BSS ANNUAL CONFERENCE
Cheltenham – 13-15 April 2012

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The Society's annual Conference was held this year in a hotel-cum-conference-centre in the Cotswolds. This proved very convenient and a surprisingly good location for seeing local dials. The conference followed the long-established pattern in terms of timing and content. Most of the attendees are long-established as well, as is the conference organiser Patrick Powers who did a superb job as ever, but not so our Chairman, Frank King, for whom it was his first in that role.

Frank opened the conference by greeting everyone, particularly first-timers and foreign visitors. He paid tribute, in English thankfully (his *lingua franca* being Latin), to Patrick for the minute detail in which he had planned the conference in order that it, like a swan, should appear effortless.

Chris Daniel, our President, needs no introduction. He commented on the Society's history over nearly a quarter of a century. The founders had in mind the creation of a group of perhaps 30 or 40 members to have fun in sharing their enthusiasm for sundials. The growth, into what is now recognised as a learned society with many hundreds of members and a highly respected journal, wasn't in their minds but has brought great satisfaction. As for the recent members' survey, Chris felt the most important messages were the need to get the young more involved and for anyone with views on things that need to be done to volunteer to do them.

For light relief, Patrick played a recording of an interview on the Chris Evans show on Radio 2. Chris had invited a 'Frank King' to talk about sundials and answer questions for three minutes. Frank's unstoppable enthusiasm gave vent to a performance that would have won points on *Just A Minute* as he didn't let Chris get a word in. Apparently, he's the first guest ever to go right through for three minutes like that. I particularly liked the way Frank compared complex dials to mobile phones – they both have lots of apps! I'm sure Chris's listeners were amazed at the breadth of the subject.

Allan Mills gave the first talk on dialling. His subject was an ancient observatory in a remote part of China with a huge meridian line [see article on p. 2]. As is essential when trying to get a full appreciation of ancient artefacts, Allan considered the various timekeeping needs of the people who made and used it – for agriculture, divination of auspicious events in the heavens such as eclipses and plain old timekeeping. Luckily, records exist of observations made in the observatory. For instance, in the 14th century they established that the tropical year was 365 days 5 hours 49 minutes and 20 seconds. That this is 32 seconds longer than today's figure perhaps implies that the earth's rotation has changed, not that they were inaccurate.

Kevin Karney next brought us bang up to date with a beautifully presented talk on the free software that is available. He showed how Google Sketchup can very quickly make 3D models complete with accurate shadows for any location, date and time, even down to the Equation of Time. Another free program, Nodebox, can be made to draw dial furniture in any form desired.

Kevin also entertained us by recounting the many mistakes he made and problems he struggled with in trying to make a dial similar to those that Tony Moss makes effortlessly. Just how do you etch and cut out a gnomon from 5 mm phosphor bronze? He did achieve it, but it was 18 months late, had cost a fortune and sold for just a few hundred pounds.

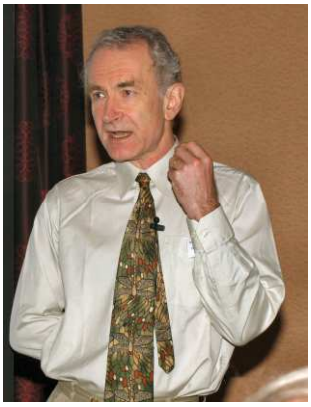
We repaired to the bar for a nightcap. Jim and Jackie Holland, our most faithful American friends, having discovered its delights on an earlier visit to our continent, asked for Guinness. This took almost as long as a phosphor bronze gnomon but was, they agreed, worth the wait. Jackie Jones showed off her sundials in the form of etched beer glasses. A great idea finely executed.

As long-established as much of the conference format may be, Saturday started with a novelty: a discussion forum on the future of the Society. Our Secretary, Chris Williams, has been applying his statistical analysis not to medieval scratch dials but to membership trends and members' responses to last year's survey. Some of the discussion turned out to be rather contentious and may well be documented fully elsewhere. So it is perhaps sufficient here to note that not all agreed that falling membership numbers indicate an alarming trend that we should take steps to reverse. Some excellent suggestions came out of the discussion, such as embracing social media and new technology so as to attract the young, providing members with resources to allow them to teach in schools or to U3A, and

encouraging the BBC to make a programme on the history of dials.

Back to sundials, and Johan Anton Wikander, another regular visitor, told us about two very old horizontal dials found on a Norwegian 'outfarm' – a summer

farm high in the mountains. The dials appear correct except that their 12 o'clock axes are not true north-south. (Summer Time, perhaps?) Johan explained that the magnetic variation in Norway has swung wildly in the past and this allows the dials to be dated, assuming that they were aligned using compasses, to around 1675 and 1875. This seems a most imaginative way to date dials.



Your reporter was on next, presenting more magic with mirrors. This year he has been using just one small mirror tilted, rather like Foster-Lambert gnomons, so as to bisect the angle between pole and zenith. The result is a spot of light that moves in a horizontal or vertical circle, not one parallel to the equator as with the shadow of a nodus. Given the prevalence of horizontal and vertical surfaces, this can make a novel and useful circular dial.

These last sessions had come in under their allotted time, so we had extra to spend admiring and studying the display area during the coffee break. On show were everything from David Brown's replica of a Roman scaphe [see back cover] and a lovely stone-carved dial by Ben Jones to three different heliochronometers. For sale were any number of

portable dials, astrolabes, nocturnals and so on. Also, educational and beautifully decorated kits to make high quality cardboard replicas of scientific instruments such as an orrery. Rogers Turner Books tempted us with tomes ancient and modern.

After the break John Davis, whose talks are as varied as Allan Mills', spoke on excavated dials. The two main sources are amateur metal detectorists, who mostly find metal dials, of course, and professional archaeologists who mostly turn up stone or pottery fragments. Luckily for us, the former source is well documented in on-line databases which can be searched for sundial-related terms. One such lists 73 sundials found by metal detectors, the majority being pocket ring dials. John notes that lead is almost as common as brass for fixed dials that have been found by metal detectors. Norfolk is rich hunting ground, reflecting the fact that Norwich was at one time second only to London.

Next, Martin Hogbin, a recently-joined member at his first BSS Conference, showed us how he had designed and

Around the display area: Ben Jones' 'Diamond' dial; pre-production educational dials from Tony Moss; Ben Jones talks to our Patron Mark Lennox-Boyd; an array of dials for sale on Leonard Honey's stand.

made a garden heliochronometer, which he defined, reasonably enough, as a sundial corrected and calibrated to give time to within a minute. His design thought-processes were familiar to all those of us who have struggled with the same issues, such as how do you draw more than one analemma per hour without them overlapping. (His answer: draw half analemmas, flip the dial every six months. Chris Daniel would approve.)

Fred Sawyer never disappoints. The title of his talk, 'Elliptical sundials, general and craticular', was a typical tease. Fred ran through the early history of elliptical horizontal dials from Brou Cathedral to our old friend Samuel Foster. Samuel was the first to describe how an equatorial (equinoctial if you prefer) dial can be projected in any direction onto any plane so as to create an enormous variety of dials. Many later

students of dialling (myself included) have reinvented some of these, and Fred has had to inform *Sky and Telescope* magazine more than once that Foster was there over 300 years ago. One genuine recent discovery, though, was Hans de Rijk in 1986 with central projection dials. And craticular? Well, that's Foster's term for a dial with a grid of hour lines and date lines and a fixed nodus, rather than a moveable nodus. Fred showed some of the extreme forms such a dial can take – almost unbelievable when you first see them.

After lunch in the hotel we all piled into a double-decker coach for our tour of local dials. First stop was Moreton-in-Marsh, with a very handsome dial declining almost due East [see front cover]. That's a pity as it was by now 2:30 and the sun had already moved on. Next, we headed to Chipping Campden, famous for having over a dozen sundials. We saw seven of them, all along the main street and bearing dates from 1647 to 1691. All declining East again, and all in shadow. Too bad. But I doubt if there's a street like it in this country for sundials.

Our third stop was a village church with a sundial that revealed a second dial behind but largely obscured. It was apparent that the blocks of this dial had been rearranged. We had much fun working out the jigsaw puzzle.

The Gala Dinner is the social highpoint of every conference. The winners of the Sundial Trails prize, awarded jointly by the Society and Piers Nicholson, were announced. There are now 53 sundial trails on the Sundials on the Internet website, of which 37 are high quality but some lack detailed directions and descriptions. Piers invited members to improve these as they can be an excellent way to reach out to the public. He suggested that we should do more to publicise them, perhaps working with local authorities. This year's winner was Darek Oczki for a trail in Warsaw. Runner up was Dennis Cowan for a trail in Fife.

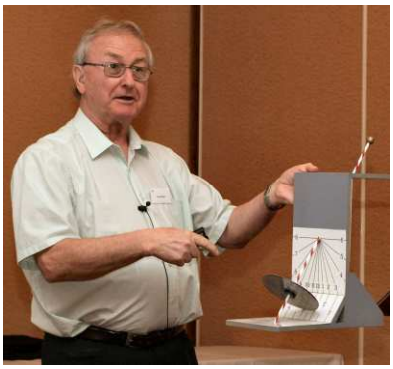
Every few years we hold an auction during the conference. And the joy of every auction is seeing David Young, the Society's beloved first Secretary, in action as the auctioneer's porter. Bargains of the night included 'Sundials on Walls' by one Chris Daniel which a mysterious bidder going under the pseudonym of Doreen Bowyer snapped up at just £6. The star lot was a compass and clinometer which started slowly but saw a battle royal between two mightily determined bidders. Chris Daniel, auctioneer, went up in £1 increments so it took ages but this served only to heighten the tension and laughter as the protagonists fought it out. Eventually the underbidder conceded defeat and a triumphant "Johan Wikander, Norway" won at £105.

Sunday's first session, chaired by Mike Shaw, included two more British sundial designers presenting their dials. First was David Brown, well known for his exquisite hand-carved stone dials. In 2010 he

received the prestigious commission to design and make a large human analemmatic dial, complete with 'Bailey Points', for the Silver Garden in the Olympic Park in London. His problems were many, all overcome in his calm manner, except one. The Silver Garden includes lots of silvery things. Indeed the black stove enamelled lettering he specified for the dial's hour points had to be stripped off. But the unresolved problem was that, immediately south of the dial, the planting of a few 'shrubs' turned out to mean silver birches. In just a few years their shade will render the dial useless.

We never really believed it when Tony Moss announced his retirement and he couldn't resist the invitation to make a last few dials for use in schools to teach their geometry. He designed a combination vertical, polar, horizontal and equatorial dial so as to include as many types as possible. He discussed with us the material and design decisions driven by

A selection of the dials in Chipping Campden.



the need to make not one, not many thousands, but a small batch of dials. It was, for instance, worthwhile to make jigs but not to create injection moulds. In fact, now I think about it, Tony Moss has always been a great advocate of jigs for everything.

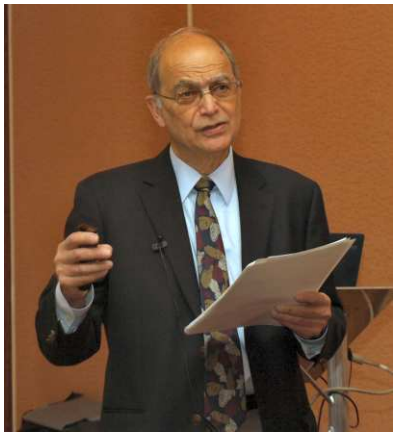
Lastly, Frank King got to use his Latin. Naples, resting place of Virgil, has a new railway station. And that, in a civilised country like Italy, needs art. So it was that a human analemmatic dial was proposed for the station's forecourt – a very grand and very public place. The contractors knew Frank of old and asked him to design a suitable dial. This he did and, like all common-or-garden horizontal analemmatic dials it was elliptical. No good. The client insisted on a circular dial for artistic reasons. Couldn't Frank stretch the ellipse into a circle? To give him credit he didn't simply say 'no'. He said he'd go back to the drawing board. Talking of which, he showed us a photograph of himself at school doing engineering drawing in a class that later included James Dyson. The school had been most reluctant to allow pupils to do both Latin and Engineering Drawing, but he had insisted and Dyson did the same. The rest is history. Dyson's son also did Engineering Drawing, now called Design Technology, and was taught by our own David Brown. As was my own son. Small world.

Anyway, back to Naples. Frank, reasoning that an analemmatic dial isn't an entire ellipse, found that the portion needed – 8am to 4pm say – can be approximated with a circular arc. Job done. Except that it turned out that the

site sloped by 5°. Even if the plan view were circular it wouldn't be truly circular on the ground. More maths. Eventually though, the Carrara marble was in place and the sun shone. Only to reveal that all his exhortations that the site survey must be relative to true north, not magnetic or grid north, had been lost in translation. Grid north it was. Incidentally, both Frank and David told us that using the sun's azimuth had proven more accurate than GPS for aligning a sundial accurately.

A final coffee break and it was time to welcome back Roger Bailey, he of the Bailey Points, from Toronto. He has been studying what are perhaps the very earliest sundials with polar gnomons. Roger feels they are therefore the most important dials in existence. Designed by Ibn al Shatir, the last great Islamic astronomer in Damascus, now in Syria, then part of the Ottoman Empire. Al Shatir's dials of 1371 for the Great Mosque are now in a museum. Complex dials, showing Italian and Babylonian hours, prayer lines for the five times of prayer and equal hour lines for every 20 minutes, they are highly accurate and wonders of geometry. Islamic prayer times are specified by complex functions of shadow lengths. The polar gnomon is not frequently found in Islamic sundials since they were used for much more than telling equal hours time from midnight. Indeed, prayer times were the primary use, for which a nodus, not a polar gnomon, is needed. As a postscript, the death of Princess Neslisah Sultan Osmanoglu, the last imperial member of the Ottoman ruling family, was announced in *The Times* during the conference.

Conferences always end with an invited external speaker of eminence giving the Andrew Somerville Memorial Lecture. This year we were treated to a wonderful exposition on the stunning



story of the meridian line in Santa Maria degli Angeli in Rome. Our speaker was Emeritus Professor John Heilbron of Berkeley and Oxford. He wove a story of such complexity it was difficult to take it all in. In essence, this meridian was created in 1702 by Francesco Bianchini for Pope Clement XI and subsequently embellished on many occasions to record historic events involving the royal families of half Europe including England and Scotland. The Pope had, not surprisingly, attempted to get the Catholic Scottish King James III onto the English throne. James visited Rome where the Pope tried to arrange a marriage between James and his own god-daughter. This fell through as did Plan B when James's next intended married Bianchini instead. All these events and many more were recorded by medallions and other decorations inserted near the meridian line. The Wikipedia of its day.

The line was also a highly accurate astronomical instrument. It was used to measure changes in the obliquity of the earth's orbit and to observe the circumpolar stars. It shows the predicted position of the Pole Star for several hundred years along with many other features relating to the sun and the seasons. What is striking is how this meridian, essentially a sundial, was such an important object in the lives of popes and kings. What a shame we have no such instrument in this country, but how lucky we were to hear this most fascinating story.

To wrap up, to say this conference was as good as any should be praise enough. In many respects it excelled, particularly for lovers of elliptical dials and meridians. I trust this report does it justice and sufficiently expresses our thanks to Patrick Powers for all the hard work he put into conceiving, planning and running it.

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