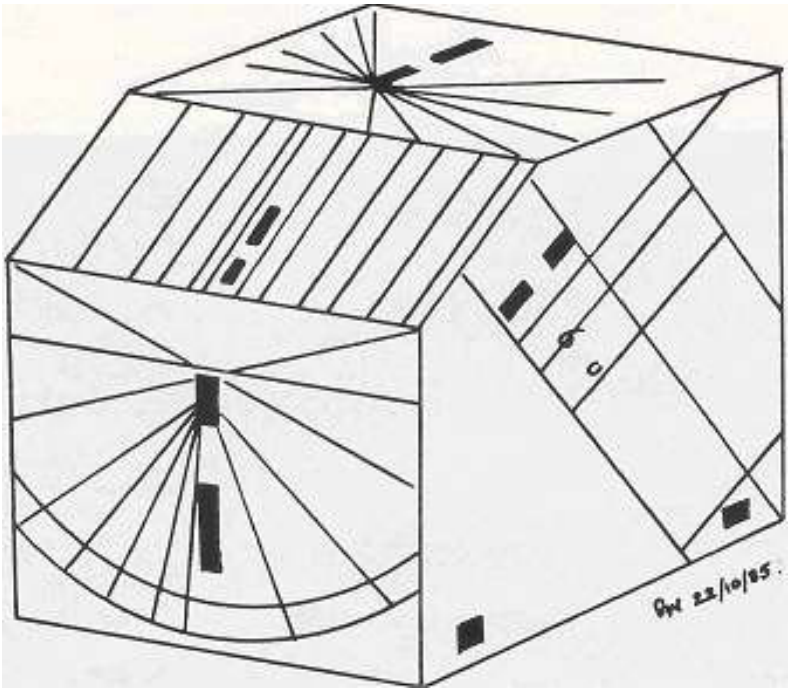
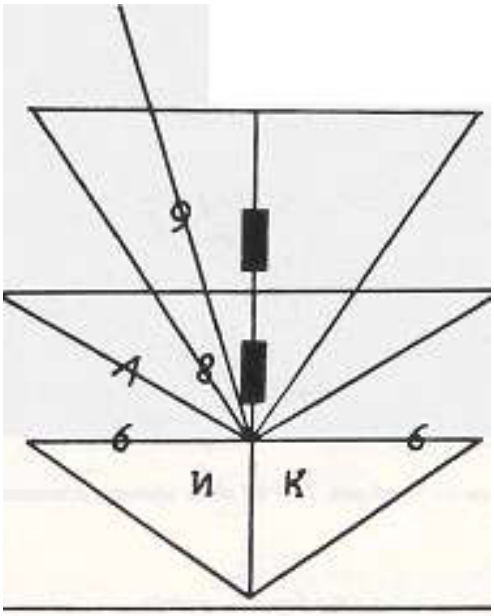


Fig. 3. A diagram showing the surviving hour lines and gnomon holes on the South, East and horizontal dials. The purpose of the two holes at the base of the East dial is unknown.



1520

Fig. 4. Surviving hour lines on the North dial, the date "1520" and the initials "N. K.".

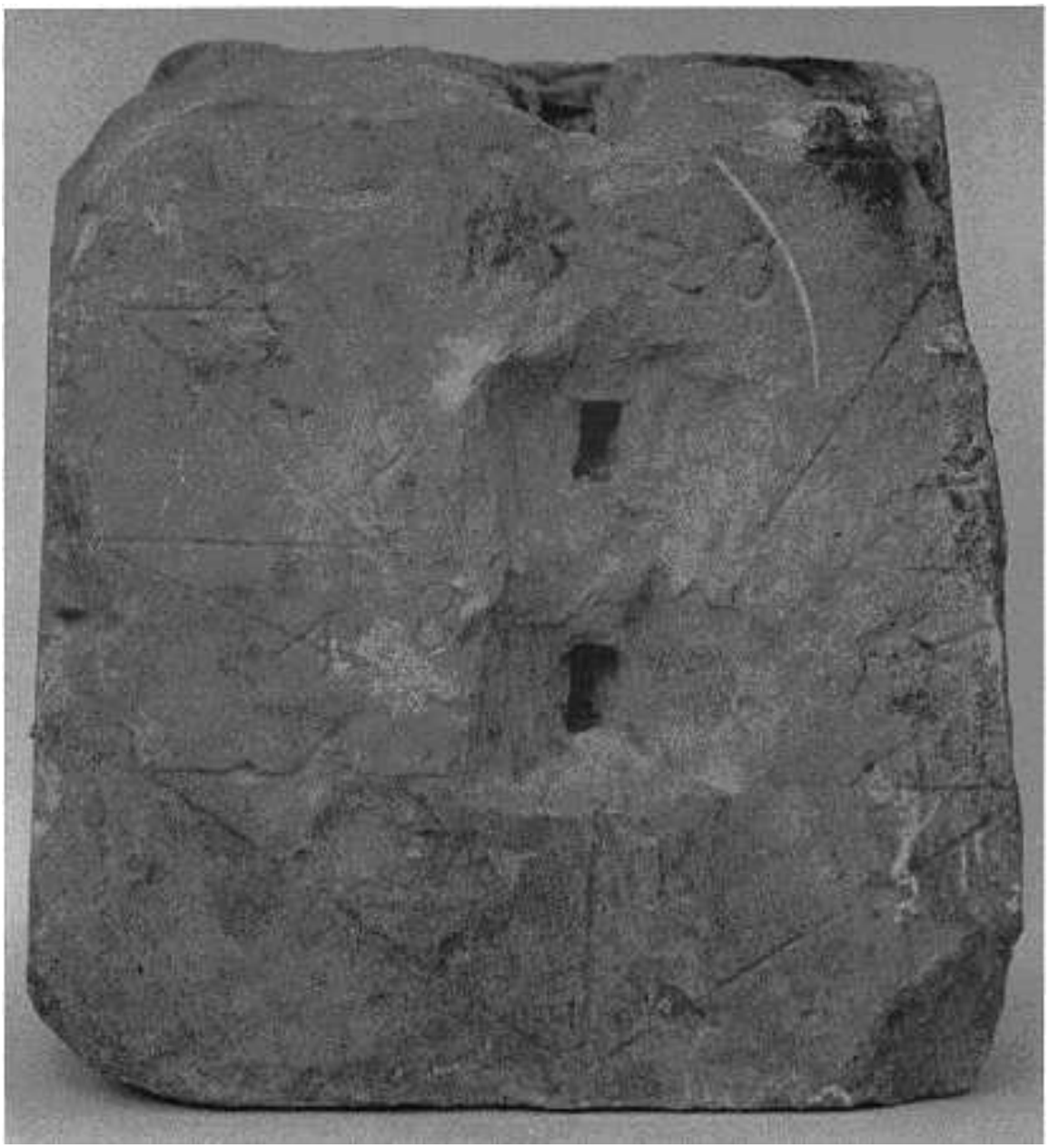


Fig. 5. The faint inscription on the North dial. The '"N" of the signature is reversed in the 16th century manner.

Albrecht Durer's diary of his journey to the Netherlands records (August 1520, the year of the Iron Acton dial): "I took a portrait ofHerr Niclas, an Astronomer. He lives with the King of England, and has been very helpful to me in many matters... "4. This drawing is unfortunately now missing.

Kratzer is known to have made several important stone polyhedral dials during his stay in England. Notable among them were two dials at Oxford, one for St. Mary's Churchyard, the other for Corpus Christi orchards. Sir Roy Strong has attributed the celebrated dial at the Palace of Whitehall to Kratzer6 and a small gilt-metal portable dial (engraved with Cardinal Wolsey's arms, but unsigned) now in the Museum of the History of Science, Oxford has long been thought to have been Kratzer's work7. A manuscript "De Horologiis", containing several drawings of polyhedral dials in Kratzer's hand is preserved at Corpus Christi8. A facsimile page may be seen in "The Book of Sundial's" by Mrs. Alfred Gatty (1900)9.

The extraordinary history of Iron Acton Court, the unimpeachable circumstances in which the dial was discovered, the quality and style of its lettering and the weathered condition of the stone all combine to leave little doubt that the dial is genuine and was originally made for use at Iron Acton 10. If this is so, it must have been commissioned either by Sir Robert Poyntz (whose will is dated 19th October 152011) or his son Sir Anthony. Both had strong connections with the Royal Court and must have known or known of Nicholas Kratzer. Sir Robert, who had entertained King Henry VII at Acton Court in 1486 12, remained in great favour with Henry VIII, becoming Chancellor and Councillor to Queen Catherine. With Sir Anthony he attended the King on 13th April 1520 at the Field of the Cloth of Gold. On the same occasion, his grandaugher attended the Queen. Sir Anthony was captain of one of the 42 ships to sail against agail;1st France u,nder Thomas, Lord Howard in 1513, i.nvaded Picardy with Thomas Howard (by then Earl of Surrey) in August 1522 and commanded the fleet to defend the west coast in 1523 13. He must therefore have been well versed in astronomy and navigation.

The construction and mathematics of the Acton Court dial are of particular interest, because they apparently contain an enigma. The North dial, the horizontal dial and the vertical south dial were (as far as it is possible to measure) constructed for the latitude of Iron Acton (51.55°)14. The canted south facing dial, while appearing to be a standard polar dial, does not slope at the angle of latitude as might be expected, but slopes instead at the complement to the latitude. The East and West facing dials seem to have been similarly calculated. Furthermore, the remaining numbering on the East dial appears to be upside down. No satisfactory explanation has been found, although it has ben noted that the portable dial signed "S*M 1553" in the British Museum has a similar discrepancy in its angles: the "polar" dial also being "wrongly" constructed at 38°.

Unless the Acton Court dial was set up a great distance from the house, its form dictates that it stood to the South, near to the nettlebed in which it was found, fig. 6, the date and initials facing the State Rooms. Brief archaeological investigation by

Bristol Museum has revealed traces of waterworks or some sort of moat in this area and sections of embattled wall remain. This suggests that the dial formed part of one of the earliest Renaissance gardens in England and one of the first gardens to be used for the demonstration of science15. It is the only surviving stone sundial to be attributable to Nicholas Kratzer and the earliest dated English polyhedral dial recorded.

The author is greatly indebted to Mrs. T. C. Brown of the Bristol Visual and Environmental Group who presently own Acton Court and to Charles Allix Esq., Jeremy Evans of the British Museum, Francis Greenacre, Curator of Fine Art, Bristol City Art Gallery, Francis Maddison, Keeper of the lVi\iseum of the History of Science, Oxford and Dr. A. R. Somerville F.S.A. (Scot.) for their help and advice on the sun-dial.

Fig. 6. The derelict South gable of Iron Acton Court beneath which the dial was discovered.

REFERENCES

1. "Mathematical Practitioners of Tudor and Stuart England" E.R.G. Taylor: Cambridge 1954.
2. "Nicholas Kratzer - the King's Astronomer" Dr. John North: Studia Copernica XVI, Science and History Studies in Honour of Edward Rosen: Ossolineum 1978.
3. "Royal Clocks" Cedric Jagger: Robert Hale, London 1983 (Fig.6, page 5).
4. "Albrecht Dilrer, Diary of his Journey to the Netherlands 1520-1521". Introduction by J-A. Goris and G. Marlier: Lund Humphries, London 1970 (page 60).
5. See "The Book of Sun-dials "Mrs. Alfred Gatty: George Bell and Sons, London 1900, for a 17th century description and engraving of the Corpus Christi"dial. (pages 90 & 91).
6. "The Renaissance Garden in England" Sir Roy Strong: Thames and Hudson, London 1979 (page 38).
7. See "On a Portable Sun-dial of Gilt Brass Made for Cardinal Wolsey" Archaeologia LVII (1901) pages 331-334.

8. Corpus Christi Ms. No. 152.
9. Op cit.
10. Iron Acton Court is now regarded as one of the three most important early Renaissance houses in England. Its brief period of great glory lasted roughly from the visit of Henry VII in 1486 until the visit of Queen Elizabeth I about 100 years later. Few alterations were made in the 17th century and the Poyntz family sold up in 1684. The building became a tenanted farmhouse and increasingly derelict. It was described in 1843 as "fast crumbling to decay and ruin" and is now on the point of collapse. The dial was found during preparations for conservation.
11. The will is quoted in full in "The Memoir of the family of Poyntz" compiled by Sir John Maclean F.S.A. (Private publication) 1886.
12. "The King on the.. .day of March took his horse, well and nobly accompanied at St. John's of London and on Tuesday he dined at Acton with Sir Robert Poynes (Poyntz), Sheriff of Gloucestershire". (Memoirs Historical and Topographical of Bristol..." by the Rev. Samuel Seyer M.A., Bristol 1823.
13. Sir John Maclean, op. cit. 14. Dr. A. R. Somerville has calculated a latitude of 51.66° :!: (mean of 18 measurements:!: standard error) with 95% confidence"limits of50.43°-52.89°.
15. See Sir Ray Strong: op. cit.

News Item

Antiquorum of Geneva etc. are now publishing an information Bulletin at the beginning of each year which will review auction prices and give a preview of some of the items to be offered for sale during the coming year
There are also pages dealing with the terminology relating to the shape of hands and cases of watches.

The Gallery is also planning to issue catalogues of items for sale by post. These publications will be deposited at the Guildhall as received.

A stone polyhedral sundial' dated I520, attributed to Nicholas Kratzer and found at Iron Acton Court, near Bristol

Acton Court was the seat of the Poyntz family of Gloucestershire from 1343 until 1680. Sir Robert Poyntz entertained Henry VII at the house in 1486, but the present building constitutes the remains of a major reconstruction by Sir Robert's grandson, Sir Nicholas Poyntz, between c. 1535 and c. 155°. The sundial was discovered there in 1985, lying near the south gable ofthe east range.

It was cut from a 14 in. cube of oolitic limestone and originally consisted of four vertical dials (north, south, east and west), a horizontal dial and a reclining dial facing south. The west-facing vertical dial no longer exists, having been crudely hacked away. All six gnomons are also missing, having been either chiselled free or pulled

out of their sockets.

Many hour lines and some numerals remain legible, despite severe chipping, gouging and weathering. The north side is fortunately the best preserved. This bears the date '1520' and the initials 'N. K.'. Sir Robert Poyntz died in October of that year and was succeeded by his son Sir Anthony. Either could have commissioned the dial. Both men were present at the Field of the Cloth of Gold and both were at that time much in favour with Henry VIII. Their close association with the Court strongly suggests that the initials on the north side of the stone are those of the 'deviser of the King's horologes', Nicholas Kratzer *(1487-c.* 1550).

Kratzer, a Bavarian, is believed to have travelled to England in c. 1518. He is known to have designed several important stone polyhedral dials during his stay, including those for St Mary's churchyard and Corpus Christi, Oxford. The great dial at the Palace of Whitehall has also been attributed to him. None of these have survived, but a small brass dial, now in the Oxford Museum of the History of Science, is believed to have been commissioned from Kratzer by Cardinal W olsey. A portrait by Holbein shows Kratzer surrounded by the paraphernalia of the dialmaker. A copy hangs in-the National Portrait Gallery.

The mathematics of the Acton Court dial are of particular interest as they appear to contain an enigma. The south, north and horizontal dials were calculated for the latitude of Iron Acton (5 1.55 degrees), while the east, west and reclining dials are set out for the complement to the latitude. Three dials would have therefore read correctly and three incorrectly.

The most likely explanation is that the mason became confused when setting out Kratzer's calculations on the blank stone. The gnomons were chiselled out and the block cut down for some other use when the the error was revealed. For if what became the north-facing dial had been used as the base, the reclining dial would have become a standard polar dial and correct angles for the east and west dials would have followed. The inverted numbers visible on the east vertical dial seem to confirm that such a mistake took place. Whether or not this interpretation is accurate, the stone remains of the utmost importance as the earliest dated English polyhedral sundial to be recorded.

G. S. J. WHITE

This note is published with the aid of a grant from the Historic Buildings and M onuments Commission for England.

Thanks for this article to Less God, curator responsible for the Acton Court sundial and to Johanna Bolhoven and David Singleton for support. Thanks to George White for this Nicholas Kratzer tribute.

THOTH OR RE-HARAKHTI?

Dušan Magdolen
Institute of Oriental and African Studies, Slovak Academy of Sciences, Klemensova 19, 813 64 Bratislava, Slovakia

The article discusses the question of identity of the ancient Egyptian deity carved into relief on the sundial found at Gezer.

Asian and African Studies, *8*, 1999, 2, 202–205

History…..

American finds world's oldest sundial in Ireland

By Bairbre Power

An American researcher working in Ireland has discovered what is thought to be the first scientific instrument used by man in a megalithic passage-mound in Co Meath.

Thirty-nine year old New Yorker Martin Brennan, who cracked the code of the earliest form of writing known in the world while studying Irish Stone Age art, made his latest discovery of a 5,000-year old sundial while examining a passage-mount in the Boyne Valley which was first excavated by Irish archaeologists in the 1940's.

In an exclusive interview with the Sunday Independent, Martin outlined the latest, most exciting discovery yet to come from the Boyne Valley.

Measuring a mere 18 inches, the 5,000-year-old stone sundial is divided into eight perfect sections, which enabled its Stone Age creators to tell the time of the day with extreme precision.

And though sundials thousands of years old have been excavated throughout Europe the most recent being a Roman sundial discovered two months ago by German archaeologists experts believe that the sundial discovered under a pile of stone in Co. Meath in 1980 is the oldest and most invaluable ever found.

According to Martin, who has been studying megalithic Irish art for the last ten years, Ireland's megalithic tombs and passage mounds contain a wealth of Stone Age art and astrological material yet to be uncovered, but they are suffering from appalling neglect and some of the most important passage-mounds excavated in the past in Co.Meath have been completely ignored and even blocked up, he claims.

"One passage-mound, which clearly illustrates so far alignment far better than Newgrange does, has been completely blocked up, and for some reason, a lot of attention is being focused solely on Newgrange."

In researching Ireland's megalithic mounds and tombs, Martin says that there is overwhelming evidence that Newgrange, was not first discovered in 1969, as is claimed.

"The solar alignment in Newgrange was written about as far back as 1897 by Irish writer George Russell (A E) who, in "The Dream of Aengus Oge", spoke of a light glowing and obliterating the stone walls and lighting up the antique symbols on the passage-mounds.

"And though American anthropologists and British astronomers were writing about the phenomenon in the 1910's, some Irish people still believe that the secret of Newgrange was only discovered as late as thirteen years ago."

Martin, who is currently writing a book "The Stars and the Stones" for London publishers Thames and Hudson, will be giving a lecture in Dublin tomorrow night on his latest findings.

The lecture, organised by the Irish Astrological Society is being held at Carroll's Theatre, Grand Parade at 8p.m.

Sunday Independent 18/04/82

GRAND RAPIDS CHRISTIAN HIGH SCHOOL ART STUDENTS COMMISSIONED TO PROVIDE QUMRAN SUNDIAL REPLICA FOR PLANETARIUM'S DEAD SEA SCROLLS SHOW

GRAND RAPIDS, MICHIGAN – December 10, 2002 – Three Grand Rapids Christian High School art students have been commissioned to sculpt clay replicas of a sundial discovered in Israel's Qumran community, near where the Dead Sea Scrolls were discovered. The best sundial will be displayed at the Roger Chaffee Planetarium, which is creating "The Dead Sea Comes Alive," a 35-minute multiple video show. It will run concurrently with the Van Andel Museum Center's February 16-June 1 blockbuster, "The Dead Sea Scrolls: An Exhibition of Biblical Proportions."

Grand Rapids Christian High art students got this chance to sculpt sundials, because planetarium volunteer James Muller taught science at the school till he retired in 2000. "The planetarium is writing a special show to explain Qumran's geology, geography, and conception of time during the era that the Dead Sea Scrolls were inscribed. I'm on a committee to help refine the script, and I got the assignment to find someone who could make a sundial replica," Muller says.

"The Qumran sundial doesn't look like modern sundials, which point to the North Star. Instead, the Qumran sundial looks like a Frisbee with a peg in it. Archaeologists interpret the three rings on this sundial to represent the summer solstice and spring and fall equinoxes. The Qumran community centered its culture around what they called *the fifth hour,* roughly equivalent to our noon. Their month went from full moon to full moon. Most Jewish calendars measured months from new moon to new moon," Muller explains.

In the 1950s, archaeologist Roland de Vaux discovered a limestone sundial while excavating the Qumran caves. Until the 1990s, this sundial remained unidentified in the vaults of Jerusalem's Rockefeller Museum.

“Qumran is a fascinating area. I visited it about ten years ago on a Holy Land tour,” says Jonathan Quist, a former youth pastor who now teaches art full time at Grand Rapids Christian High. Quist asked junior Erin Cornell and seniors Andrea Oploski and Justin Dreyer to sculpt Qumran sundial replicas from clay.

“They have to make, dry, carve, fire, glaze, and refire the sundials by December 20, when school ends for Christmas break. The best sundial will be displayed in an exhibit case at the planetarium,” Quist adds.

Grand Rapids Christian High School is one of seven schools of the Grand Rapids Christian Schools, a private, parent-governed, preschool through secondary system serving approximately 3,000 students throughout the Grand Rapids metropolitan area. The high school serves over 1,100 students in grades nine through twelve.

http://www.grcs.org/news/HHCS/Nwsrlss/NR121002.htm

Museum of Science and Industry, of Chicago call 773/684-9844, extension 2207

TIME

This 5,800-square-foot exhibit features the world renowned national Time Museum Collection and contains hundreds of timekeepers ranging from a Roman sundial discovered near Pompeii to an atomic clock used to test Einstein's special theory of relativity.

Quadrant and Ring at St.John’s College - Santa Fe

On the walkway outside Mellon Hall, a quadrant and bronze ring are mounted on a granite plinth. These instruments are described by Ptolemy in his Almagest. The graduated quadrant measures the noonday altitude of the sun, and the ring in the plane of the equator identifies the moment of equinox. The quadrant and ring are used regularly by students in the college's mathematics tutorial to understand the Ptolemaic system of the universe.

http://www.sjca.edu/college/tour/quadrant.phtml

New Mass Dials found at Patrixbourne Church TR1855 in Kent.
Thanks to author Joy Sage of Kent Archaeology Society for permise to use his photos.

The Church of St. Mary at Patrixbourne have two or more skratch dials.

Sundial on North side of West door of Church

Picture taken November 2002

by Pam Connell

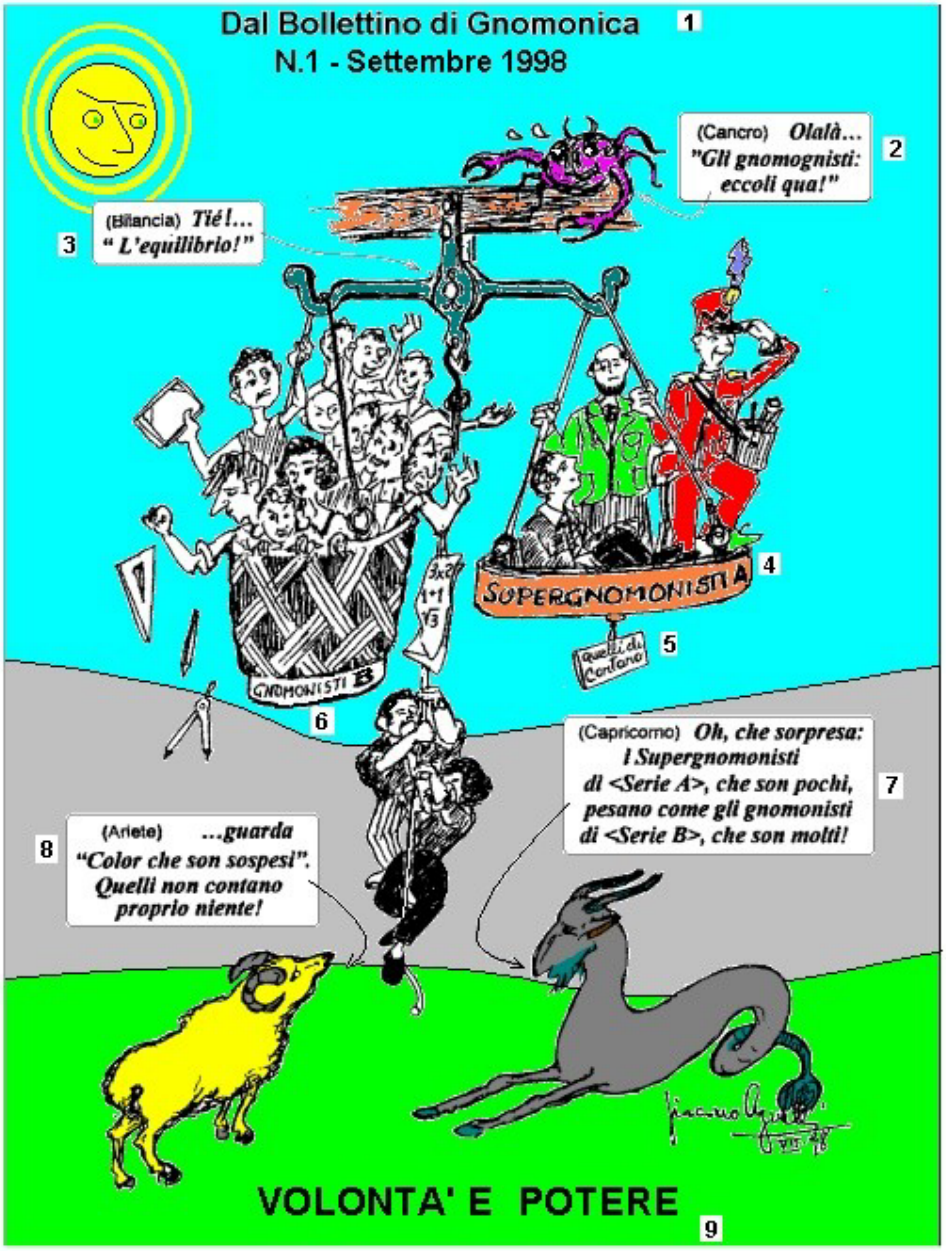
Sundial on North side of West door of Church

Picture taken November 2002

by Pam Connell

http://www.kentarchaeology.org.uk

Giacomo Agnelli Cartoons



English text:

VOLONTA' E POTERE
> (traduzione)
> 1 - from the Bulletin Of GNOMONICA n.1 September 1998
> 2 - (Cancer) Olalà... "The gnomonistis here they are quà! "
> 3 - (Balances) "Tiè! 'the equilibrium' "
> 4 - Super-gnomonisti Á.

> 5 - those that count...
> 6 - (Capricorn) "Oh, that surprise: The super-gnomonisti of <Series> Á.>,
> that little sons, weigh as the gnomonistis of <Serious B>, that are many!
"
> 7 - Gnomonisti B
> 8 - (Aries) "... it looks 'color that suspended son.' Those don't count
> really nothing! "
> 9 - WISH' AND TO BE ABLE