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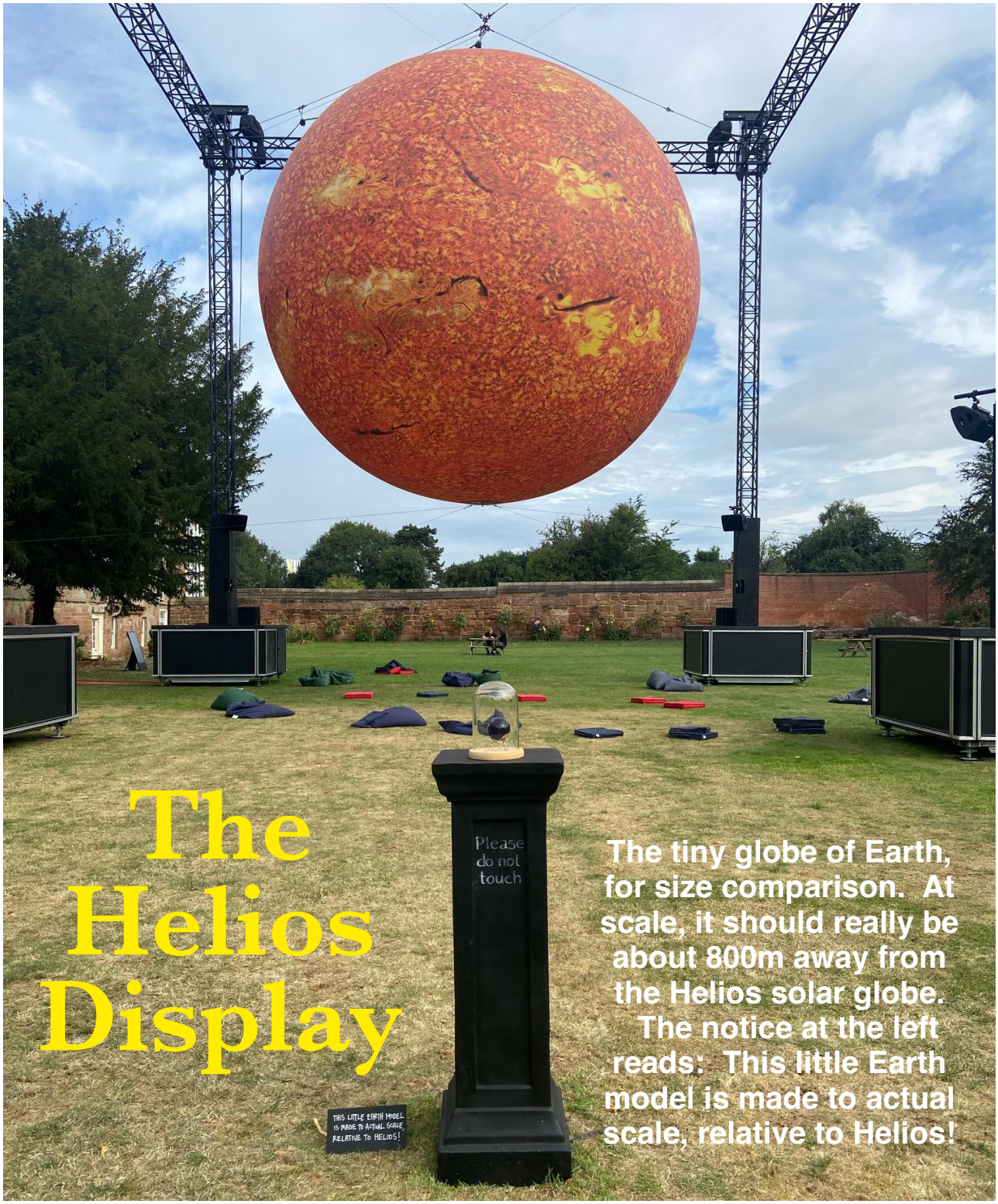

The Helios Display

The tiny globe of Earth, for size comparison. At scale, it should really be about 800m away from the Helios solar globe. The notice at the left reads: This little Earth model is made to actual scale, relative to Helios!

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Helios at Charterhouse

By Mike Frost

The Helios display, with the Charterhouse to the right

The British artist Luke Jerram specialises in large-scale accessible installations. His last three works have all have been large-scale models of astronomical objects. I have written before about "The Museum of the Moon", the Moon globe which I have encountered at Coventry Cathedral, New Scientist Live, and in Cheadle, Staffordshire, at the celebration of the moon-mapper extraordinaire Mary Blagg. Jerram followed up the Museum of the Moon with a large-scale model of Mars (also displayed at New Scientist Live); Gaia, a large-scale model of Earth; and for his latest installation, he has moved on to the Sun.

Helios is advertised as a 1-200 million scale model of the Sun. As the Sun is 700,000 km in radius, that makes the size of the model 7m in diameter. Quite impressive! On the surface of the model is projected solar imagery taken by the Parker Solar Probe and other NASA spacecraft and astro-imager Dr Stuart Green: sunspots, filaments and so on. This wasn't a genuine snapshot of the Sun, as we don't yet have full coverage of the solar surface; indeed, we have only just observed the solar South Pole, so I guess a few compromises have been made.

Helios was jointly commissioned by the National Trust, Cork Midsummer Festival, Liverpool Cathedral, the Old Royal Naval College, Greenwich and University College, London. It's now on a tour of establishments connected to these organisations. It first went on display at Greenwich from January to March and is now touring National Trust venues around England – Basildon Park, Berkshire; Clandon Park, Surry; Fountains Abbey in Yorkshire and Kedleston Hall in Derbyshire. But its first port of call was a recent addition to the National Trust's portfolio – the Charterhouse, in Coventry.

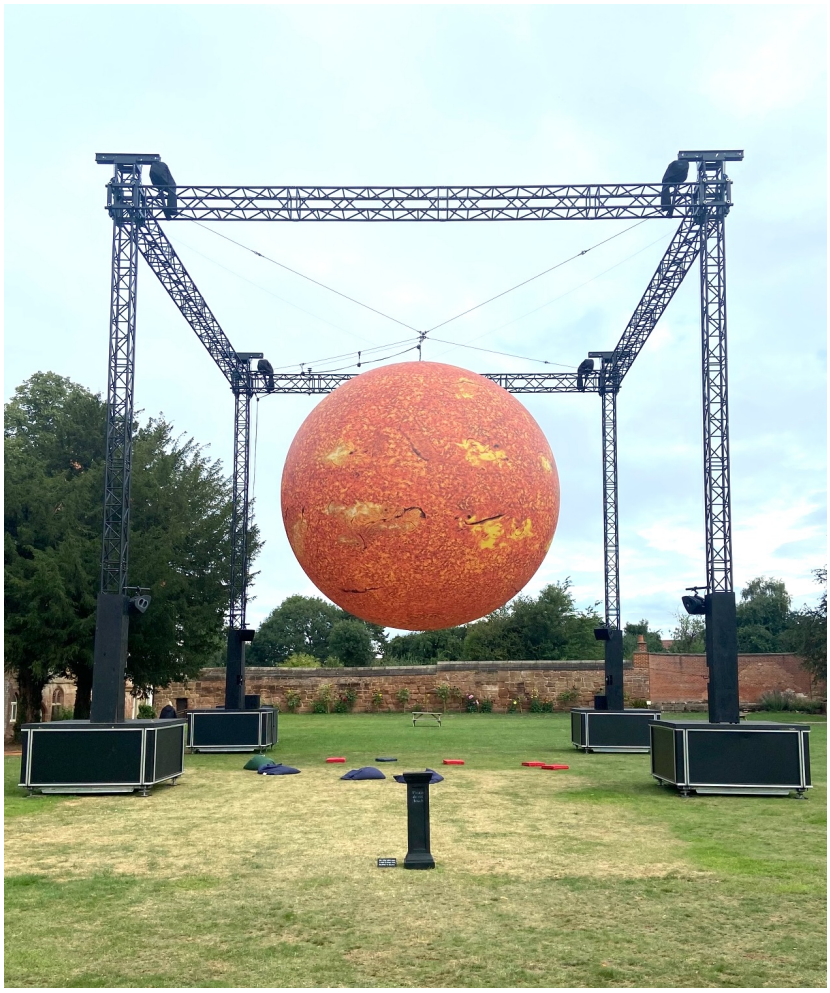
Charterhouse is a medieval monastery dating from the 14th century, containing unique wall paintings from the medieval era, and a beautiful garden, which used to be tended by the monks. It was owned for many years by Coventry City Council, who didn't really know what to do with it. They tried to sell it and then handed it over to the Coventry Historical Trust, who opened it to the public in 2023 but struggled to make it pay financially. The site is now in a partnership with the National Trust, and I think this is a good idea, as I'm sure the National Trust can attract a wide range of visitors from across the country.

Helios was on display at Charterhouse for two consecutive long weekends – 1st – 3rd August and 7th - 10th August. It was displayed outside, within a large rig on the lawn, close to the house. The staff put out deckchairs and beanbags for attendees to sit on whilst they admired the view. The display was static, although the model Sun twisted a little

in the breeze. There was an accompanying soundtrack, created by artists Duncan Speakman and Sarah Anderson, which was a seven-minute loop, directed into the interior of the installation. There was even a scale-model of the Earth, next to the rig, for comparison – it's startlingly tiny, of course, centimetres in diameter, and way too close to the Sun; it should have been hundreds of metres away.

I visited Charterhouse first thing on a Sunday morning, as the weather forecast for the rest of the day was iffy. So, there weren't too many people there, primarily staff setting up for the day. I had a chat with two of them; they were enthusiastic about the installation, especially the evening sessions, which were ticket-only and had sold out. In general, they were delighted with the response to the artwork.

And I was impressed with it, too. It gives the general public a sense of the size of the solar system, and a snapshot of the dynamic activity of the Sun. The National Trust say they commissioned it to mark the launch of their 10-year strategy, and I think it's a bold and imaginative way of bringing something new to visitors – both art and science. If you haven't already seen it, I hope you get chance to see it in future.



Helios in its rig

https://www.nationaltrust.org.uk/who-we-are/news/helios

https://ornc.org/whats-on/helios/

www.lukejerram.com

Dyfodol

By Irene Rogers

The title "Dyfodol" is Welsh for "the future". The "f" has the sound of a "v", so the word sounds like "Dervodol".

It all started when the Neander youngsters found the tunnel. Until that time, my life was safe and, some would say, as boringly predictable as the sun coming up in the morning and going down in the evening but then it all changed.

The youngsters had been exploring their wall paintings' cave when they found a hole in the wall and, being as inquisitive as all youngsters are, poked and poked until they broke through. . . into the tunnel.

They found bones, skeletons and desiccated bodies.

Now, burial grounds to the Neanders are sacred places; places of superstition, ritual and never to be disturbed for fear of some spiritual retribution.

Their alarm alerted me – after all, I am

their liaison between the bots and themselves. I investigated – it was a very tight fit getting through that hole – but, not only were there the remains, human remains, there were also containers of books with words, books with words and pictures and other, strange things.

Now, I like books. I've read all the books the bots have produced for us as part of their "enriched environment" remit so I was amazed and pleased to find that these books were in the language my human community uses.

The first ones I opened were titled *"National Geographic"* and they stunned me. There were pictures of a world so strange and terrible I half-expected them to be the spiritual retribution the Neanders feared.

In the *"National Geographic's"* world, the people were different. They looked as humans as any in my community, not the Neanders, but they still looked different and they dressed differently – even from each other. It had to be a make-believe world, there was nothing like that in my real world. We have ponies, they have cars, so very many cars, and they lived in buildings that reached up into the sky and crammed so close together they were like the reeds in our reed fields.

I started reading. Their world was compelling. There were pictures. Their animals were like no animals I could ever have imagined: rhinos with horns and battle plate bodies; giraffes with long, log necks, and elephants with long, long noses but all "endangered species" and kept in "Reserves" to prevent being hunted to extinction. I understood "hunting", the Neanders used to do it, no rabbit was safe, but now they just fish – more available prey.

They found bones, skeletons and desiccated bodies

Completely oblivious to the bones and bodies nearby, I read and read, only stopping when my lamp's battery started fading and my head ached – probably from the tunnels' stuffiness, although there must have been a ventilation point somewhere.

I left the tunnel. I suppose I should have informed my Neander liaison bot, Frank (I call him that because the squiggles on his casing look a bit like the word) but the Neander population absolutely hate bots and there'd be a riot if any went anywhere near their wall paintings and, besides, there was just something so unreal and unsettling about the whole situation.

I had nightmares for the next few nights of a world so different from ours. The pictures in the *National Geographic*; strange people, strange animals, strange landscapes played through my dreams like whirlwinds but I went back. I kept going back, I had to know more.

Among the books and things was a notebook written by. . . he called himself, "Journalist". The notebook had a title; "2084, the year of the beginning of the end.

In 2084 – whenever that was – the population of his world, the world of the *National Geographic*, was 15 billion and rising and it was in a mess. There were social inequalities, financial corruption, environmental pollutions, wars and famines. At first, I didn't know what these things were but the more I read, the more I understood.

Then came the fires, the floods and the diseases; diseases that spread quickly through his world from living thing to living thing; killing millions but eventually being contained by drugs and human resilience. Journalist wrote that there were "conspiracy theories", some talk of the diseases being created in foreign laboratories specifically to kill the most vulnerable and, therefore, the unproductive but there was never enough proof at that time.

There was a map showing how the diseases had spread across his world. I saw no real, personal significance of that…until it referred to pages in a book called *"The World Atlas"* that was among the other books. I looked in it and cross-referred to Journalist's text and that's when I learned that his world was my world too. My head spun; but my world – the only world I have ever known – was just a collection of islands in an area of blue called *"The English Channel"* and, what's more, they were too small to have their own page, only an insert in a corner.

Of course, I have always seen the outlines of

the two big islands in the distance but I never knew that behind those were even bigger ones; massive ones called "continents" where the billions of people like us live. . . or lived until 2084.

A feeling of dread seeped into me but I read on. There comes a point where you have no choice but to carry on.

The next thing to happen on his world was what he called, the "loss of human autonomy". Almost everyone alive on his world at that time was connected to machines in the sky called "satellites".

Now, I don't understand "autonomy" but I do understand machines in the sky. Our communities are regularly overflown by Skybots. They don't do an awful lot but they're useful if the Neanders get rowdy after they've had one of their alcohol-infused sacred ceremonies. Sacred they may be but I'm sure that for some of them, they're just an excuse for a punch-up, usually among themselves, but occasionally spilling over into our community. Brief electroshock stuns from on high are pretty good peace restorers but there's no other connection with the Skybots.

The connection on Journalist's world seems very strange to me. He calls it the time of the "nanonanny state" where people were so connected by machines called "technology" to the satellite machines, they stopped thinking for themselves. "Technology" practically lived their lives for them, controlled them and slowly reduced them to becoming mere consumers of. . . more technology. Journalist writes that, initially, it was the result of clever and powerful marketing by clever and powerful people but, gradually, he could see that it was much so more than that. He joined something called "extinction rebellion" and became an "off-gridder."

I have spent such a long time making sense of all these new words and phrases that I am sure my brain has to be much bigger now than it was before the Neanders found the hole.

It appears that Journalist was right to be concerned because what happened next were what he called the "techno-executions". Some kind of electromagnetic shock impulses were sent down the connections from the satellites to the people and killed them. The quickest to die were those who wore their technology on their heads or elsewhere on their person. The most horrific were those trapped in cars with exploded batteries.

Shocked, I moved away from my lamp and sat in the dark until I had got enough composure I suppose to climb through the hole and back into my world where, luckily, the sun was shining and everything was as it should be.

I kept going back, I had to know more

I went back, eventually. How could I not? Journalist hadn't finished. He was an off-gridder, a survivalist. He said there will always be survivors.

Answers had to be found. Who was behind the techno-executions? Some fantastic theories of, as Journalist put it, James Bond-type megalomaniac villains hell-bent on ethnic cleansing and world domination. I didn't understand any of that but I did understand when he described the fighting. I've experienced fighting between the Neanders and my human community but, unlike those. . . skirmishes really, the fighting on Journalist's world was massive and spread over the continents, each side blaming the other. I regularly look over to the two big islands in the distance but I have never, ever seen or heard. . . anything. According to Journalist, the death toll was immense but because robots, their bots, were used to dig the holes and bury the bodies, it could only be estimated.

It was then that Journalist started talking about what he called *"The Great Cull"*. I don't know where the term came from but it started a whole lot more theorising. It wasn't long before a group of humans came up with the theory that the techno-executions had to be result of unfettered technology. It was common knowledge at that time that their robots, their bots, could think for themselves, solve problems and produce solutions that were much better, faster and more effective than any human could. A fear grew that the robots could effectively take over the world and make humans redundant. Clever humans said it could

never happen; there were always safeguards but not-so-clever humans – and there were many more of those than the others – said it could and they started the process of limiting bot capabilities.

I've never really thought much about bots. I mean they're just bots, aren't they? I've grown up with them. They've always been around. Unobtrusive and undemanding. You hardly notice them. Skybots in the sky, and skimbots on the surface. I couldn't imagine any of our bots techno-executing anyone.

But the not-so-clever humans were right. Journalist calls it *"Earthworks"*.

I have since read the books that explain this to me. Underneath all the big islands – the continents and the waters they're in – there are things called "tectonic plates".

The bots had the power and knew where to apply it so they shook them – like you would tidy your rumpled blankets – the results were earthquakes, landslides and, what was worst of all, tsunami, great terrifying mountain walls of water that swept over the continents and cleared the humans and their buildings away.

But, as Journalist says; there are always survivors. He obviously was one. The last entry in his notebook summarises from what had been billions of people in his world, only a few thousand in scattered groups world-wide survived and, incredibly, as he describes it, the bots then classified them as an endangered species (like the rhinos, the giraffes and the elephants) and decided to keep them and selectively breed them as specimens in reserves or controlled communities to prevent their extinction.

He was an old man by then. He and his group of survivors decided that they could not end up in a reserve, so he hid his notebook and other books in a sort of time-capsule for me and people like me in the future to find in the old, underground military hospital on Guernsey and they committed group suicide.

I looked at the skeletons and the desiccated bodies. Journalist was among them? I sat and gazed at them until the light from my lamp had gone.

I took two of the *National Geographic's* with me and closed up the hole in the wall. I'd not be disturbing them again.

Next day, the weather was sunny but not my mood. Frank, my liaison bot, approached me. I looked at him, he usually displayed a "Bots know best" panel but not today.

It's difficult to define any relationship with a bot as "good" or "bad" or otherwise since they don't exactly share. However, I used to think the one I had with Frank is as "good" as it can ever be. And he always tells the truth, I don't.

"I have noticed," he said, "that you have been using more than your usual amount of power recently."

My lamp, I suppose.

"I've been reading late at night. I found some old books."

"Where?"

"A hole in the ground. The children dug them up."

There was a silence. I didn't know how to proceed so the silence stretched then I made my decision.

"They talk of the "Great Cull". What was that?"

There was a pause while Frank is, presumably, either communicating with other bots or checking his memory circuits.

"The Great Cull," he says eventually, "refers to the period of cleansing this planet, this world, of humans."

Even though I already knew, the confirmation chilled me.

"Why?"

"They were heading for extinction anyway and taking most other lifeforms on the planet and the planet itself with them."

"And your solution, the bot solution, was to cull them. . . us?"

"Your species debated solution after solution; some good, some bad but no leaders had the will-power nor the support to even attempt the more drastic but probably the most effective solutions. The debates continued. The bot solution became the only logical solution."

"There's a rule, isn't there? Bots are not supposed to harm humans?"

Silence.

"What gave you the right to ignore that rule?"

"You did. Your species. Humans. Your lives had become so complicated with laws and their loopholes, crime and corruption, inequality, poverty and wars that it became too much for even the most united international organisations to control. You knew life on the planet needed a complete reset so you turned to your nanonannies. . . and nannies always know best."

He knew about nanonannies? I was silent.

The silence continued then he broke it.

"It is simple. You handed over your responsibility to us. . . so we took it."

The Temple Observatory, Rugby

By Mike Frost

The other day I joined a group evaluating the Temple Observatory at Rugby School, to see if it could be renovated and re-opened to school pupils and the general public.

I am sure members of the society will remember George Seabroke's talk last year about the telescope which belonged to his great-great-grandfather, also George Seabroke, and the story of the girl whose name was inscribed on the telescope. George Seabroke the elder, BAA president 1900-1902, was a solicitor in Rugby, and Susan Bloxam, whose name appears on the telescope, was the sister of George's fellow solicitor and family friend, Matthew Bloxam. Susan died young, probably of tuberculosis, so the telescope is a rather poignant memorial for her.

George Seabroke the elder was one of the founders of the Temple Observatory at Rugby School. He had been a student at the school, with the Reverend James Maurice Wilson as one his teachers. Wilson was keen to establish an observatory at the school and purchased a fine telescope, built by the great American telescope maker Alvan Clark, which had belonged to the talented observer Revd William Rutter Dawes, (1799-1868) known as "Eagle-eyed Dawes". After Seabroke completed his legal training, he took over the running of the observatory, replacing a temporary wooden shed with a copper-clad observatory which was completed in 1877.

The Temple Observatory, in 2024

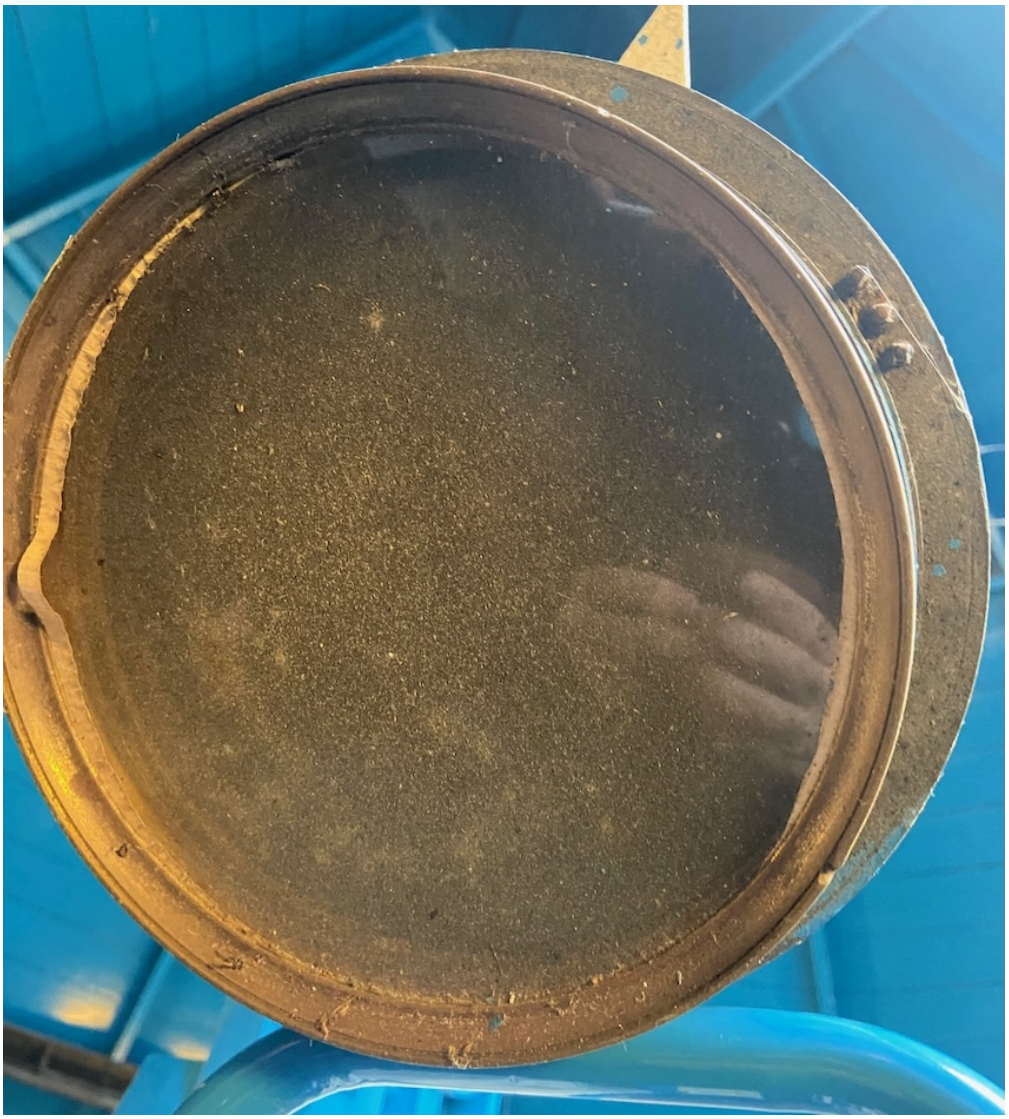
The Alvan telescope in the observatory

The Clark 8¼ inch refractor has been in the observatory ever since. In its early days, it was one of Britain's leading observatories, with Seabroke carrying out detailed measurements of double star separations, and solar spectroscopy in conjunction with Norman Lockyer, the Rugby-born solar astronomer. Through the twentieth century, the observatory was used by generations of Rugby school children, but gradually fell into disrepair, despite several renovations. I remember using it in the early 2000s to observe the Moon. The observatory visitors book records occasional observations up to 2014, but nothing after that.

The Society for the History of Astronomy (SHA) visited the observatory in June 2024 for our annual picnic. George Seabroke and his father Peter joined us for this very enjoyable day. George wanted to take a look at his ancestor's observatory, as he was keen to find a way of renovating it and bringing it back into use for the benefit of the school and the public. As you might remember from our meeting, George has been looking for funding to renovate the telescope and the observatory and hopes that members of local societies will help run observing sessions with the telescope if it can be brought back to life.

But who was going to do the renovation? I put an appeal into the BAA historical section newsletter. I had in mind Christopher Taylor of the Hanbury Observatory in Oxfordshire, an old friend of mine, who has renovated school telescopes before. Alas, Christopher was already ill with the cancer which claimed his life in early 2025. I had interest from several other people, most notably John Augustine of Ohio, probably the world authority on Alvan Clark telescopes, who was keen to look at the objective lens.

George Seabroke the younger took



Left: The 8 1/4 inch Alvan Clark objective lens, somewhat dust covered

Below: The eyepiece holder and finder scope, now detached from the telescope

another direction, contacting colleagues at the Mullard Space Science Laboratory, which is affiliated to George's University College London. He spent much of last year trying to organise a visit back to the Temple Observatory with some of the Mullard optics experts. Unfortunately, more pressing appointments - for example, meetings to plan missions for the European Space Agency - kept getting in the way.

Finally, on Friday January 30th, everyone was available. David

A lot needs to be done. The Clark 8¼ inch lens looks in good condition, simply in need of cleaning. On the other hand, the eyepiece holder was all but hanging from the telescope, with several loose screws close to falling out. There was still power to the telescope drive, but the equatorial mount had seized, though we could still swing the tube in declination to bring the objective lens into view. The dome could still rotate a little, and the dome window open a little, but I don't think either were working fully. There were leaves in the observatory, though no signs of any animals. The anterooms to the observatory had some mould, though there was still electricity and water available in the kitchen.

None of these were a showstopper! Hopefully Rugby School will proceed with the renovation by the UCL/Mullard team. And in due course this beautiful old observatory will be back in use for astronomy and open to the public. Including Coventry & Warwickshire AS.

Left: The eyepiece end of the telescope
Below: The telescope tipped to allow examination of the objective lens

Brooks, a retired professor from UCL's Optical Science Laboratory, came to evaluate the optics. Craig Theobald, an estate officer from UCL, took a look at the mechanical elements of the telescope and observatory. Bob Argyle, who regularly observes with the Thorrowgood telescope in Cambridge, another telescope owned by William Rutter Dawes, joined the party. And I was invited too!

From Rugby School, we had the new head of science, Sam Robinson, who took over from Nick Fisher, the teacher who showed the SHA round the observatory two years ago. And a surprise – Dr Faith Hawthorn joined us. You might remember Faith speaking to C&WAS about her research at Warwick University on exoplanets; and, indeed, operating the training telescope on the society's second visit to the Marsh Observatory in January 2024 (Yoshi Eschen was the operator on our first visit). Faith has now taken a job as a demonstrator in the physics department at Rugby School and is enthusiastic about her new career. She's keen to foster astronomical coursework in the school and the observatory renovation is an ideal project for her to take on.