MIRA

2025.3
Number 124

www.covastro.org.uk
covwarksastro@yahoogroupsco.uk

The Journal of the
Coventry and Warwickshire Astronomical Society

Mike Frost has been visiting both Jodrell Bank and the Standing Stones at Orkney recently

CONTENTS

Orkney Skyscape Archaeology

By Mike Frost

In September, I spent a very enjoyable week on Orkney, attending the Orkney International Science Festival. This annual event draws attendees and speakers from all over the world. This year, the BAA chose to hold its annual "out-of-town" weekend on Orkney, as part of the festival, and organised by our Deep Sky section leader Callum Potter, whose has retired to Orkney. I was delighted to be able to present my talk on the *"The Green Flash"*, which has a strong Scottish theme to it.

Our speaker program started on Friday evening, with a talk by Dr Adam Carnall from Edinburgh University on *"Hunting the First Stars and Galaxies"* with the James Webb Space Telescope, and ran through the day on Saturday, concluding with a lecture by Dr Ann-Marie Weijmans from St Andrews University about the SLOAN digital sky survey; in between were talks by me, aurora section director Sandra Brantingham, solar section director Lyn Smith, and sky notes by Nick James. On Saturday evening, most BAA participants joined a dinner at the Kirkwall Hotel; I had mackerel pate for starters, roast beef for the main (both locally sourced) and cranachan for dessert.

For the Sunday, Callum had organised a Skyscape Archaeology tour to see some of Orkney's many neolithic sites. These days, we, in England at least, tend to think of Orkney as being at the far-end of Britain; but in the early days of human exploration sea-travel was easier than land-travel, and so voyages between Scandinavia and Ireland or the west coast of Britain would often be via the islands.

Unfortunately, because of the cramped nature of some of the sites we were visiting, numbers for the tour were limited, so I was lucky to get a place on the minibus. Accompanying us was an archaeologist, Dr Mark Edmonds, and Dave Craig, who has written for the Journal of the Orkney Archaeological Society and lectured to the science festival. Both were knowledgeable and engaging guides.

Our first port of call was the Cuween chambered tomb, which lies just below the ridge line to the south of the main road between Kirkwall and Stromness. Entrance involves crawling through a narrow, slightly curved entrance passage. Once inside, one can see the various side chambers off the main chamber of the tomb, which may have been used for burial purposes; intriguingly, a large deposit of dog skulls was found in the tomb, dating from 500 years after its construction – no-one knows why they were there. The entrance chamber does, almost, allow a view of the equinox sunrise – but only if you lie on the floor, and look to one side of the entrance, so it's not clear if this was a deliberate alignment.

Maes Howe, as seen from the Barnhouse Stone

We then drove past Maes Howe, one of the best-preserved burial mounds, to nearby Steness, to visit a single standing stone, the Barnhouse Stone, which is probably connected to Maes Howe. Maes Howe was excavated in 1861; in 1893, Magnus Spence, the schoolmaster at Stenness, school realised that the Barnhouse stone was visible from Maes Howe.

The Barnhouse Stone

Why is the stone there? There is a lot of speculation. At the Maes Howe visitors centre (which I haven't been to), I'm told that the video announces *"The [tomb entrance] passage is carefully aligned so that sunset during the Winter Solstice shines straight down it and illuminates the rear wall. During the spectacle the sun's rays align with another stone 88m away, known as the Barnhouse stone"*. However, as Dave explained, this conflates several different facts. You can see the Barnhouse Stone from the back of the main chamber, so perhaps it's there to locate the solstice sunset. But the entry chamber is kinked, perhaps to give a better view of that sunset. And in any case, there is a better alignment in the opposite direction, from the Barnhouse Stone looking back over Maes Howe, where the summer solstice sunrise is on the (higher) horizon – the difference in horizon altitudes gives a better fit. Dave Craig has made careful use of the wonderful Stellarium program (which I have used, for example, to check planetary visibility during 12th century eclipses) to check the viability of these alignments during the Neolithic time. His watchword is that you have to be very careful when hypothesising such alignments – many are simply incorrect.

To the north-west of the Barnhouse stone runs a narrow isthmus of land, separating the sea loch of Stenness from the freshwater loch of Harray. There is a narrow channel connecting the two, with a modern-day bridge over it; perhaps a similar bridge existed in neolithic times, when water levels were lower. Just before reaching the bridge is the Steness stone circle, an elliptical and probably only partly built collection of large stones. (See photograph on the cover) Sir Walter Scott, on visiting the stone circle, decided that it had to have been a location for human sacrifice, and re-arranged one of the stones on top of two others to give a flat surface suitable for such sacrifices; this lasted until the 1970s, when the local rugby club, on a night out, decided to do their own re-arrangement, and returned the flat stone to the ground. Such vandalism is nothing new; in the 1870s a tenant farmer, fed up with having to plough round the stones, pulled several of them down; when the local villagers found out, they threatened to burn his house down if he pulled down any more stones. Mark Edmonds made the point that the stone circles were not built for our modern-day benefit; what we see is simply what has survived.

Mark's recent research, on behalf of the University of the Highlands, was carried out on the isthmus, just to the north of the bridge. In the 1980s the occupant of the farmhouse on the isthmus dug up, by accident, what turned out to be part of a building. Archaeologists were called in, and to their astonishment, found a large settlement on the isthmus, with large, sturdily built buildings. One unexpected find was the jaw bones of 400 cattle, which DNA indicated were slaughtered at around the same time. Perhaps this isthmus and the stone circles on it were the site of large gatherings. Mark showed us some of the artefacts found on the site.

The final site on the isthmus was most impressive of all – the famous Ring of Brodgar stone circle, 100m in diameter, with 21 of the original 60 stones still standing. The ring is surrounded by a number of cairns, and a single stone to the south-west, looking back toward Stenness. This was called the "comet stone" and so of course we took a photo with the comet section director, Nick James, standing by "his" stone. The stone is used today for marriage ceremonies, perhaps echoing long-ago usage.

The Ring was made famous by a 1973 paper by Alexander Thom, *"A megalithic lunar observatory in Orkney: the Ring of Brogar [sic] and its cairns"*. Thom claimed that the cairns marked the directions of the "lunar standstill", the furthest extent of lunar setting, which is reached every 18 years (and was reached at the sunset of 2025 September 1st). However, Mark and

The Ring of Brodgar

Dave were sceptical about Thom's analysis. The cairns date from the bronze age, centuries after the stone circle; and the ring is on sloping ground, making alignments suspect ("the car park would have been a much better site"). I am a little more sympathetic, having heard Simon Banton's entertaining lecture on the standstill alignments of Stonehenge – but I bow to their superior local knowledge.

Our final destination was the Unstan Tomb, 2km to the west, on a promontory jutting out into the loch of Stenness. The tomb is stalled rather than chambered, with a number of dividing stones partitioning the tomb. The roof of the tomb is missing but a modern-day ceiling has been built over the tomb, allowing some light in to let us see what is there. For this tomb, the entrance chamber points towards the channel between the two sea lochs. Was this tomb built to honour an important chief, giving a view over the isthmus? We can't know for certain, we can only guess.

Indeed, the overwhelming feeling I took away is of how little we know of this clearly rich culture, 5000 years ago. The alignment of stones and tombs give us some clues; the artefacts and skeletons excavated give us others. But we know so little as to what went on here; why people gathered, what was their significance. Orkney has an extraordinarily rich landscape of neolithic monuments - the next day I visited another wonderful neolithic site, the village of Skara Brae - and I would commend the islands to you.

The entrance to the Unstan Tomb, with the feet of someone crawling into it!

A Picnic at Jodrell

By Mike Frost

The picnic party (image by Beverley McConville

Every year, the Society of the History of Astronomy holds a picnic in a site of astronomical interest. For 2025, we picked Jodrell Bank as our meeting place, and on Friday 27th June, fourteen SHA members and guests gathered at this iconic location in the Cheshire countryside.

For most people, the day began with the picnic. Jodrell Bank has several cafes, but the weather was warm and sunny, so we were able to eat a proper outside picnic.

After lunch, we explored the site, which has undergone substantial renovation in recent years. The most impressive addition is the First Light Pavilion, which features an excellent interactive exhibition, and the Space Dome cinema, in which we watched two short movies, one on current activities at Jodrell Bank, and the other, narrated by Brian Cox, giving a more historical perspective.

To the north of the First Light Pavilion is an arboretum, worth a stroll round; but the main attraction – of course! - is to the south: the giant Lovell telescope and its three siblings, the Mark II, 42-ft and 7m radio telescopes. There is a walkway round the Lovell scope, with plenty of information plaques and a seat commemorating the late Ian Morison, who was well-known in both the amateur and professional astronomy communities, and a speaker to this society in 2021. There is also the Space Pavilion, a home for temporary exhibitions. To my surprise, the exhibition for 2025 was built around the Royal Astronomical Society's 200th anniversary quilt, which I hadn't seen in real-life before. The accompanying film featured, among others, RAS librarian Sian Prosser (a speaker at the upcoming SHA AGM) and Karen Nyberg, ISS astronaut and the first

The Lovell Quinta arboretum at Swettenham

quilter into space.

Most of the attendees, including me, rounded off the visit by attending the astronomy talk given by Martin, one of the interpretative staff. This was aimed more at casual visitors rather than astronomers such as us but was still entertaining. And the Lovell dish, which had been stationary all day for maintenance work, finally sprang to life so that we could watch it moving, through the windows of the Wolfson Auditorium. Then it was time to "exit through the gift shop", passing underneath the planetary orrery which hangs from the ceiling of the Planet Pavilion.

There was one last stop for a couple of us. Bernard Lovell, who drove forward the building of the first radio telescope, lived in the nearby village of Swettenham, and one of his projects later in his life was the building of another, larger arboretum on the outskirts of the village, overlooking the River Dane valley and the Holmes Chapel railway viaduct. There are short, medium and long self-guided walks available, and I took the longest option, strolling round for half and hour or so before enjoying a burger and a pint in the Swettenham Arms.

Excellent day! Thanks to everyone who came along.

The RAS quilt

Raw Sky

By Mike Frost

Mark Tweedie is well-known to members of this society for his outstanding images, which he regularly presents at meetings or to our Whatsapp group. But there is more to him. In July, Mark announced that he was exhibiting many of his photographs and sketches, and some of his poetry, at an exhibition, *"Raw Sky"*, in Rugby's Floor 1 Art Gallery. Mark was co-exhibiting with Clint Hamilton, whose specialities are collage and painting.

The exhibition ran from August 19th to September 6th. There was a launch party of Saturday August 23rd and Mark gave an informal talk about his work on Saturday August 30th. I was able to attend the launch party and the very the very first people I met as I entered the library were two old friends, Mark and Mary McIntyre, who I'm sure will be well known to members of this society, as Mary has given us several talks. Mark Tweedie is an alumnus of one of Mary's sketching classes and the two are good friends.

Floor One Gallery is a smallish exhibition space on (guess!) the first floor of Rugby's library. Mark had around twenty works on display, and Clint five or six larger works. Clint's collages were astronomically-themed works built up from discarded waste (sometimes clearly branded), raising themes of what we are doing to the natural world, and even the space junk in Earth orbit and on the Moon. *"Ejecta blanket"*, for example, played on the astronomical concept of debris ejected from meteor impacts such as that which created lunar craters, but was a literal blanket of discarded items.

Mark's contributions fell into several categories. There were a number of the exquisitely-detailed images that we are used to – for example, a series of images of the Moon, over several nights, which show the lunar phases. Each of these images was a mosaic compilation, so the detail really was exquisite, and Mark provided a magnifying glass to allow more detail

Mark and Mary McIntyre at Rugby Art Gallery

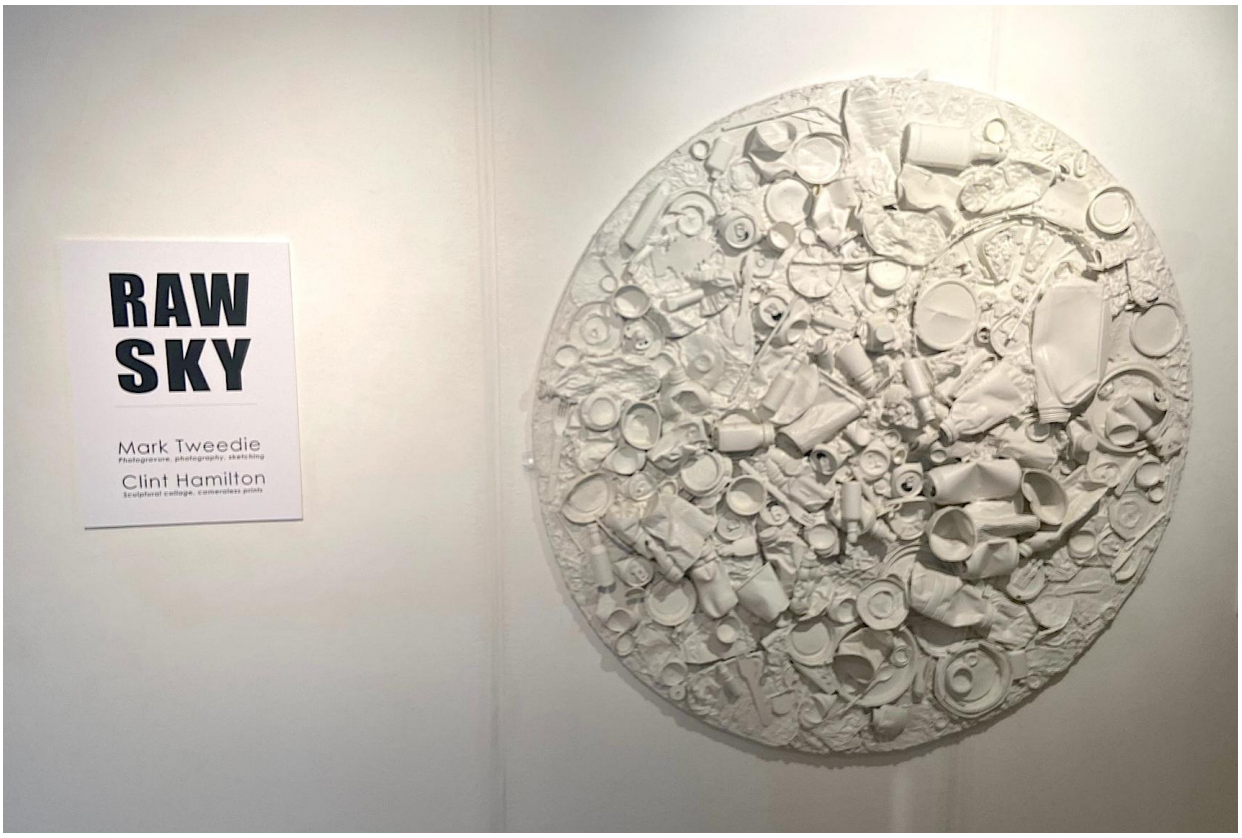
to be seen. There were also a series of sketches of lunar features, arranged in a linear display, separated by lines of a poem, *"A Song for Night"*, and bookended by to-scale images of the Earth and Moon.

The most impressive exhibits, to my mind, were a series of black-and-white photo-gravure deep sky images – the Elephant's Trunk nebula, globular cluster M10, the Moon and Pleiades, Horsehead nebula and several others. These were evocative images. Mark explained that he chose black-and-white to try to convey something of how these objects appear visually through a telescope, or perhaps to an interstellar traveller actually visiting them.

I was intrigued to see what people would make of the images. Aside from Mark, the McIntyres and myself, there were no other astronomers at the launch, but plenty of people from Rugby's art community, who were appreciative and encouraging. I discussed the Elephant's Trunk nebula with one lady, who said that she saw not a trunk, but a female figure, somewhat ethereal – just as legitimate an interpretation of the image, of course.

I enjoyed the launch event (free Prosecco helped!) and thought I wouldn't be able to attend the second event, a week later, at which Mark explained the motivations for his work, and the techniques he used to produce the works; however, a cancellation meant that I was able to attend. Photogravure is something of a throwback to the early days of photography, when there was a need to be / able to reproduce photographs. One technique was to take a negative image, shine light through it onto a photo-sensitive surface and produce a

Wall with Mark's black-and-white photo-gravure deep sky images



Clint Hamilton work specialities are collage and painting

3-D version of the image, with grooves which could be filled with ink, and then pressed onto paper to produce multiple prints. The prints are very impressive and popular with the visitors. Mark also spoke about his desire to connect to the universe, and to convey a sense of scale of the universe.

I was very impressed with the exhibition. Mark is doing a great job of bringing astronomy to a new audience. And the images are outstanding.

Well done!

Web Addresses

www.ragm.co.uk/floor-one-gallery
www.marktweedie.co.uk/blog/2025-07-11-raw-sky-exhibition/