



# BOURNEMOUTH NATURAL SCIENCE SOCIETY & MUSEUM

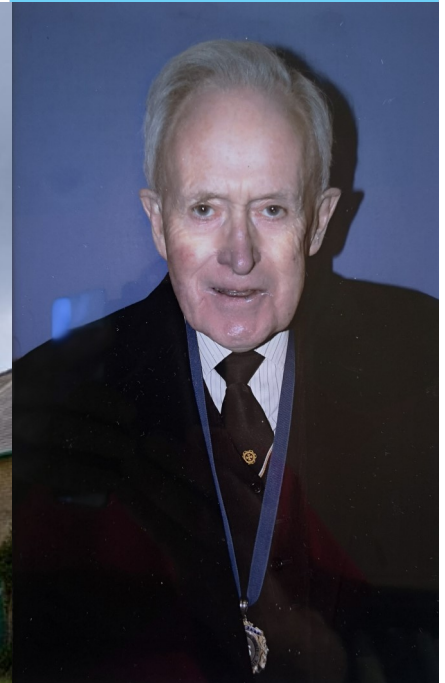
*Share our love of science*



*Rear of the building showing new ridge tiles  
– read more about the conclusion of the lantern project p2*

## Newsletter

## Summer 2020



**President admits to using 'Potions'** – Mike Skivington gave his Presidential Address on 28<sup>th</sup> July all about “Plants, Potions and Poisons” using Zoom - *more Zoom on p2-6*

### BNSS Re-opens

*By Grenham Ireland Chair of Trustees*

I am pleased to report the BNSS building was re-opened on 4<sup>th</sup> August to welcome back some of our members and regular volunteers. This follows a lot of work by the trustees and staff to prepare risk assessments and institute a number of changes to ensure that we now have a covid-19 safe environment. These include enhanced cleaning regimes, posters, face coverings and restriction in numbers attending & room occupancy. The latter means that any member wishing to come to the BNSS must pre-book by emailing [contact@bnss.org.uk](mailto:contact@bnss.org.uk) or leaving a message on the answer phone. Members and volunteers who attended were conducting maintenance of collections, work for accreditation or preparing for eventual opening to the public again. When we are in a position to do this, members and members of the public will have to use a booking system via our website so that again the numbers in the building can be controlled and contact details taken. We are hoping that we might be able to resume our programme of talks at the BNSS in September but the numbers attending will probably have to be limited so we are planning to try and continue simultaneous broadcasts by Zoom. Jo Crane has been leading a plan to upgrade our audio-visual equipment and Colin Lord has submitted an application to Heritage Lottery for appropriate equipment. You can read more about the success of the Zoom lectures elsewhere in the Newsletter. Finally, I would like to thank all the contributors to this edition of the Newsletter but especially Jill Abbot for her editorial work and Keri Murrell for her 'Publisher' skills.

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[bnss.org.uk](http://bnss.org.uk)

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# The Lantern Renovation

*Colin Lord*

**How it all started** - I joined the BNSS in 2013 mainly because I was interested in science and wanted to attend the lectures. As is often the way with these things over time you start to get drawn into other aspects of the BNSS. A couple of years later a plea went out for a volunteer to apply to the Heritage Lottery Fund (HLF) for a grant to repair the lantern. Ray Chapman and Anne Jolliffe had already started the process by holding discussions with the HLF and engaging experts to give advice including an architect but needed someone to put in an application for funding. With my background as a surveyor and having recently retired I thought I would give it a go.

Earlier meetings with the Heritage Lottery Fund (HLF) were promising. However, it was clear it wasn't sufficient just to have the support of the HLF- an application was needed that would stand on its own in a competitive and open application process. Getting to grips with all the HLF guidance was an early challenge as was understanding the many facets of the BNSS, both vital in being able to present a case for a grant in the best possible light. The other main issue was the difficulty of establishing exactly how big a repair job it was going to be and how long it would take. The answer was, of course, bigger than I ever thought....



**Lantern Update** - I last gave an update in the Spring Newsletter shortly before lockdown, when I reported we had placed an order for the manufacture of replacement ridge tiles with a pottery. You may remember at that time we had been lashed by a series of Atlantic storms accompanied by high winds and record breaking rainfall. It was a miracle the scaffold roof over the top of the building survived! West Meon Pottery in Hampshire gave the best quotation and delivered the ridge tiles on 20<sup>th</sup> March. The tiles were fixed a few days later so that the scaffold could finally be removed. The corrugated metal roof finally came off early April and the remaining minor 'snagging' works completed. The works have now been formally signed off by the architect. After more than 5 years being covered over the first floor landing beneath the lantern is now bathed in bright natural light and it has transformed the feel of the interior. The financial support given by the National Lottery Heritage Fund and Canford Environmental Ltd have made this work possible and our sincere thanks go out to both of them.

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**President Mike Skivington 'Zooms'** - Until recently if someone said to me "zoom" I would immediately have thought about expensive lenses for my SLR camera. Since the pandemic the word has taken on a new meaning and one now thinks of meetings and lectures. I knew one of my duties was to give a Presidential address and I gave it the title of "Plants, Potions and Poisons". A strange experience. One can see oneself in a mini picture in one corner of the screen. At the same time it is almost impossible to gauge the reaction of the audience. Your trustees have been using

2 "Zoom" for regular meetings and the results of their deliberations are reported elsewhere.



## 'Zoom' BNSS lectures



*Grenham Ireland*

On Tuesday 14th April BNSS launched its first online 'Zoom' lecture by **James Fradgley** on "How the eye works – an astronomer's perspective". James took us through the structure of the human eye and how it works which included an explanation of why certain 'false' colours are seen by astronomers such as the "little spark of glittering emerald" of the blue-white Antares B star next to the bright red Antares A (see photo) star. This is due to the overstimulation of the red photo-receptors in our eye by the bright red Antares A causing a negative afterimage. This was followed the next week by: **Ashley Leftwich** who at very short notice gave us an account of "Ancient Woodland – What is it, where is it and how do I know I am in it!"

*Hattie Miles*

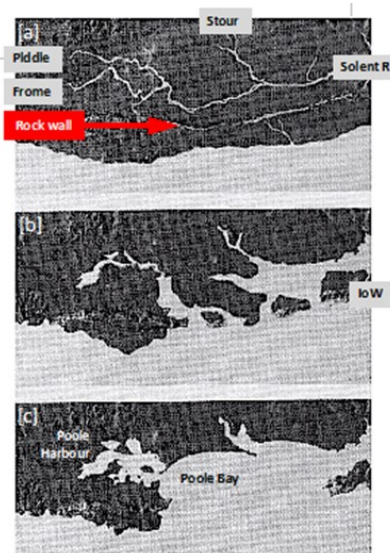
**Romance & Scandal in Bournemouth** - It was a first for me! Presenting an illustrated talk via Zoom was quite a challenge. I admit I was quite nervous but, thanks to a practice session with Grenham, it was all set up. I found it strange, at first, to have an

audience that I couldn't see or hear, though I could see mini-me and a miniature Grenham in the corner of my computer screen. His reactions reassured me that people could see my pictures and hear my voice and I could see that I wasn't moving out of camera shot.

My subject was social history based around famous local names. We had the story of author Robert Louis Stevenson (shown) and his American wife Fanny, scientists Marie



and Pierre Curie, football manager and King of the Jungle Harry Redknapp and his wife Sandra and more. At the end there were lots of questions and a round of applause. I think it's marvelous that BNSS are doing these talks. I've 'zoomed' in to a couple of the more recent ones and learned about Jurassic Coast geology and a miniature planetarium. It's interesting to be on the receiving end and fascinating to see and hear how different people tackle on-line presenting.



*Mike Earle*

**Dorset after Dinosaurs: Geology & Climate change – part 1**-The model shows how Poole Harbour, Poole Bay and Christchurch Bay formed due to sea level rise after the last ice age glacial maximum. Alpine folding in the Oligocene epoch created a wall of upturned Cretaceous rock that formed a barrier to drainage. The Piddle, Frome, Avon and Stour rivers joined to form the Solent River, which drained eastwards before entering the English Channel [a].

18,000-10,000yr BCE (Source LICCO)

This arrangement was terminated by the breaching of the rock wall barrier [b] and led to the formation of Poole Bay, the drowning of the Frome-Piddle valley to form Poole Harbour, and the isolation of what is now the Isle of Wight [c].

Mike Earle

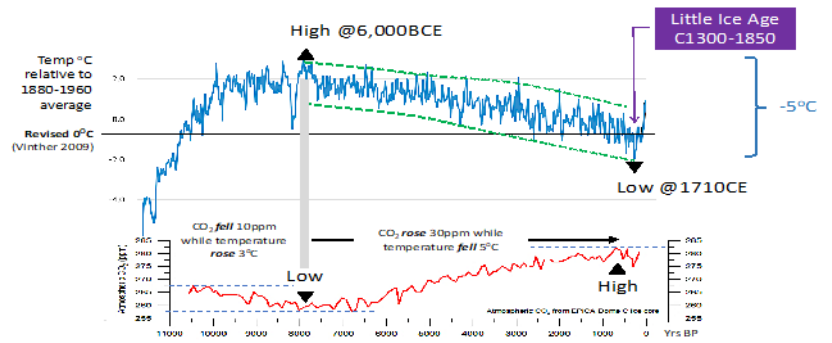
## Dorset after Dinosaurs: Geology & Climate change – Part 2

Northern hemisphere temperatures rose 10°C at the end of the last glacial maximum. By 8,500 BCE the temperature was similar to today, but it kept on rising to 6,000BCE when it reached a peak of 3°C above the recent level [upper graph]. This warm period witnessed and probably encouraged the blossoming of major civilisations in Eurasia and Egypt. The dashed green lines form an envelope bounding the short-term min to max range that documents a drop of 5°C to 1710 CE (early 18<sup>th</sup> century).

In historical times the min-max range has been 3°C (between green lines), a range entirely due to natural causes. The overall decline led to the Little Ice Age (LIA) that began in the 14th century, when major rivers in Europe froze over in the winter, when crops failed and famines occurred. The LIA ended about 1850, perhaps in part due to natural phenomena and perhaps in part due to industrial activity, but the two potential causes cannot be separated or identified. The lower graph shows that the level of atmospheric CO<sub>2</sub> is not synchronous with changes in temperature, and that CO<sub>2</sub> lags temperature changes. CO<sub>2</sub> was lowest when the temperature was highest and has been increasing ever since the temperature has been declining, as if it is lagging temperature by several thousands of years (or is an unrelated phenomenon). CO<sub>2</sub> responded to but did not cause temperature change during the ice age and the interglacials.

## Ice Core Data of the Interglacial Period

CO<sub>2</sub> and temperature have followed opposite trends



to develop into crabs, molluscs and worms. To survive as plankton, these larval animals have exotic forms and special behaviours to avoid being eaten. Spionid worm larvae (1mm long) have long spines which they can deploy (shown here in two video frames just seconds apart).

Mary Thornton



Grenham Ireland



**Plankton Stories** - Phytoplankton, algae, which live near the surface of the ocean are important to provide our oxygen. This talk focused mainly on the animals, the zooplankton, which feed on phytoplankton. Some zooplankton are only temporary members, growing as larvae, but then leave for the sea floor

## exXpedition sea sampling of microplastics -

A team of women are travelling the world 's oceans looking at microplastics global distribution <https://exxpedition.com> All our waters contain minute fragments of plastic which can be ingested by microplankton and be passed up the food chain. Microplastics break down into various chemicals which can reside in mammals' bodies and cause changes to endocrine behaviour. There is no silver bullet to removing millions of tiny particles but everyone can do something. What is needed is a complete rethink about how we produce and recycle plastics. For a look at what small steps you can take look at SHiFT platform with Emily Penn. Find your role in solving plastic pollution.

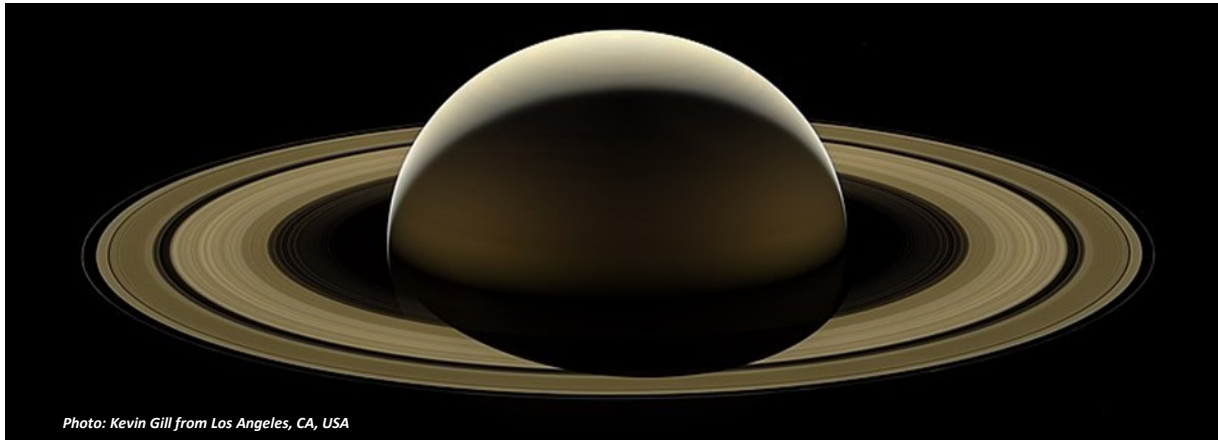


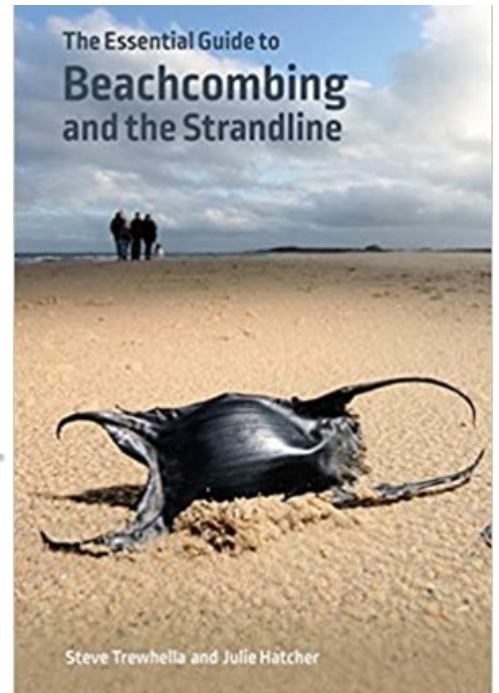
Photo: Kevin Gill from Los Angeles, CA, USA

*James*

**Cassini at Saturn** -a talk given by **Prof. Carl Murray** from Queen Mary’s College, University of London who has been a leader of the imaging team since 1990, 7 years before the launch date. First Carl showed us about the background to the project and the UK involvement, which was substantial. The first 7 years from 1990 were spent preparing the project. After launch it took another 7 years before it reached Saturn on July 1<sup>st</sup> 2004. The team spent the interval working out all the orbital details of how to arrange the tour. By using Titan’s gravity, they were able to conserve fuel and keep Cassini going until 15<sup>th</sup> September 2015. The 4-year plan hence ended up as an 11-year activity. Carl showed us lots of details of the rings: he was the principal expert on the extraordinarily complex F-ring. He also showed us lots of small moons which were discovered, some by him, mostly embedded in the rings. At the end he showed a video NASA had made, that showed what the last descent of Cassini into Saturn’s atmosphere would have looked like. The talk lasted about 45 minutes and was a good example of how effective Zoom can be. It was followed by many questions, and was much appreciated, based on the feedback we have had from 56 attendees.

*Mary Thornton*

**Beachcombing** - **Julie Hatcher and Steve Trehwella** gave a wide ranging talk on what can be found on the strandline and what it tells us about the marine life of that area. Most of us will at some time find a ‘mermaid’s purse’, the egg cases of rays and sharks. And a whole range of other egg cases belonging to shells and whelks. Steve took us on a tour of the jellyfish and barnacles that can be borne in on drift wind from faraway oceans and other lands. Many insects and birds feed extensively on washed up seaweed and other debris on the strandline. Sadly there is increasingly lots of plastic debris, which is a menace in the food chain.



*Grenham Ireland*

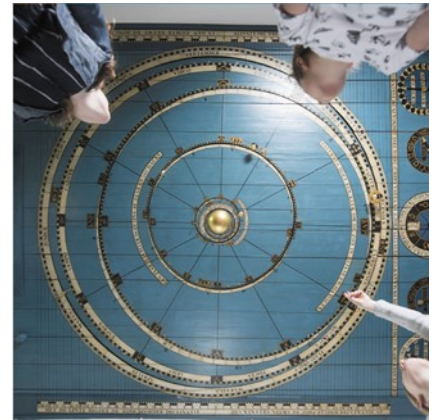


**Dorset from the air: then and now** – **Gordon Le Pard** gave us a feast of aerial photographs comparing images from 1947 to much more recently showing how some places had changed remarkably and others hardly at all.



James Fradgley

**The Oldest Planetarium in the World** - was a talk given by **Dr Lilian Hobbs**, about a planetarium in the Dutch village of Franeker built 250 years ago in a private house. Eise Eisinga was born in the nearby village of Dronrijp on 21 February 1744. His profession was wool comber, and he was clearly very clever, having written a 600-page maths book at the age of 16. He built his planetarium to disprove some apocalyptic preaching about the end of the world, and said it would take him 6 months. It actually took 7 years, but one suspects the finished work was probably far more extensive than the original idea. The solar system was constructed on the ceiling of his downstairs room, and built with a scale of 1 mm to 1 million km; it was engineered very accurately. With the mechanical drives upstairs, it more or less completely filled his house! Even the 10,000 nails were hand made, and he also left detailed instructions for its running and maintenance. It was controlled by a pendulum with a period of 80 beats a minute. That's faster than he wanted, but his wife insisted on not losing her cupboard downstairs, so he had to make pendulum length 20 cm shorter and re-engineer it to make the timing correct.



Overall the project will

- Build stronger green businesses
- Generate 5000 new and better jobs
- Catalyse new investment in green value chains from public and private sectors
- Create models that can be replicated and scaled up
- Make better use of existing land uses and help conserve remaining forests



Jill Abbot

**Green Economic Growth in Papua, Indonesia** - **Dr Patrick Abbot** described the Programme in Papua, in an area still with 93% forest cover, which is assisting local villagers and small businesses to set up systems for growing and marketing high value produce in a way that is compatible with maintaining the natural forest.



In a partnership agreed between the UKCCU and the Indonesian Government, Patrick's company provides expertise in research, technical assistance and skills development.



Grenham Ireland

**E-waste not want not** - **Bob Crooks** talked about the staggering volumes of e-waste we are all producing and the metals used in electronic devices which we might need to mine rubbish dumps for. It made us all feel guilty about our own e-waste lurking in drawers in our homes.



## Society News

*Jill Abbot*

**Assembly** - A short meeting was held on 30<sup>th</sup> June to brief members on BNSS activity this year so far. I had attended the normal Trustee meetings in January and February but everything had changed when lockdown was imposed in March and all subsequent meetings were held on Zoom.

We owe the Trustees an enormous debt of gratitude for all the extra work they have taken on. Volunteers, members, tenants, insurers and others had to be informed by various means and negotiations undertaken. Advice and guidance from national and local Government, from the Charity Commission and many others had to be read and picked over for the relevant bits. Courses of action were discussed and agreed. The safety of the Society's assets and financial security both short and long term have been key issues. Grenham Ireland, as Chair of Trustees thanked James Fradgley and Mary Thornton for making sure we had speakers for the online lectures and contributing to those talks. He thanked several other members for their invaluable contribution this year, especially during the difficult months of the pandemic. Important tasks have been taken forward despite the difficulties. Gerry Duggan gave an update on the financial situation and the grants and rebates he had managed to secure. By 30<sup>th</sup> June the trustees were already planning for a Covid-19 safe return before the end of summer. The Assembly concluded and was followed by an online Quiz, led by James Fradgley. This proved to be both challenging and enjoyable for the participants and well worth doing again.

**New Security System at BNSS** - Gerry Duggan thoroughly investigated the options for an effective security system. Plant thefts, fly tipping, rough sleepers, dog fouling, illegal parking and general antisocial behaviour have all caused problems over recent years. Gerry reported to the Assembly on the system installed since the scaffolding came down. He said, "It's not your normal CCTV – it's not just a recording system. It's one that you set alarm conditions; so you can draw a line against a hedge for example so anyone who goes over that will trigger the alarm. It produces not just a recording, but also lights and audio alarms to say 'You're Trespassing!' or whatever you want."

Four external cameras and one inside to monitor the entrance hall are in place with suitable timing regimes which have already had deterrence value. However, when travel started again after lockdown, the front garden took another hit with picnicking, littering and human fouling. Our caretaker, Steve Moulton drastically reduced the front shrubbery leaving everything exposed, The CCTV now enables him to monitor from inside and take action as necessary.



**Memorial Bench Donated** - We are indebted to Kay and Mark Davies for their donation of a garden bench. After a delay caused by lockdown, delivery was taken in June. The recycled plastic bench will be a welcome addition in the back garden. The bench is donated In Memory of their daughter Julie, who enjoyed many BNSS lectures with them during the last year of her life.



# Covid-19 Reflections

Jonathan McGowan

**The Lows, Highs and Lows of my Coronavirus Experience** - You may or may not know that I suffered suspected Covid-19 for three weeks back in May. Bed ridden and fearing death, nature held a special place in helping me recover. Trapped in my flat on the edge of Poole Harbour, without the traffic on the Upton bypass sounding out all night, I could hear cuckoos, redshank, curlews and sedge warblers from my bed. I saw great white egrets and raptors. When I could get out, fortunately I didn't have to walk far to see the bountiful natural history of the harbour. Without people around, some wildlife did encroach closer to human habitation. The sika deer came right up to the estate edge, while sedge and Cetti's warblers sang all day and night on the common land. Hundreds of water rails sang within the reed beds and noctule bats hunted the dusk skies. I photographed insects on Ham Common such as this female downy emerald dragonfly (right). The males were too fast to take good photos.



Photo: Jonathan McGowan

The huge forest fires in Wareham Forest were devastating and caused a plume of smoke to rise for two days above the harbour. At other times the sky was so clear and seemed unpolluted as spectacular sunsets happened night after night. I recorded the sound of nightjars, water rails, Cetti's and reed warblers during the nights that were so quiet of human activity. Usually the sound of roaring motorbikes speeding along the Upton bypass drowns out any natural sound, but during the April silence it was bliss. Whilst in my prison at home, I spent time observing the common birds such as sparrows and starlings. I counted six starling nests and three house sparrow nests all of them having double broods, the second are about to fledge. All nests were in house roofs and wall cavities, all but one starling nest that was in a fallen willow tree. Song thrushes and blackbirds did well and I didn't see any magpie interference with any of these birds as I usually do every year, despite many magpies present. I did see herons perched on rooftops waiting for fledglings. The uncut lawns and verges have given more insects than usual but now cut and dead it seems ironic that authorities just destroy these so important little wildlife strips that hold the eco system together. Now there are no flowers, bees or hover flies, just dead brown grass! Now too there are parties of people having fires and leaving litter-all around the beautiful wilder areas of the harbour, an assault on nature by the ignorant! Hopefully things will change soon, and nature will reclaim.



Photo: Vivian Goodwin; "Are you my daddy?"



Photo: Ian Julian; Patron, Chris Packham, credited the BNSS on Springwatch when he used some of our eggs.



Photo: Rosemary Southworth; captures the beach, the cruise liners and the socially distanced watchers of this unique summer.



Photo: Jacque Bainbridge; tattered but unmistakable rare migrant large tortoiseshell butterfly on her key box.

Bournemouth Natural Science Society & Museum,  
39 Christchurch Road, Bournemouth BH1 3NS  
Email: [contact@bnss.org.uk](mailto:contact@bnss.org.uk) Tel. 01202 553525

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