Back to the list of Journals

Contents

SUSSEX MINERAL & LAPIDARY SOCIETY

www.smls.org.uk

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" The Society was founded in August 1972 with the object of increasing the knowledge and experience of its members in rock, mineral, gemstone and fossil collecting and their cutting, polishing and preparation for jewellery and display"

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Vice-chairman	Nick Hawes
Secretary	Colin Brough

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Peter Hay	Caroline May	Jo & Ivan Tingley

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Show Organisers	Mark Oddy, Trevor Devon and Colin Brough
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Technical Adviser (Lapidary)	Derek Underdown
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SOCIETY SUBSCRIPTIONS

Subscriptions are: £13.00 for first member in a family (£10 for “online members”)
£11.00 for second member of the same family (£8 for “online”)
£11.00 for associate members (£8 for online”)
£6.50 for student members (£4 for “online”)

(no family need pay more than £24.00) - and become payable on 1st August each year.
Persons up to 17 years of age and persons taking full-time study up to 21 years of age may opt for student membership.
Persons living over 60 miles from Haywards Heath may opt for associate membership.
Anyone joining the Society after January 31st pays half the appropriate annual subscription.

MEETINGS

Meetings are normally held on the first Friday of each month at the Age Concern Hall, attached to Clair Hall, Haywards Heath from 7.30 - 10.30

Chairman & treasurer:	F/Trip Coordinator:	Secretary:
Trevor Devon	John Burgess	Colin Brough
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Sedlescombe	168 North Cray Road	Lindfield
Battle	Sidcup	Haywards Heath
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TN33 ORL	DA14 5EL	RH16 2SA
01424 870402	02083 090367	01444 483041

INTRODUCTION TO MICRO MINERALS
by John Hall

This talk was given by one of our longest serving members, John Hall, who is also a founding member of The British Micromount Society (BMS), which was established in June 1981. The Sussex branch of the BMS has 2 study evening meetings a year in March and October, which are co-ordinated by John. This subject was looked at through John's long experience, to introduce the marvellous world (Aladdin's cave) of micro crystals and encourage more members to take an interest and extend their knowledge at our BMS meetings.

John explained how he became interested in micro minerals. He gave a summary of the establishment and activities of the BMS, including their annual symposium in Leicester, before giving a general description of some specimens.

A micro mineral specimen is one that requires some degree of magnification to appreciate its finer details. This is usually achieved with a stereo-microscope with an area magnification of around 10X to 30 or 40X and gives a stereoscopic 3D image over the whole area, although a hand lens can be used for initial observations. The finer details could be small crystals or well defined crystalline forms (see fig. 1 & 2), which are usually found in small holes in the matrix. John then went on to explain, with the aid of screen images and photos, that in general the crystals are much better formed than larger ones as they do not have time to develop imperfections in their structure during growth. Also, as we know, collecting of larger specimens in the field today in the UK and parts of Europe has become considerably more difficult than in the past. However, it is still possible to find micro minerals on old mine dumps, accessible working quarries and coastal exposures. Several species new to the UK and even some new to science have been discovered in recent years by microscopic examination of material found by amateur collectors. Purchased specimens of micro minerals are invariably less expensive than larger specimens, even though the smaller crystals are often of finer habit and lustre.

This difference between a hand specimen and a micro mineral specimen was well illustrated on the screen by two specimens of liroconite (see fig. 4) from Wheal Gorland. A further example of a reasonable purchase was a charming 15mm high calcite from Ramsbeck in Germany which cost no more than £1 a couple of years ago.

John then went on to explain the difference between a micro mineral and a micro-mount is only the overall size of the specimen. They both need some degree of magnification to clearly see the crystal etc. but the overall size of a micromount must be small enough to be mounted inside a 1 inch cubic box, usually with a removable transparent lid for viewing under a microscope. Most collectors use mineral tack to attach the micromount however, for competition purposes the specimens must be permanently mounted in the box. A competition standard specimen is usually permanently mounted on a balsa wood column, using appropriate adhesive, fixed to a sheet base which is glued to the base of the box.

Another advantage is that these small boxes can easily be stored in larger flat boxes placed on top of each other or 10 drawer Bisley cabinets (the BMS reference collection is stored in 3 of these). In totally enclosed boxes the specimens are protected from damage. These small

Fig. 1 Uvarovite (5mm FOV) Saranovskii Mine, Urals Region, Russia

Fig. 2 Boltwoodite (13mm FOV) Goanikonties Claim, Arandis, Swakopmund District, Erongo, Namibia

Fig. 3 Cuprite var chalcotrichite (10mm FOV) Fowey Consols Mine, Tywardreath, Cornwall

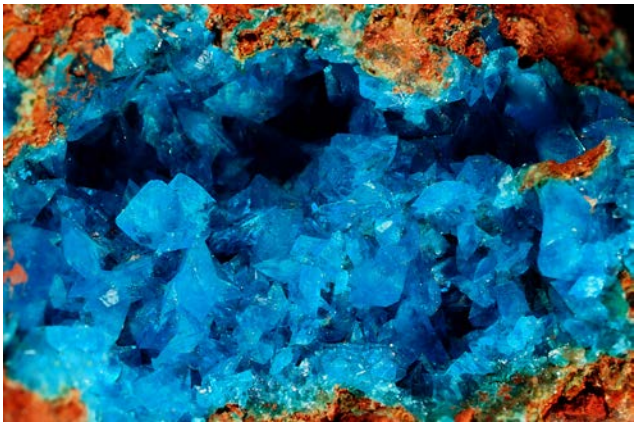


Fig. 4 Liroconite (11mm FOV) Wheal Gorland, Gwennap, Cornwall

Fig. 5 Calcite (10 x 6 mm) Corrantee Mine, Strontian, Highlands, Scotland

Fig.6 Torbernite (5mm FOV) Blackpool China Clay Pit, Trewoon, St. Austell, Cornwall

boxes are comparatively cheap to purchase. John then explained how several micro-mounts can be created by breaking up a suitable single mineral specimen, selecting the best for one's own collection and using the remainder for gifts, swaps or other purposes. John then reminded us that the SMLS has its own micro-mount collection (The SMLS Merritt Collection) which contains both British and foreign specimens. John is the current custodian and would welcome any specimen loan or general queries that members may have. Specimens from both this and the BMS collection are both used for our own micro-mount meetings.

A stereo-microscope optical system has twin eyepieces at the top converging through a single large compound objective lens to where the specimen would be at the bottom on more expensive models. Less expensive models have paired objectives that produce a similar result. These microscopes are not necessarily expensive, new, reasonably good models, with built in lights, are available at reasonable prices (*See suppliers details below). Other benefits of owning a stereo-microscope are examining larger specimens in one's collection where small previously unseen species may be found. This has happened fairly recently at the Natural History Museum where they have been taking a closer look at their historic specimens. A whole new world of interest opens up looking at many small things such as bugs, botany, entomology or microfossils. Kids love them it and they can help with fiddly jobs.

*Brunel Microscopes Ltd., Unit 2, Vincients Road, Bumpers Farm Industrial Estate, Chippenham, Wiltshire. SN14 6NQ. Helpline: 01249 462655, Fax: 0044 (0)1249 445156, Web page for stereo microscopes: http://www.brunelmicroscopes.co.uk/stereo-tour.html .
Email: mail@brunelmicroscopes.co.uk . Low cost, but good quality microscopes that represent excellent value.

*Meiji Techno UK, Ltd. The Vineyard, Axbridge, Somerset, BS26 2AN. Phone: 01934 733655. Fax: 01934 733660.
Web page for stereo microscopes: http://www.meijitechno.co.uk
Email: enquiries@*meijitechno*.co.*uk* . More expensive middle-range instruments from a well-established Japanese manufacturer.

We were then shown several specimens including the following:-

Calcite "cog-wheels" (see fig. 5) – with three generations of calcite. The teeth of the cogs are short trigonal prisms, each aligned with the prism edges of an earlier generation of longer trigonal prisms. Although these are not obvious in the photo, they in turn are growing from and sharing a common 'c' axis with the tips of scalenohedral 'dog tooth' crystals.
Cuprite (var. chalcotrichite) (see fig. 3) – Fowey Consuls Mine and torbernite (see fig.6) from Blackpool China Clay Pit, St. Austell.

John answered an array of questions and then invited everyone to view various specimens, including some on a carousel, through microscopes. He looks forward to seeing more members at the next Sussex BMS meeting on Friday 15 March 2013.

Many thanks to John for an excellent talk and bringing along specimens as well as setting up microscopes for viewing examples of these wonderful minerals.

John Burgess

FIND THE MINERALS IN THE GRID BELOW

The letters can be joined horizontally, vertically, diagonally, backwards and forwards to spell out one of the minerals.

There are so many minerals you may find it easier to make 3 copies of the grid and enter horizontal, vertical and diagonal words separately.

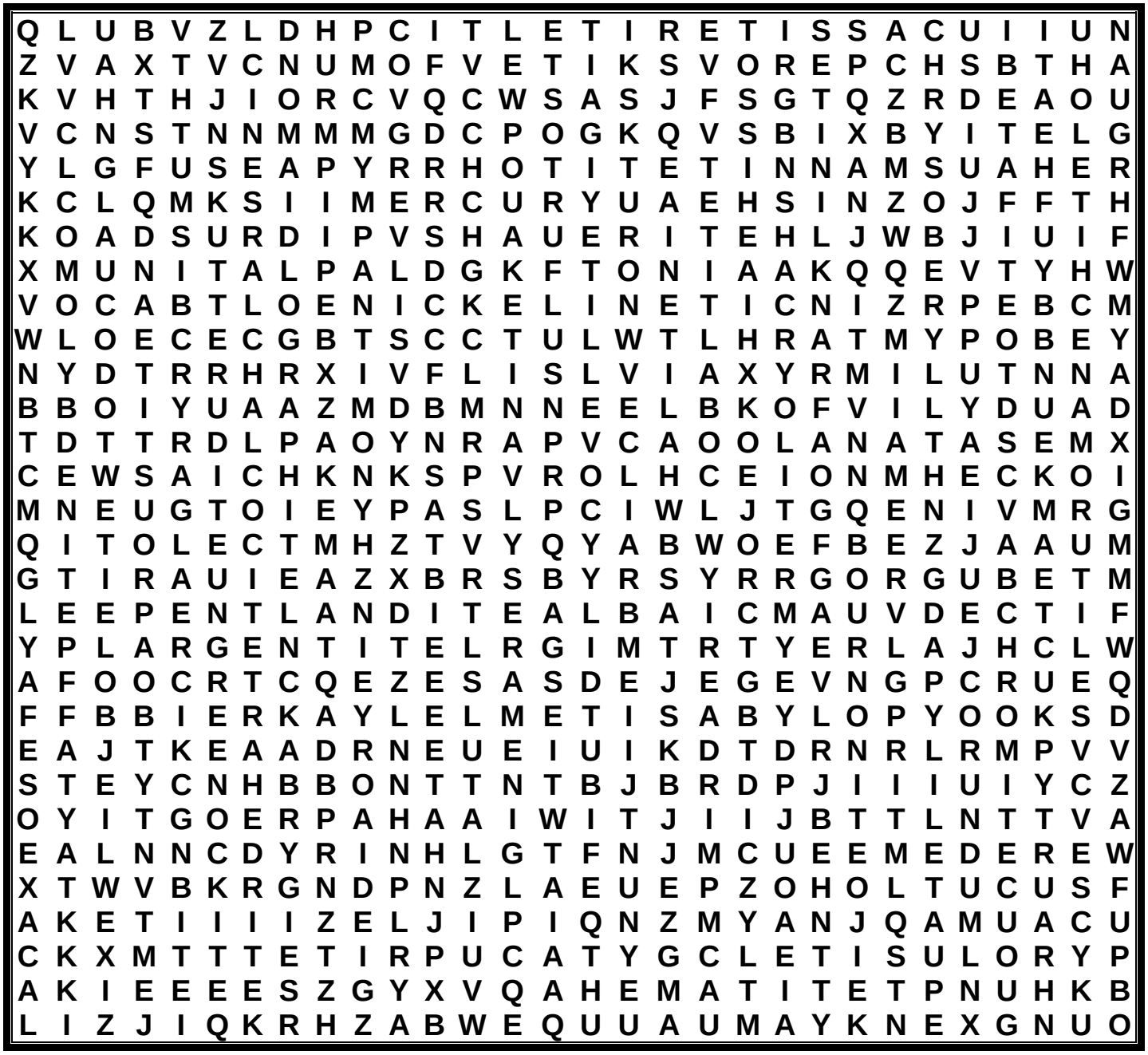
Our thanks to Houston Peeble Pups for designing this grid. It is American so sulphur is spelt sulfur!

I hold the time record for completing the grid: 3 days, 5 hours and 40 minutes! Can you beat this? I can E-mail you a copy of the grid if it helps! (jppearce@talktalk.net)

ANATASE
ANTIMONY
ARGENTITE
ARSENIC
ARSENOPYRITE
ATACAMITE
BETAFITE
BISMUTH
BISMUTHINITE
BIXBYITE
BOLEITE
BORNITE
BOULANERITE
BOURNONITE
CARNALLITE
CASSITERITE
CHALCOCITE
CHALCOPYRITE
CHLORARGYRITE
CHROMITE
CHRYSOBERYL
CINNABAR
COBALTITE
COPPER
CORUNDUM
COVELLITE
CRYOLITE
CUPRITE
DIAMOND
ENARGITE
FLUORITE
FRANKLINITE
GALENA
GLAUCODOT
GOLD
GRAPHITE
GREENOCKITE
HALITE
HAUERITE
HAUSMANNITE
HEMATITE
ILMENTITE
MAGNETITE
MARCASITE
MERCURY
MICROLITE
MILLERITE
MOLYBDENITE
NICKEL
NICKELINE
ORPIMENT
PENTLANDITE
PEROVSKITE
PLATINUM
POLYBASITE
PROUSTITE
PYRAGYRITE
PYRITE
PYROLUSITE
PYRRHOTITE
REALGAR
ROMANECHITE
RUTILE
SILVER
SKUTTERUDITE
SPHALERITE
SPINEL
STEPHANITE
STIBICONITE
STIBNITE
SULFUR
SYLVANITE
SYLVITE
TETRAHEDRITE
ZINCITE

John Pearce

THE GRID


Q L U B V Z L D H P C I T L E T I R E T I S S A C U I I U N
Z V A X T V C N U M O F V E T I K S V O R E P C H S B T H A
K V H T H J I O R C V Q C W S A S J F S G T Q Z R D E A O U
V C N S T N N M M M G D C P O G K Q V S B I X B Y I T E L G
Y L G F U S E A P Y R R H O T I T E T I N N A M S U A H E R
K C L Q M K S I I M E R C U R Y U A E H S I N Z O J F F T H
K O A D S U R D I P V S H A U E R I T E H L J W B J I U I F
X M U N I T A L P A L D G K F T O N I A A K Q Q E V T Y H W
V O C A B T L O E N I C K E L I N E T I C N I Z R P E B C M
W L O E C E C G B T S C C T U L W T L H R A T M Y P O B E Y
N Y D T R R H R X I V F L I S L V I A X Y R M I L U T N N A
B B O I Y U A A Z M D B M N N E E L B K O F V I L Y D U A D
T D T T R D L P A O Y N R A P V C A O O L A N A T A S E M X
C E W S A I C H K N K S P V R O L H C E I O N M H E C K O I
M N E U G T O I E Y P A S L P C I W L J T G Q E N I V M R G
Q I T O L E C T M H Z T V Y Q Y A B W O E F B E Z J A A U M
G T I R A U I E A Z X B R S B Y R S Y R R G O R G U B E T M
L E E P E N T L A N D I T E A L B A I C M A U V D E C T I F
Y P L A R G E N T I T E L R G I M T R T Y E R L A J H C L W
A F O O C R T C Q E Z E S A S D E J E G E V N G P C R U E Q
F F B B I E R K A Y L E L M E T I S A B Y L O P Y O O K S D
E A J T K E A A D R N E U E I U I K D T D R N R L R M P V V
S T E Y C N H B B O N T T N T B J B R D P J I I I U I Y C Z
O Y I T G O E R P A H A A I W I T J I I J B T T L N T T V A
E A L N N C D Y R I N H L G T F N J M C U E E M E D E R E W
X T W V B K R G N D P N Z L A E U E P Z O H O L T U C U S F
A K E T I I I I Z E L J I P I Q N Z M Y A N J Q A M U A C U
C K X M T T T E T I R P U C A T Y G C L E T I S U L O R Y P
A K I E E E E S Z G Y X V Q A H E M A T I T E T P N U H K B
L I Z J I Q K R H Z A B W E Q U U A U M A Y K N E X G N U O

THE WEIRDSTONES OF CHESHIRE: COPPER, COBALT AND SALT IN THE CHESHIRE BASIN

by **Chris Carlon** (7 December 2012)

Chris Carlon's excellent presentation on the geology of Cheshire featured two contrasting stories, both representing long mining histories but illustrating very different levels of geological complexity, mining technique, and economic contribution. The two stories unfold in the Cheshire Basin, a roughly oval area 100 km long and about 50 km wide that makes up a generally flat, saucer-shaped basin of Triassic sandstones and mudstones overlain in places by Quaternary glacial sediment. The relatively uniform landscape and formation caused one of Chris's early professors to call it the most boring geology in the UK, a judgment soundly disproved in the course of the evening's talk.

An underlying lower sequence of Sherwood Sandstone was deposited in a desert environment 252-240 Ma, when the UK was closer to the Equator and the Atlantic Ocean was just beginning to appear. In some places in the red sandstone it is even possible to see the outline of the former dunes and to assess the prevailing wind direction at the time. An upper sequence of red and green Mercia Mudstone was deposited 240-209 Ma, reaching a thickness of up to 1,540 m in some places. The older rocks tend to be on the edges of the basin and the younger ones on the inside; the basin is traversed by a number of faults.

It is the outer rim of the basin that hosts copper and other metals and which provides the focus of the first story. There are nine sites that have been mined for metals, mostly on the southern and north-eastern ends of the basin, perhaps most notably at Alderley Edge, where the author Alan Garner grew up. He wrote the children's book *TheWeirdstone of Brisingame*, involving the search for a magic stone that leads through mine shafts and tunnels. The book contributed to the title of the talk, in which we were led through remarkable geological processes that are responsible for exceptionally complex mineral deposition.

The mineralization involves copper and other metals including lead (but only at Alderley Edge), cobalt, nickel, zinc, iron, vanadium and barium. The processes are still not completely understood, but current thinking emphasises that the majority of the mineralization was epigenetic, after the sandstones were formed. There are a number of similar red bed copper deposits around the world, so-called because of the iron-derived colour of the sandstones. The primary mineral formation involved deposition from low-temperature brines moving up through faults to form mineral veins. Baryte was apparently deposited before, during and after the metallic sulphides and sulpharsenides. The sulphides were formed by the reduction of sulphate by 'sour gas' (natural gas containing hydrogen sulphide). The initial mineral assemblage of pyrite, chalcopyrite, galena and other sulphides was subsequently oxidized in several phases, leading to additional sulphides (e.g. covellite and djurelite) and then other secondary minerals such as the carbonates which made up the principal copper ore minerals.

The list of primary sulphide minerals and secondary oxides, hydroxides, arsenates, vanadates, carbonates, and sulphates found in these formations is enough to cause any mineral collector to grab a rock hammer and head for Cheshire. Unfortunately, the majority of this mineralization has taken place in the pore spaces of the sandstone and the evidence is, for the most part, at the microscopic level. However, collectors will recognize that Mottram St. Andrew, on the north-east of the basin, is the type locality for mottramite (although there is the possibility that these first examples had actually been transported there for smelting from the Pim Hill Mine at the opposite, southern end of the basin). Despite a dearth of hand specimens, there is still much to admire. The bleaching of the red rock due to the reduction of hematite can lead to attractive banding, and copper carbonates precipitating as the iron goes into solution provide blue-green coatings on some of the mine walls.

There is evidence that the area has been mined for copper, off and on, since prehistoric times. The highest production was achieved in the nineteenth century. Between 1857 and 1878 Alderley Edge alone produced 3,188 tons of copper from ores with 1-2% copper content, a substantial output but puny beside many modern copper mining operations (and barely equivalent to the annual production of Parys Mountain in its heyday). The mines have not operated since World War I but Alderley Edge is anything but a depressed mining town. It has a reputation for affluent homes (owing more to the nineteenth century cotton trade based in Manchester than to copper), and the most likely metallic glint to be seen today will be the bling and Bentleys of the professional footballers who own homes in the village and ply their trade at nearby stadiums.

The story of salt in Cheshire provides sharp contrasts with that of copper. It features a single mineral (halite), depends on much simpler geological processes, and although it also involves a long mining history its economic contribution continues to be felt to the present day. The Cheshire Basin is the UK's largest rock salt resource. The salt deposits derive from the evaporation of shallow salt lakes and mudflats formed during the Triassic in the Mercia Mudstone in the inner part of the Cheshire Basin. There are polygon patterns on the walls of some of the Cheshire salt mines that match those found on the surface of evaporating saline environments today. There are also some deposits of gypsum derived from the same evaporative processes.

The early exploitation of this salt reserve was through the brine springs found in the area, an activity with a long history even before the Romans arrived. They established several settlements to extract salt and extended the technology to boiling the brine in large lead pans. Salt extraction from brine continued, making the area an important economic centre. Excavation in search of coal in 1670 led to the first discovery of rock salt (any coal would have been found hundreds of metres below this). From that time, rock salt mining complemented the continuing use of brine extraction. Techniques varied, including exploiting naturally occurring brine springs; conventional mining (with the challenge of keeping water out of the workings); pumping hot water into salt deposits and extracting the brine; and eventually the excavation of huge underground caverns supported by salt pillars. The only places where rock salt mining was feasible were Northwich and Winsford, while further south in Nantwich lower concentration brine was the principal resource. (The suffix 'wich' in a place name indicates a salt works.)

The only Cheshire salt mine still operating is at Winsford. This is a large operation producing at least one million tons of rock salt annually. (Annual worldwide salt production is approximately 200 million tons.) The salt is 150-200 meters below ground and is now extracted by a continuous mining machine. Mine vehicles can drive for almost two miles through these caverns

The long-term extraction of large quantities of brine and salt has left considerable gaps underground and subsidence has long been a problem in this part of Cheshire. This eventually led to reliance on light timber-framed buildings that could be jacked up or, in extreme cases, moved in case of subsidence. Nevertheless, considerable damage was done and a Brine Subsidence Compensation Act was introduced in 1891. Over the years subsidence has been responsible for the disappearance of (among other things) parts of canals, a pub left closed while the owner was on holiday, and a horse and coal wagon left unattended for an hour. But the empty space of old salt mines is also a valuable resource. Old brine caverns have been used to store hazardous waste since the 1980s; part of the Winsford mine is used to store documents, including some of the National Archives; and there are plans to use old salt mines for natural gas storage.

Salt has always been a vital commodity, an important item of trade and at times a political resource. Roman soldiers were paid partly in salt, explaining the origin of the word 'salary'. As salt's role in food preservation gave way to refrigeration other industrial uses emerged that required sodium, chlorine, or both. The salt deposits of Cheshire were strategically placed to contribute to industrial and commercial advance. They were close to sources of other inputs such as coal and limestone as well as to ports from which the salt and other industrial products could

be exported. The Solvay process for producing soda ash (sodium carbonate) relies on rock salt and limestone and was developed in the mid-nineteenth century; the first large-scale production plant in the world was established by Brunner, Mond & Co near Northwich in 1874 and made a significant contribution to the industrial development of the area. Brunner Mond eventually became a part of the new ICI when it was formed in 1924. Just a few years later (as Mark Kurlansky relates in *Salt: A World History*) Gandhi organized his salt protests in reaction to long-standing British policy that had taxed or curtailed salt production in India in favour of Cheshire salt exported from Liverpool, a policy that particularly hurt salt producers in Gujarat. During the mid-nineteenth century, when these policies were well established, a Gujarati entrepreneur named Tata was beginning to build his business empire; in 2005 the Brunner Mond facility at Northwich became a subsidiary of Tata Chemicals.

Rob Tripp

THE SEPTEMBER OXFORD SHOW

Apologies. The programme sent out in the last SMLS programme gave the wrong date. It should have been Sunday 15th September2013. Please change your programme.

WHEAL GORLAND, Gwennap, Cornwall

On page 7 of the last journal there was a beautiful photo of olivenite from Wheal Gorland which should have been followed by **"Gwennap, Cornwall"** (not St. Agnes, Cornwall).

SMLS COMPETITION: Classes to be judged by members

In the note at the bottom of the section on classes in SMLS Journal 241, it indicated that members would judge classes 8, 9 and 9A. This should have read classes 6, 9 and 9A, i.e. the Creation and Photographic classes

I have had words with the editor about these three errors. He blamed too much Xmas spirit, but promised there would be no more mistakes… until the next issue.

John Pearce

LETTER FROM LEONARD BURRELL, WHOSE LAPIDARY COLLECTION WE SOLD

23 Buckfast Close
Wigston
Leicester
LE18 2JU
9 January 2013

Mr John Pearce
7 Condor Way
Burgess Hill
West Sussex
RH15 9QB

Dear John

Thank you very much for the cheque.

I am delighted and astounded at just how quickly you were able to find homes for so much of the lapidary equipment and minerals.

It is especially gratifying to know that the young people at Ardingly College will have the opportunity to use the tools and materials that gave us so much pleasure over the years.

Also, It is with great relief that your society has also benefited from the 'redistribution' of the equipment, a matter that had been troubling me for some time.

Finally I would like to take this opportunity to wish your Society all the best for the future.

Yours sincerely

Leonard A Burrell

In memory of my late wife Joyce who played a major part in all our hobbies until we lost her in 1990.

Dinosaur Isle – SM&LS: Jurassic Park Adventure
Friday 14th to Sun 16th September 2012

The September Isle of Wight three day trip was certainly an adventure for some of our gang. It was Katya's first visit, Nick's revisit after a long absence and Brian's second trip. Helena and Jolyon made us a group of five, minus dog.

Meeting up at the ferry on the Friday was made possible with android emails and we gathered together in two cars island-side at the Haver ferry port and travelled over to Fishbourne. With no hanging around we headed off to our first collecting destination on this trip.

At the Hampstead site on Day 1

With Nick as our guide, following internet instructions regarding limited parking and local diligent parking fines, we walked over the coastal hills to Hampstead, passing the beach point we would later return to. The tide was still high here but a cursory look revealed some interesting pottery (maybe Roman) and a piece of chalcedony/flint with small quartz crystals. We continued on our hike over the hills and through meadows, spotting a lone red squirrel but also lots of butterflies, damsel and dragonflies and some tasty blackberries. We then discovered the muddy path down to the beach and with some slipping and sliding got to the beach, Nick doing an interesting acrobatic display while helping Helena through the gorse.

Very soon we were examining everything black and soon bits of bone were found on the beach together with a number of bivalves and gastropods in the grey-green mudstones exposed here (see Fig. 5). Pyritised fossils and wood/twigs were also collected and also one or two flint fossils (washed out of earlier Cretaceous beds). There were likely seeds and ostracod beds found as we made our way back along the beach, clambering over fallen trees and slippery rocks. (Fig. 1 captures Nick collecting leisurely while fig 2 shows Katya digging).

Overall we must have jointly collected over a 100 bone fragments, all finding good pieces. These were mostly Diplocynodon crocodile scutes (Jolyon finding a good sized and well defined piece as did Nick – figures 3 & 4). Relatively abundant turtle shell was found all along the beach but more prevalent on the eastern side – these being Trionyx and Enys species. There were also some turtle leg bones and some possible mammal bones.
There is an interesting link to the Discovering Fossils site:
http://www.discoveringfossils.co.uk/bouldnor_fossils.htm

After what was a long and quite strenuous walk for the day we arrived back at the shore, pottery location, and back to the 'car park'. It was then off to Shanklin's Swiss Cottage B&B (with a bar) for some R&R, a good meal at a local Italian restaurant and later refreshments at the B&B. We were all pretty much 'done-in' with the day's trek so hit the sack early waking with a lot of groaning. Breakfasting, civilly, was not too early as we had to wait for the tide turning.

Day 2 – Shepherds Chine to Whale Chine via Atherfield Point.

After filling up on an English breakfast, we split up with Jolyon and Katya off for sightseeing at Alum Bay and other locations, while Nick and I went in search of Jurassic Jim. Last time I was in Shanklin I was sure Jim was located in Sandown so we set off and parked in Sandown. We asked the parking inspector, having just paid our parking fee, for directions, only to be told that Jurassic Jim's shop was in Shanklin up an alley. Returning to Shanklin there was no sign of Jim in the alley and asking there we were told he had a shop in the High Street which when we found it turned out to be the fossil shop where we had been window shopping the night before, and there of course in big letters was the shop name: ***Jurassic Jim***! It was well worth finding him as he identified a number of our bone finds and made a map that led us to later discoveries.
Helena had spent the early part of the morning collecting fossil wood on Shanklin beach.

Fig. 1 Nick collecting

Fig.2 Katya digging

Fig 3 Jolyon with a scute

Fig 4 A crocodile scute

Fig. 5 Death assemblage at Hampstead

Fig 6 Looking east from Shepherds Chine

Fig 7 Pterosaur bone

Saturday was a truly glorious day. Nick, Helena and I left Shanklin later that morning to be joined by Phil James and his wife Julie from the Southampton club. Phil an avid collector has been to Atherfield many times and has made some great finds including some enormous ammonites which can be found at the Whale Chine end. We started from Shepherds Chine (fig. 6) as access from Whale Chine is no longer possible at present.

The first port of call was the crackers – hard ironstone nodules which often have fossils in the centre. A piece of the prawn (Meyeria) was found in one of the crackers in the lobster beds (which I have renamed the prawn crackers bed) just before Atherfield Point. Phil also found a nice whole ammonite in a cracker and left it for one of us, but we were all too shy to pick it up! So the next visitors there will be wondering what was wrong with it. Several of these crackers also contained nice vivianite crystal sprays up to 5mm.

We all found the large oysters in the Perna beds and the coral *Holocystis elegans*, the golfball coral, both in blocks of the Perna Beds exposed at Atherfield point. Nick also found a sea urchin in the ferruginous sands at the Whale Chine end of the walk where delicate white nests of the terebratulid brachiopod *Sellythyris sella* and other unidentified rhynchonellids were preserved in the ferruginous sands. On the surfaces of these rocks I found a suite of evaporate minerals from pyrite decomposition, potassium-alum, possible sulphur, gypsum (selenite), green melanterite and possible members of the jarosite family were visually identified and were carried back on a broken pink frisbee.

There is a good link page http://www.denverfowler.com/fieldwork/lowergreensand.htm

We all met up later for a very nice dinner together though it took a bit of a search before we found a suitable watering hole for everyone's taste, called The Crab.

Last and 3rd Day

The clouds had eventually arrived with some rain. Initially going to Osborne House was part of the itinerary before boarding the ferry home. However we had the morning free so we decided to see the fossil museum in Sandown. I had been there recently so I went for a trip down the Yaverland cliff exposure to use Jurassic Jim's map. Near the Vectis beds and below the Red Cliffs, slabs of limestone were collected with plant debris, bivalves and small fish bones and vertebrae. A small fragment of bone was also found, which was identified, by one of the museum's curators, as dinosaur (indeterminate).

The museum was truly excellent and great to see examples of what we'd found at Hampstead and Atherfield, including a whole Trionyx turtle allowing us to see where on the creature all our bits had come from. Wonderful (original) dinosaurs were on display and loads of other good IoW fossils finds, of all sorts and sizes. Nick also bought some mineral and fossil playing cards from the shop – coming to a raffle near you!

We all met up in the museum shop and made plans. Jolyon and Katya decided to go to the Sandown Zoo to see meerkats and tigers and then onto Osborne House. As the weather had improved Helena made the decision for the rest of us, so it was a walk along the Yaverland coast, again for me. However the tide was only just going out and by the time we got to the same beds it was starting to drizzle, but potentially the rain helped in finding the 'black'. Some more fossilised limestone was found as well as fossil wood (probably monkey-puzzle tree) and then another 1 inch chunk of bone was found by Brian, as well as other bone fragments being collected from the beach. Nick also found some cone-in-cone structures; there are two layers of this here: the Upper Crust and Lower Crust. I'm sure Nick was specific enough to only bring back the upper crust samples for us. Another unusual find was a septarian nodule (cannon ball sized) with pale brown crystals to 1cm of baryte (tested later giving a green flame test and no fizz in acid, also good yellow fluorescence under short wave UV).

A quick visit back to the museum curator confirmed the last piece of bone to be found was pterosaur (Fig 7) (flying dinosaur) likely to be one of two species (Caulkicephalus trimicrodon or Tropeognathus sp.). A cavity in the bone is filled with a phosphate mineral (white radiating balls) associated with small pyrite crystals. Initial identification suggests it could be carbonate-hydroxylapatite.

There are links to details at: http://www.palaeocritti.com/by-group/pterosauria/caulkicephalus and http://www.dinosaurusi.com/en/post/235/flying-dinosaur-pterosaurus-tropeognathus/

Then we went back towards the beach, enthused by our earlier finds, and had a cup of fab coffee at the lovely beachside kiosk.

It was then homeward bound and completely unplanned our two vehicles ended up side by side on ferry car lanes – so we all met up to share news and look at finds before finally departing back to the mainland. Does IoW count as a foreign trip?

Overall conclusions – most areas of Isle of Wight are SSSI which makes collecting difficult. But you can still walk the beaches and find things with diligent searching (the Brian belly position recommended).

Minerals found: **Aragonite** (shells), **Baryte** – in a spherical septarian nodule – Yaverland, **Calcite** - various limestones and cone-in-cone structures, **Jarosite(?)** – Atherfield, **Vivianite** in crackers – Whale Chine, **Sulphur** – Atherfield, **Melanterite** (green xls) – Atherfield, **Gypsum** (selenite) – both Atherfield and Yaverland, **Potassium-alum** – Atherfield, **Chalcedony/Jasper/Quartz** xls in pebbles – Hampstead, **Pyrite/Marcasite** – abundant at all locations and often with wood/bone, **Goethite** after pyrite, **Carbonate-hydroxylapatite** – white balls with pyrite in cavity of bone – Yaverland,
Fossils found: Wood and plant material – monkey-puzzle(?) and Oligocene pyritised twigs and possible seeds, crocodile, Eny, Trinoyx, various bivalves, various gastropods, Sauropod and Pterosaur bone, possible mammal bone, echinoids, parts of ammonites, a partial prawn, various brachiopods, ostracods, worm casts, bits of fishes (bones, scales and vertebra), coprolites, bryozoans, possible insect remains, various corals. Practically all main genuses.

Brian Craik-Smith

MIKE HODGSON

Members will be very sorry to learn of Mike's untimely death at New Year. Mike initiated and organised both the U3A Burgess Hill and Haywards Heath Geology groups which have developed very well over the last 10 –15 years and included increasingly ambitious and long field trips within the UK. Mike introduced many people to geology. At least 3 SMLS members are also members of one of his U3A Geology groups and been with Mike for the whole time he was active in the U3A. He will be hard to replace. We had a very close relationship with the U3A groups through Mike, which resulted, for example, in many U3A members coming to our Show and some joining SMLS.

Our condolences go to his wife Pat and family.

SMLS COMPETITION: Judge's Criteria

With the next SMLS competition coming up in April, it is time to start selecting specimens, taking photographs, preparing artefacts, writing labels... You may also find it useful to look back on some criteria which were recorded in Allan Mortimer's Competition report in 2011:

"Different judges will approach the evaluation of entries in a different manner. Hence the fact that we change our judges every couple of years or so. However, I have set out below the list given by Peter Moore, for the judging of this competition. Whilst individual judges may differ in the emphasis placed on different criteria or have additional factors, Peter's list acts as a good all round approach. His points are in no particular order of importance

- **Rarity or otherwise of the species.**
- **How well crystallised is the specimen.**
- **Size of crystals relative to the average for the species.**
- **Overall size of specimen i.e. is it a large assemblage containing many well formed crystals.**
- **Colour, usual or unusual.**
- **Level of damage, if any.**
- **Amount of matrix in relation to the crystallised area. A smaller amount of matrix scores better, but generally a specimen with some matrix can be better than no matrix at all.**
- **Location, usual or unusual.**
- **Presentation of specimen/s and labelling**
- **The "wow" factor, especially for micro minerals looked at through a microscope.**

The above list relates primarily to minerals but many of the criteria can readily be modified to other classes as well".

Allan Mortimer

A Tesco burger goes into a bar and orders a drink. "Sorry" says the barman, "I didn't quite catch that. You'll have to speak up a bit"
"Sorry" replies the burger "I'm a bit horse"

That's just a sample of the flood of horse jokes from Riviera radio this morning (January 18th) I am sure Peter Moore would want to share that with you!

DATES FOR YOUR DIARY

Fri Mar 1	General Meeting: **Minerals from Morocco** Display**: Vanadinite** By Jolyon Ralph
Sun March 3	Oxford Mineral and Fossil Show 10.30 - 4 Exeter Hall, Oxford Road, Kidlington, North Oxford
Sun Mar 10	**Field trip to Plumpton Plain** Co-ordinator: Colin Brough **(Please note the change in date)**
Sat-Sun Mar 9 - 10	Rock N Gem Show 10 – 5 Kempton Park Racecourse, Staines Road East
Fri Mar 15	**Sussex BMS Branch: Micromount Study Evening** Co-ordinator: John Hall
Sat Mar 23	**Field trip to Isle of Sheppey, Kent** Co-ordinator: John Pearce
Sat-Sun Mar 23-24	Rock N Gem Show 10 – 5 Brighton Racecourse,, Freshfield Road, Brighton
Fri April 5	General Meeting: **Competition and Social Evening** Co-ordinator: John Pearce
April 19 – 27	**SMLS Field trip to Morocco** Co-ordinator: Peter Moore
Fri May 3	General Meeting: **Recent Anglesite Discoveries at Parys Mountain** by Tom Cotterell (National Museum of Wales) Display : **Anglesite**
May/June	**Long Weekend Field Trip to Cornwall or Devon** To be confirmed
Sun May 12	Oxford Mineral and Fossil Show 10-30 – 4 Exeter Hall, Oxford Road, Kidlington, North Oxford

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LAPIDARY WORKSHOP

Club members wishing to use this facility should contact Derek Underdown to arrange a date and time.
Experienced members and beginners welcome £1.00 per session
Phone: Partridge Green (01403) 710128
Machinery available:
4", 6", 12" and 24" ROCK SAWS
GRINDERS AND POLISHERS
FACETTING EQUIPMENT
Also GEMMOLOGICAL TESTING LAB SERVICES
A charge of 50p per cut for the 4", 6" and 12" saws and £1.00 per cut for the 24" saw is made to cover the cost of replacing the diamond-tipped blades.