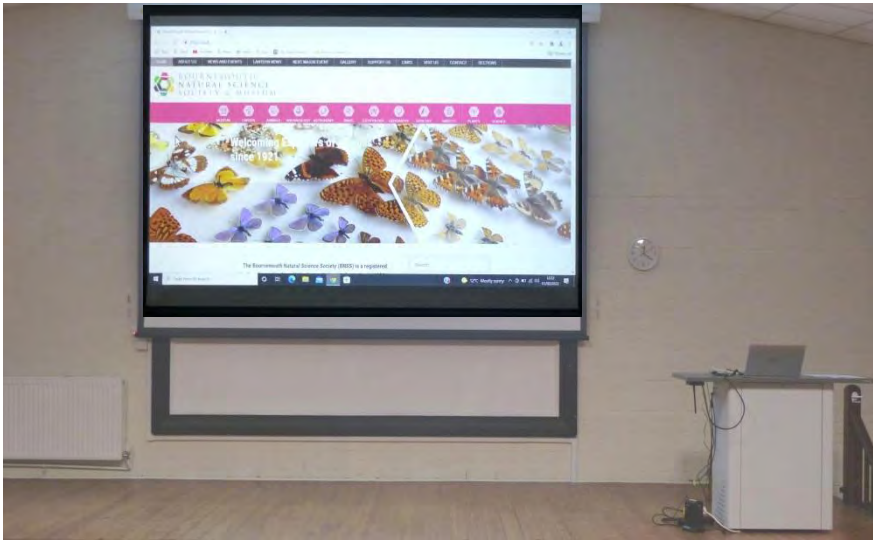




# BOURNEMOUTH NATURAL SCIENCE SOCIETY & MUSEUM

*Share our love of science*

**Newsletter  
Spring  
2022**



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## **New Lecture Hall Audio-Visual System** *Jo Crane*

For some time it had been realised that the sound and video system in the Lecture Hall were not up to modern expectations for a well respected organisation. The old system relied upon a dated projector and another shortcoming was no integrated sound system. Once the pandemic ended the regular events within the hall, and when sufficient funds became available, the opportunity was taken to acquire and develop a new and highly capable system with, where possible, simple operation. A company based in Lymington was chosen who installed the basic system. The emphasis was on bright and vivid images which are now supplied by a high-end high definition laser projector, the images being displayed on a 3.5m wide electrically operated screen. The old (and wobbly!) lectern has been replaced with a professional AV lectern with a wide top that enables operational flexibility (including use with a visualiser). Electronics within the lectern fully integrate the sound from the three wireless microphone systems with the sound from the video presentation etc. The sound in the hall is supplied by four, strategically placed, loudspeakers and a new hearing loop system.

Presentations in the hall can simply be accomplished by connecting a single cable to the source, such as laptop computer. Following the current move to online talks (via Zoom) it became clear that many members would sometimes prefer this means of participation rather than travelling long distances on possibly cold and windy nights. Being able to present live events and broadcast simultaneously posed quite a few technical challenges. However, extensive experiments and trials carried out by some BNSS members showed how this could be accomplished with a few additional components. In order to allow online participants to see both on and off stage talk presenters, a remotely controlled camera has also been installed. In summary, the new and highly capable multimedia system transforms the quality of talks and events in the Lecture Hall. The system should also enable the opportunity for BNSS to earn extra income from hiring the system to other organisations.

*Joint Event: Photographic Competition Presentations and Open Garden  
Afternoon at 39 Christchurch Road – Saturday 19th March 2pm to 4.30pm  
Details in email body or separate flyer*

## BNSS News: The Beale Collection *Jacque Bainbridge*

Steve and Ann Limburn were in Sidmouth in August 2020 and visited the local museum, which was reorganising to concentrate on local material. The BNSS was offered a collection of rocks, fossils, eggs and butterflies which was the result of a lifetime of collecting by John M Beale of the family that founded the Bournemouth department store. Upon his death in 1993, items collected between the mid-1940s and the early 1990s were donated by his son Dr Peter Beale. Ray Chapman as Curator had the job of housing the three large cabinets. He and I, with help from Steve, removed the metal shelving in the Geology "cave" and sorted through years of old journals and documents to make room.



*One of the trays, Credit: Jacque Bainbridge*

Everything was then delayed by the two lockdowns, but eventually on the 19th May 2021 Steve, Ann and I went to Sidmouth to move the collection and it arrived in its new home the next day. The cabinet with the glass top is now in Reception with the other two in Geology. This collection contains many rare and unusual items - some from quarries and exposures that no longer exist. The collection needs sorting and cataloguing but will prove to be a great asset to the BNSS.

## BNSS Photographic Slide Digitisation Project

*Eleni Dimitriou & Andrew Davis*



*Part of the slide collection, Credit: Andy Davis*

The BNSS slide collection comprises many thousands of photographic slides, a large proportion being glass Lantern Slides from an era before the use of cellulose film. The collection images cover a wide range of content spanning approximately 100 years. There is much creative and educational potential within the image collection to be explored and used, both within the museum and externally through public events. The aim of a new slide project being undertaken and overseen by the Chair of Photography and the Slide Custodian is to extract, digitise and organise the images to make them readily accessible again. Through the project we have formed a collaborative link with the Museum of East Dorset and would aim to forge links with other organisations who might be interested in images we hold.

If any BNSS member would like to help with the digitisation work, please email [contact@bnss.org.uk](mailto:contact@bnss.org.uk)



*Unusual bicycle from one of the glass slides, Credit: Andy Davis*

The long-term aim of the project will be to use the images to inspire future scientists, photographers, and artists as other museum's exhibits do currently and to perhaps raise funds via exhibitions and publications to help continue with digitisation of the slide collection. Further volunteers will be sought to help with the project.

We regret to inform members of the death of a long-standing member and trustee Mr. Keith Butt on the 8<sup>th</sup> January 2022

## Selenology *James Fradgley*

This Zoom talk was given by **Dr Adrian King**, who's a geologist with a passion for the Moon. First Adrian looked at the formation of the Moon, likely caused by a collision between the proto-Earth and a Mars sized body. In looking at the internal structure of the Moon, this may explain why the nearside of the Moon has a thinner crust with maria and basaltic heavier components, while the heat from the Earth may have stopped the lighter fractions from condensing. These plagioclasic feldspars then were able to condense of the far side, giving a thicker lighter crust there.



*Taken at an altitude of 4,375 km showing impact craters, Credit ISRO*

We then came back to look at degraded craters with varying degrees of degradation, e.g. Theophilus, Lilius and Catharina. Crater chains are likely caused by an object with many components, similar to the way comet Shoemaker-Levy collided with Jupiter. Some craters are not circular, indicating a very low angle of impact or multiple impacts, e.g. Messier A and B and possibly Schiller.

Craters are an obvious feature, and Adrian covered these as simple craters with no central peak and complex craters with a central rebound peak, many of which are degraded. We then looked at some shield volcanoes, rilles of various shapes, which are collapsed lava tubes, and graben structures caused by the surface pulling apart and the gap sinking. Cross-cutting features show the order in which events happened, e.g. in crater Posidonius there are many.

## Viking Astronomy *James Fradgley*

**Martin Lunn** gave us this talk on Zoom. He started with Viking mythology, which among other things gave us the names of the compass points. The Milky Way was seen as a connection between Asgard (gods), Midgard (people) and Hel. The rainbow similarly connects Asgard and Midgard. Martin then looked at the constellations at various times of the year. The plough in Ursa Major was Thor's wagon, Ursa Minor was the throne of Thor, Polaris was a nail driven into the heavens holding them in place. Orion was Frigg, the mother Earth goddess. And many other examples.

The year 912 was notable for 2 reasons. There was a solar eclipse on midsummer's day. A wolf comes to eat the Sun, and by loud screaming and banging of drums it can be scared off. Secondly there was an appearance of Halley's comet in July and August in Leo. It is the spear of Gungnir: throw it and it comes back. Auroras were the Valkyrie, who choose who will live and who die in battle.



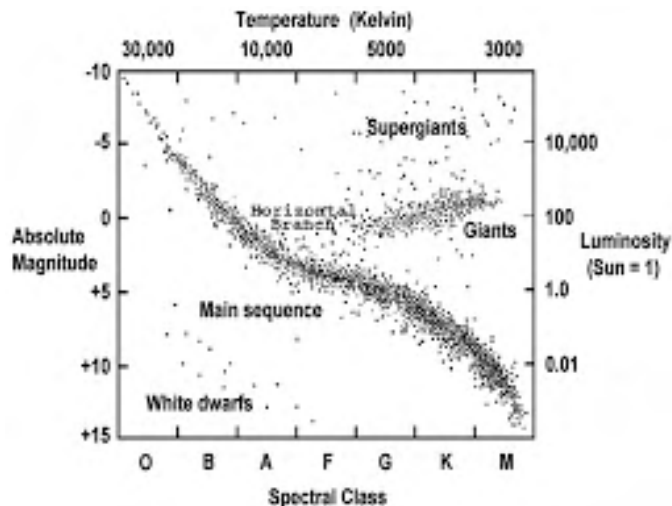
*Constellations known to Vikings, Credit: Martin Lunn*

The Vikings spread over all of Europe, as well as across the Americas, and the elite troops of Byzantium were the Varangian Guard, composed of Norsemen. Hence many of their myths are incorporated into other European cultures, and they live on in probes to Mars. Unfortunately, when the Vikings became Christian, the church set about destroying as much of the pagan culture as they could, and we don't have a large amount of information about it.

## Astronomy as a mature student *James Fradgley*

**Mike Young**, who is a member of BNSS gave us this talk. He first described his career from HNC to engineering to health service administration, and finally working for Statoil on contracts. When he retired, he moved to this area and developed an interest in the night sky.

The Open University (OU) was founded in 1969, and we were given a bit of its history. Then we looked at Mike's course and the modular structure of courses at the OU. Different subjects can be mixed, and there are summer schools, tutorials, etc.



H-R diagram showing classification of stars, Credit: NASA

Mike has covered the equivalent of years 1 and 2 of a BSc and is starting on year 3. He showed us some of the things he has covered in his courses so far, e.g., cosmic distance measuring, the source of elements and the Hertzsprung-Russell (HR) diagram. He's now moving more to Earth Science based modules, including the structure of Europa, the Earth, etc., and such things as the rock/carbonate cycle on Earth.

## Tracking Rhinos *Mary Thornton*

**Stuart Clarke** (Blackdot Solutions) is an internationally respected investigations and cybersecurity expert with extensive business management, consultancy, and leadership expertise. He is driven by two abiding passions, one to sustain a beautiful and credible environment and the other a personal passion to protect rhinos in the wild. Videris is a tool that looks at open source online data that can be used for online investigations. In 2018, the last northern white rhino died, leaving only two females who can no longer breed meaning they are functionally extinct as a species. In 2019, the last Sumatran rhino died in Malaysia. These deaths are directly driven by the money that can be earned from providing rhino horn to traditional Asian medicine dealers.



White rhinos, Credit: GNU Free documentation Licence

Poachers might get between \$100-300 in the African bush to provide rhino horn. But in the market this horn can raise up to \$65,000/kg. There is a low intensity war with international reach driven by poaching but leading to all sorts of other international crime. Illegal wildlife trade is the 4th largest illegal trade after drugs, people smuggling and counterfeiting. Stuart was able to show how doing due diligence on a named individual in African trade might throw up risky associations. Further investigation into these new contacts showed even more suspect trading to other links to known criminal activity such as Thai prostitution, money laundering and even terrorism.

Through this illegal wildlife trade, \$15 billion annually flows into organised crime. There were good questions like why not farm rhinos, or why not dehorn rhinos. The best solutions are to turn poachers into conservators of their local habitat and wildlife and the other half of Stuart's company do just that with community enterprises supporting local education, political advocacy, research, all towards trying to build a sustainable future.

## Sharks *Mary Thornton*

**Georgia Jones** is clearly a shark aficionado. Since an early age, she has been interested in sharks and managed to do a research programme into sharks in Stellenbosch. Georgia showed us a number of photos illuminating how sharks have been the longest surviving groups since 450 million years ago. They are an incredibly diverse group and range in size from 4" sitting in the palm of your hand to whale sharks measuring 40 feet. They also exhibit all types of feeding groups, from the basking shark which only ingests plankton to the fully carnivorous sharks such as tiger shark and great white - the pelagic predators of the high seas who ingest turtles, seals and penguins. As top predators of all the food webs in ocean ecology, they are important in maintaining the health of the oceans.

Also they can be misunderstood and sadly frequently face threats of extinction due to the fishing of shark fins only for shark fin soup. Sharks also exhibit a wide range of reproductive types. The common 'mermaid's purse' found on our sea shores is often the egg case of local shark species. Other sharks give birth to live young and are more similar to mammalian processes. Toothmarks on female sharks may be due to males holding onto them with their mouths when they mate. However sharks exhibit incredible healing powers and are resilient to injury, healing quickly after minor abrasions and lacerations.



*Tiger shark, Credit: GNU Free documentation Licence*

## A Collection of Curious Coastal Constructions *Bryan Popple*

**Gordon Le Pard** took us on a journey along the Dorset coastline which is 88 miles, however he told us that adding the internal coastline of Poole Harbour it increases by 89 miles, a total length of 177 miles. Now for the story of the curious constructions...

St Aldhelm's Chapel, dedicated to the 7thC Bishop of Sherborne, was built in the 13thC but it may have supported a tall cross to act as a sea mark, helping to guide mariners sailing along the coast. Its strange shape and a central column back this view.



*St. Aldhelm's Chapel, Credit: G. LePard (all pictures)*



*Rufus Castle*

St Catherine's chapel at Abbotsbury may also have been a sea mark holding a beacon for shipping. Whilst, at Durlston, 2 metal pylons were built, to enable ships to measure their speed over a nautical mile.

Rufus Castle on Portland, dated to the early 15thC, had gunports which were obsolete in 16thC and they rebuilt the north wall of the church as a decorative ruin and turned the castle into a summerhouse.



The final item from the talk I want to mention is the gateway to Chideock Manor Church constructed from the jawbone of a stranded whale from Charmouth Beach (right). There were many more examples I could have mentioned but maybe you can discover more for yourselves.

## Life through a different lens *Grenham Ireland*

**Rachel Moseley** introduced the subject of autism by describing it as a neuro-developmental condition with characteristic differences in social interactions and preference for routines. The prevalence in the population is 1 in 68 people but boys are more likely to be diagnosed. Rachel herself is autistic and told us how it is part of her identity and described how it was like missing out on a “book of rules” for social interactions. As a society, we have stereotypes about autism and autistic people but they are all different and can be successful in many fields and even sought after for some jobs.



A number of theories have been put forward to explain autism but we now know that it is linked to genes controlling brain development in the mid to late pre-natal period. Autistic people will tend to focus more on the detail than the ‘big picture’ and can have what is known as poor ‘executive function’. Being able to control behaviour and adapt to a changing environment relies on the pre-frontal cortex connecting with other parts of the brain. These connections may be different in autistic people and provide a possible explanation. Historically, autism has been associated with ‘deficits’ and has led to stigmatisation but we need to just recognise the differences amongst us or, as author Temple Grandin put it “I am different, not less”.

## Village Vernacular *Grenham Ireland*

**John Hubbard** has a passionate interest in local architecture and took us on a virtual local tour. He emphasised that a cottage is a ‘living thing’ and depends on its position, usage and relation to its surroundings. He discussed how a building’s architecture might firstly depend on period tastes, whether the builder was local and on the use of “pattern books” and secondly on the materials available locally – the type of stone quarried, availability of flint or the colour of the sand used to produce bricks. He also pointed out how better quality material might be used for the frontage whilst other walls would be using rubble stone.

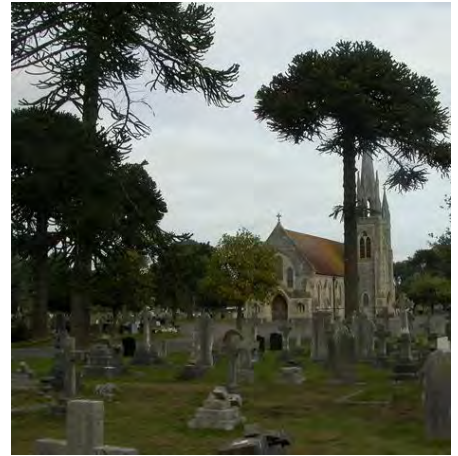


*Gold Hill, Credit: Sean Davies - Creative Commons Licence*

He described the variety of windows in different buildings and where this might reflect past usage such as a reading room or school and how the specific style of window construction may be very local and restricted to specific villages. He also covered where housing might have been built for specific workers on estates or local mines and reflected a specific style or paint colour even today. He showed how the way buildings have been altered over time could be recognised with careful observation. However, his enthusiastic study of local architecture has led him to be quickly reported to local ‘Neighbourhood Watches’! When pressed, he admitted his dislike of the use of reconstituted stone and to a ‘pet hate’ of bungalows – which I expect a number of us inhabit!

## Bournemouth Trees, Past, Present and Future *Margaret Ross*

The fascinating presentation on trees in Bournemouth by **Nick Colledge**, Arboricultural Manager for Bournemouth Christchurch & Poole Council was only one day after the COP26 confirmed the global importance of trees. The presentation was illustrated with some very interesting current photographs, as well as very old pictures from the birth of Bournemouth surrounded by trees. We were introduced to the oldest tree in Bournemouth, and to the process of replacement damaged trees by planting young, established trees in the streets. The photographs of the same street across a five-year period showing the effect of pollarding the trees, typically on a 5 or 6 year rolling program, was most informative.



*Monterey Pines in Bournemouth Cemetery, Credit: Michael Faherty, Creative Commons Licence*

With violent storms two days before this presentation resulting in damaged trees including the up-ending of a large Monterey Pine in the Bournemouth Cemetery, Nick showed photographs of how these massive trees must be removed by using a crane so as not to disturb the various headstones.

Current tree diseases were considered, and looking to the future, the changes that might be needed including introducing a number of more Mediterranean trees in addition to the local species in preparation for potential climate changes in the future. Discussion followed concerning the wish for some residents, to celebrate the platinum anniversary of the Queen, by applying to have additional trees planted in public places and roads near their homes, and the appropriate procedure.

## Some thoughts from a talk on local Hibernating Insects *Mark Spencer*



*Purple Hairstreak eggs, Credit: Greenwings wildlife holidays, www.greenwings.co*

Whilst we are in our warm homes, spare a thought for the creatures outside. The tiny caterpillar of the Silver Washed Fritillary is tucked in a crevice in the bark of an oak tree with an eggshell meal to last it from August till March. The eggs of the Purple Hairstreak Butterfly are exposed on a twig to all weathers. Brimstones, Peacocks, Tortoiseshells and Commas shelter in ivy clumps, hollow trees, or barns, their beauties hidden as their dark hind wings conceal them. Some insects are protected as they feed deep in living wood as larvae for many years, for example the Goat Moth.

Others, like the Privet Hawk-Moth, dig deep to pupate in the soil. The Green Hairstreak Butterfly spends ten months as a pupa in grass tussocks. Emperor Moths make strong cocoons in which they hide amongst the heather. The Puss moth, in its well disguised fortress cocoon, hides on the bark of poplar and willow trees. The Small Eggar chooses to emerge in February, to lay her fluff covered eggs, after as long as seven years in her cocoon! Most wait to fly till the willow catkins and the primroses are in bloom!



*Goat Moth larva, Credit: Bj.schoenmakers, Creative Commons Licence*

## Tahemaa's Reluctant 'Winter Holiday'

*Joyce Navarro, Chair of Egyptology*

It all began last Summer whilst Tahemaa (our 26th Dynasty mummy) was having the final restoration of her coffin. Bethany Palumbo, the restorer, was lovingly consolidating the cracks and doing the final cleaning when she noticed evidence of recent pest activity within the coffin. This was of great concern as, if left untreated, then in time we would not have much left to show the public! The solution was to have her and her friend, the mummy board, deep frozen for two weeks. This turned out to be more easy said than done. The aim was to have them go into deep freeze in November at the Royal Albert Memorial Museum's, Ark, Exeter. Everything was set, Steve Limburn had kindly offered to drive them to and from Exeter in his van. Then Tahemaa threw her teddies out the pram by cursing the process as follows: insurance issues were raised; Steve was called up for Jury service and was unable to collect her; the initial insurance value was too astronomic (£3.5m).



*Mummy and board in the freezer,  
Credit: Adrian Bolt*

We were then advised to get quotes for specialist removers which were coming in at between £5k - £9k and that was without insurance. November came and went and I was tearing my hair out...so after much stress I decided to chat with Tahemaa and explain it was for her own good and that we had a surprise for her on her return...a brand new 'all singing all dancing' display case.



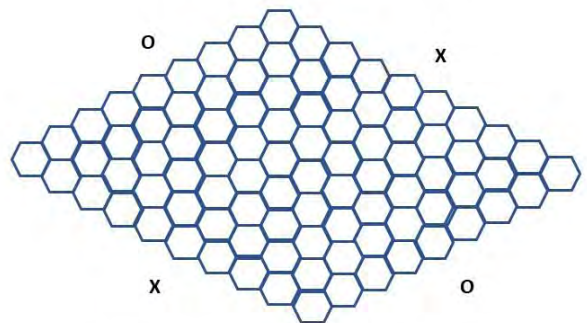
*Tahemaa in her new case appearing to be smiling, Credit: J. Navarro*

Well this seemed to work! I phoned RAMM explaining our difficulties and they provided the solution. They had their own van and technicians, would insure Tahemaa and mummy board for the value of repair if seriously damaged (£25k) and offered to do the job for a fraction of the cost. Everything went smoothly after this and we even have her holiday snap. She came back to us on 16th December a new woman, pest free and I swear her coffin is now smiling. In all seriousness I would dearly love to thank all those involved, Bethany Palumbo, Kate White and Bryan Popple for helping to securely wrap the coffin and mummy board, Gerry Duggan for providing quotes and prompt payment of invoices, Ann Jolliffe for insurance advice, Alison Hopper Bishop of RAMM for providing the solution and last but not least Adrian Bolt and George Hunt from RAMM for the transport and special care taken of Tahemaa and mummy board whilst at Exeter.

### **A new game for 2 players**

*James Fradgley*

Try to cross the honeycomb



Take alternate goes to put X or O in a hexagon,  
X tries to make a continuous line joining the 'X' sides,  
O tries to join the 'O' sides.

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