Geology Matters

The newsletter of Malvern U3A geology group
September 2016

The leader

As we move towards the end of a summer of contrasting weather, I hope that you all feel rested and relaxed and looking forward to another interesting geological year. We have a great programme in store for the winter and next summer seasons and some exiting longer residential trips in planning – see the Calendar section below for details.

As promised, after his summer 'break', Geoff Carver, our Editor, is back with a full set of interesting geological information. We've also included a link to a short piece on the geological background to the terrible earthquake in Italy. Our thoughts are with those suffering out there.

As I mentioned last month, our immediate concern within the Steering Committee, is the forthcoming Groups Fair (previously called Registration Morning) on Monday 5th September. We will be there, hopefully to continue our recent successes in signing up new members. Our New Members introductory sessions are prepared and ready to go; details below and in the Calendar. Obviously, priority for these must go to this year's new members but if anyone else would like to attend these sessions then please let Hilary Edgeley know. Any spare places will be allocated on a first come first served basis, so email her now.

New Members - The Indoor Programme

September 28th	Introduction to Geology (Hilary Edgeley)
October 5th	Geology of the Malvern Hills (John Payne)
October 19th	Geological Time (Geoff Carver)
October 26th	Plate Tectonics (Dick Harris)
November 2nd	Rocks, minerals and fossils (Geoff Carver/Margaret Rodway)

New Members - The Outdoor Programme

November 23rd	Tank Quarry and Whitman's Hill Quarry (Geoff Carver/Hilary Edgeley)
November 30th	Gullet Quarry (Moira Jenkins/Robert Eveleigh)
December 7th	Building Stones of Worcester (Hilary Edgeley)

Please remember that it is U3A membership renewal time. The Trustees are keen that as many as possible use the on line system but if you prefer then use the normal postal system.

The indoor dates of our future monthly programme are included in the Calendar. The outdoor programme is under construction, but this is a special mention for our 2 residential trips. If you are considering going on one or both of these trips then please fix them firmly in your 2017 diaries now.

- South Wales, 5th to 9th May – we are extremely lucky to have obtained the services of Dr. Gareth George as our leader. The trip will be based in Tenby and concentrate on the south Pembrokeshire area. Dr George has written a comprehensive field guide to the geology of South Wales – click here for more details.

- Brittany, 19th to 28th Sept – Paul Olver, who is well known to many of us in the group, will lead this trip. It will be run through a travel agency used by Paul for all his overseas trips. The trip will not only cover the geology of the area but also look at some of the megalithic sites in Brittany (such as Carnac) as well as visiting some of the local churches and their famous calvaries.

It came from outer space

Despite last month's garish and fanciful 50's film poster suggesting alien invasion, there is in fact an ever present real threat of objects impacting on us from outer space. You will probably remember this event:

https://www.youtube.com/watch?v=dpmXyJrs7iU

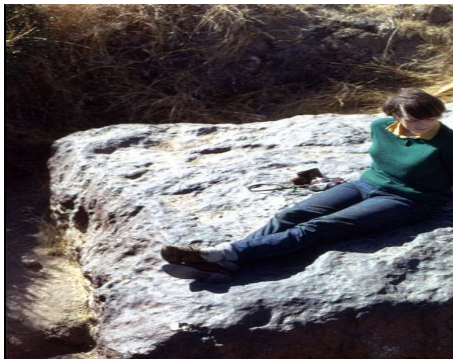
Whilst this isn't quite an everyday occurrence, there are more of these than you might suspect. They not only impact on us, but also on other celestial bodies. This next video showing the most recent impacts on the lunar surface:

https://www.youtube.com/watch?v=PCwzWTea4yE

The moon has no atmosphere and hence we can easily see the result of impacts occurring over extended geological periods..

There are two factors which first ameliorate and then tend to obliterate meteorite impacts here on earth - the atmosphere and its weather. Meteorites approaching along the direction of travel of the earth will be travelling at around 90,000 km/hr, so fast that only the largest will survive the ferocious heating generated as they

plunge into the atmosphere. If they survive to ground level then the impact may well vaporise them; some of course do survive as these photographs show:



Large though these fragments are, they are only tiny compared with the craters at Vredfort in South Africa and Sudbury in Canada. The South African impact created a crater about 300km across whilst the Canadian one is a mere 30km by 20km.

Vredfort crater

Sudbury Craters

And yes there are two craters in the second image – the brighter green elliptical shape and the large lake – but they are unrelated. Important though they are, you may well not have been aware of them, but you will almost certainly know about the Chicxulub crater in Mexico that is thought to have played an important role in the extinction of the dinosaurs. An 18km-wide impactor punched a hole in the Earth's crust some 100km across and 30km deep.

- This bowl then collapsed in on itself, leaving a crater about 200km across and a few km deep

- The central zone of the crater rebounded and collapsed again, leaving an inner "peak ring"

- Today, much of the Chicxulub Crater is buried offshore in the Gulf of Mexico, under 600m of sediments

- On land, the crater is covered by limestone deposits, but its rim is traced by an arc of sink holes

- As well as the obvious scarring and dramatic reorganisation of the local rock strata, the shock waves produce characteristic mineral alterations in all these situations.

Shatter cone from Sudbury

Impactite fall-back breccia

This article only “scratches the surface” of this subject, but if it has wetted your appetite then a trawl through Google or You tube will be rewarding.

https://www.youtube.com/watch?v=cke00nFO0qI

Have you been anywhere interesting this summer?

Well if you have, then how about sharing your experiences with the rest of the Group? It really isn't difficult and Geoff Carver will help with converting the article into our house style. Please get in touch.

Rock of the month

Now this little beauty is called Tridymite. It is generally associated with silicic volcanism, which is known on Earth but was not thought to be important or even present on Mars, but that is in fact where it was discovered. It means that geologists are now going to have to rethink Martian volcanism. Hey, ho!

Earthquake in Italy

This piece gives the geological background to the recent Italian earthquake.

M6.2 - 10km SE of Norcia, Italy

Smart phones and things

iGeology

App | Britain's rocks in your pocket

iGeology is a free smartphone app that lets you take over 500 geological maps of Britain wherever you go to discover the landscape beneath your feet. Available for iPhone/iPad, Android and Kindle Fire.

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Calendar

September	5	Groups Fair 2016
	19	Field trip to Bude (until 23rd)
	28	New Members – Introduction to Geology
October	5	New Members - Geology of the Malvern Hills
	12	Monthly Talk: Geology of Anglesey
	19	New Members - Geological Time
	26	New members - Plate Tectonics
November	2	New Members - Rocks, minerals and fossils
	9	Monthly Talk: Ancient Subduction Zones in the UK
	23	New Members - Tank Quarry and Whitman's Hill Quarry
	30	New Members - Gullet Quarry
December	7	New Members - Building Stones of Worcester
	14	Monthly Talk: Historical Large Scale Volcanism and Future Risks
January	11	Monthly Talk: East African Rift Valley
February	8	Monthly Talk: Use of Stalagmites in Geology/The Anthropocene
March	8	Monthly Talk: What's Underneath a Volcano?
May	5	South Wales (until 9th)
September	19	Brittany (until 28th)

Who's who?

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