

(A Local Group within the Geologists' Association)

Newsletter April 2000

Vol. 4. - No 1.

We have just returned from the first Field Trip of the New Millennium - purists would say (correctly) that we are in the last year of the Old Millennium. Eighteen members attended under the expert leadership of Dr. Paul Davis. We were accommodated at the Bay Hotel, right on the sea front of Lyme Regis. The food and service was excellent and some members even had a view of the grey sea from their bedroom windows. The weather did not smile on us and we hardly saw the sun at all. However we all enjoyed the trip and it gave us the chance to get to know some of the newer members.

The strength of our society is reflected in the activities of its members. Field Meetings offer a much better opportunity for people to become acquainted than attendance at lectures. Moreover they give one the chance to visit other parts of the country or even go overseas. And what is more they are fun.

We congratulate Dorcas Cresswell on acquiring the degree of B.Sc. Hons. in Combined Science with the Open University. How she managed to combine the Course with being an active member of our Society, to say nothing of ordinary daily life shows great organization skills.

We thank Peter Cotton for the second half of the Eclipse Trip Report.

We thank Colin and Jill Brash for the report on the Lake District trip.

There is a brief report on the Isle of Sheppey trip.

Peter Cotton has provided geological details of our recent visit to West Dorset. A fuller account of the life and times of Mary Anning is provided in the Field Notes of our visit by Dr. Paul Davis.

The quiz and the Committee poem (by Anon) are from a family Newsletter. No prizes for the Quiz.

Lake District 'Geology and Scenery' trip August 1999

Twenty one members of the Society led by Dr David Cronshaw spent a week based near Keswick; as always David produced an excellent and instructive trip.

During the week we saw Ordovician Skiddaw slates around Keswick and the contact metamorphism of the slate with the Skiddaw granite. We visited Carrock Fell in the pouring rain to see the suite of Skiddaw igneous minerals and the copper mine. We saw the Borrowdale Volcanics as we walked in the Borrowdale Valley; these included green slates (volcanic ash) and the graphite mines seen from a distance.

Our old friend, the shap granite and its intense folding was examined on the way to the limestone country of Whitbarrow Scar in the southern lakes. Here we ascended a very steep and rough track to study the Lower Carboniferous limestone and to admire the view of Morecambe Bay.

On Thursday we visited an old quarry of Threlkeld microgranite and its adjacent excellent museum. In the afternoon we climbed up to the Armboth intrusion above Thirlmere.

On the final day we walked the coastal path in bright sunshine, studying the glacial deposits and the New Red Sandstone between St. Bees and Whitehaven.

Colin and Jill Brash.

Isle of Sheppey

A Field Day Trip took place on Sunday 27th February to the northern shore of the Isle of Sheppey led by Dr. Paul Davis. The Isle of Sheppey has been the most famous collecting site for Tertiary London Clay fossils over 300 years due to the abundance of seeds, molluscs and vertebrate remains, and the members were not disappointed with their finds which included many shark's teeth and a part of a fossilized fish.

Lyme Regis, Dorset

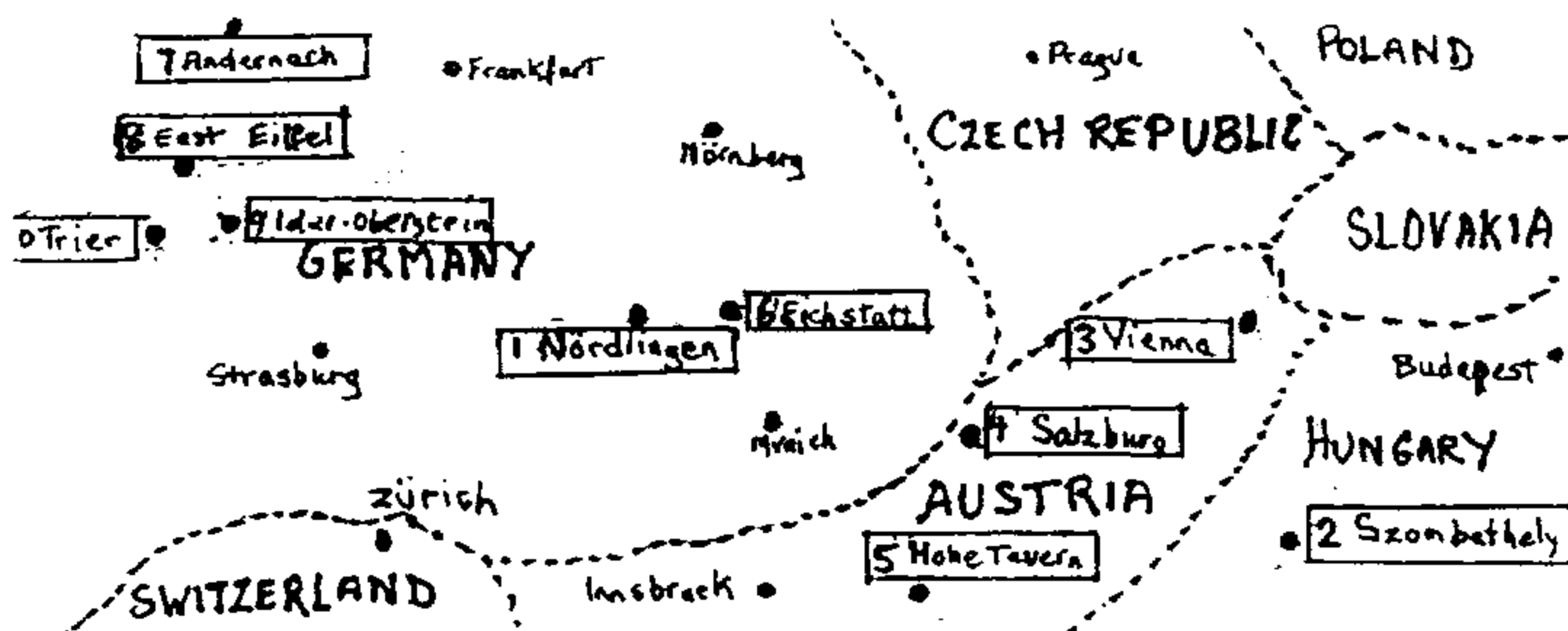
On 31st March 18 Members led by Dr. Paul Davis spent the weekend in West Dorset. Cliff exposures at Middle and Lower Lias were visited at Seatown and Charmouth where small ammonites, belemnites and crinoidal stems were in abundance, often associated with the fossilised wood to which the living crinoids attached themselves. A third site at Burton Bradstocke displayed oolitic limestone strata from the Middle Jurassic. The area round Lyme Regis was the fossil hunting ground of the remarkable woman, Mary Anning, and the party followed a "Mary Anning Walk" visiting various places associated with her.

Mary Anning 1799-1847

She was born in Lyme Regis. Her father a cabinet maker was one of the earliest fossil collectors chiefly from the Lower Lias. In 1811 she found the first Ichthyosaur. It was thought to be a crocodile because of the long snout and sharp teeth. It was sold to the Lord of the Manor Henry Henley for £23. It was later acquired by the British Museum. Her father died in 1810 after which there was no record of her attending school. Her mother died in 1842. In 1820 she discovered a Plesiosaur and later on in 1828 she found a pterosaur (Dimorphodon). She knew such professional geologists as Henry De La Beche, William Buckland and William Daniel Conybeare.

European 'Eclipse Tour' August 1999

In the last Newsletter we were about to leave Szombathely and cross over the border to Austria and Vienna. The map provided in the first part of this report is reproduced below showing the locations to be visited 'boxed in' with a number signifying the section of the report describing our visit.



3. **Vienna**

Arriving in Vienna we were aware that the next three days of the tour were to be more touristic than geological. Vienna is a charming city and we all found plenty to see, having first mastered the Underground transit system to get from the Hotel Ananas to the city centre. St. Stephen's Cathedral is a marvellous building with the most exquisite colour tile roofs; it is currently undergoing major repairs. The area around St. Stephen's Square is crowded with tourists (as one might expect) but there are many side streets with good restaurants which we were to sample in the evening. The museum quarter occupies a large area and it is quite impossible to do more than make a cursory visit. When seeing all the marvellous old buildings in this city one has to remember that it suffered relatively lightly in W.W.II although Russian shells did land in parts of the city.

On the following day, Friday 13th, we took a tourist coach out to the Vienna Woods south of the city. It is easy to understand why this wooded, hilly area provided the inspiration for countless musicians and poets. We visited briefly the hunting lodge at Mayerling where Crown Prince Rudolf shot his mistress, Baroness Marie Vetsera, and then shot himself: the building is a form of mausoleum and rather oppressive. On from Mayerling to the delightful Cistercian Abbey of Heiligenkreuz with its quiet atmosphere and its beautiful cloisters.

Before returning to Vienna we visited the Seegrotte which is Europe's largest underground lake left from extensive gypsum mining. During W.W.II this cave system was pumped dry and used by the Germans to build Heinkel jet aircraft.

The evening was rounded off by musical entertainment, some members of the party going to an outside concert and others to a programme of Mozart and Strauss in the Orangery of the Schönbrunn. Altogether a memorable day to end our short visit to Vienna.

4. **Salzburg**

A morning's drive from Vienna to Salzburg and on to the small village of Wals west of the city where most of the party would be staying for the next two nights. To get into and out of Salzburg was to prove something of a challenge in selecting the right buses. Wals is one of many small villages in this area and buses make a great circle to call at each of them, making one believe that Wals has somehow been forgotten!

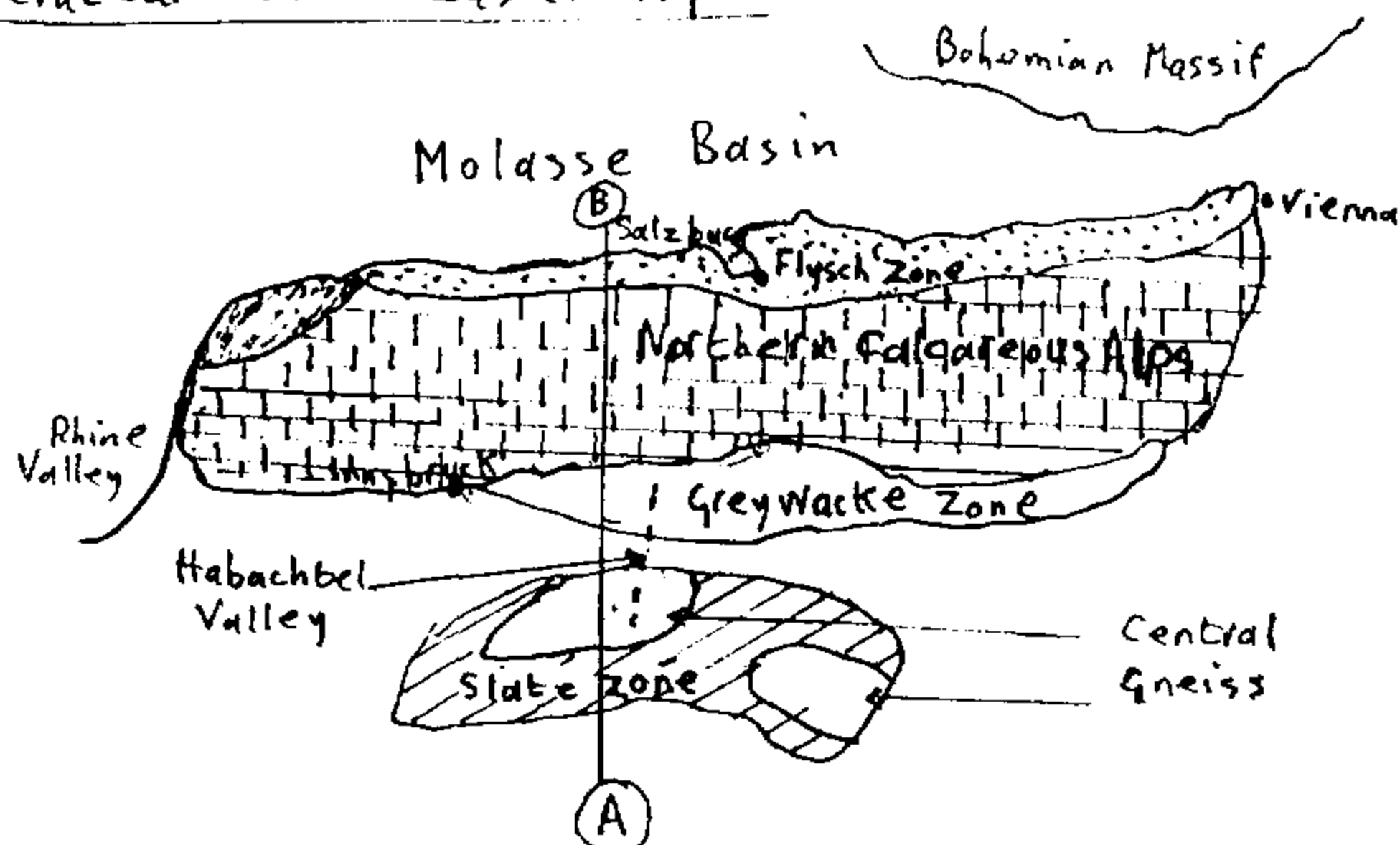
It was festival time in Salzburg and large crowds were in the streets with many people dressed for concert-going. Being a much smaller city than Vienna, and with the river Salzach running right through its centre, it is possible to see many of the delightful squares and beautiful buildings by strolling around and coming across them rather than planning a detailed tour. Overlooking the city is the Hohen-Salzburg fortress, the largest preserved citadel in Central Europe whose construction was started in the 11th century by the then archbishop. Salzburg is the seat of the archbishops and The Residency building has been their home over the centuries. This city is, of course, Mozart's birthplace and his house now contains the Mozart Museum.

5. **Hohe Tauern**

Early the next morning, Sunday, saw us on the coach by 6.30 after an early breakfast. We were off on a day's visit to Hohe Tauern National Park located to the south west of Salzburg. The first party of the journey took us through the Northern Calcareous Alps which at this hour were bathed in early morning sunshine. Following the Salzach valley through the mountains we then turned west to follow the valley through to Zell am See and Mittersill before turning south into the Habachtal valley.

At this point it is useful to remind ourselves of the basic geology of this region by referring to the highly summarised map below.

Structure of the Eastern Alps



Cross-Section A/B



The Northern Calcareous Alps form a great east-west wall of Triassic limestone. To the north of the Alps there is a narrow belt called the Flysch Zone where material from the rising mountain range has been washed down by turbidity currents. The Molasse Basin to the north of Salzburg contains deposits accumulated after the mountain building episode was complete. To the south of the Alps there is a wide orogenic belt where units from Palaeozoic and Mesozoic eras have been stacked one above the other by the northwards thrust of the African Plate against the European Plate during the Hercynian and Alpine orogenies.

When we turned south into the Habachtal valley we were entering the Gneiss Zone shown in the map. This zone represents the original basement and consists of strongly deformed metamorphic rocks within which we were hoping to find a selection of minerals. To help us in this task was Dr. Hans Honigschmid, the director of the nearby Heimatmuseum which we were to visit later in the day. He was awaiting our arrival with a number of small station wagons to which we transferred for our ride up the steep valley into the Hohe Tauern National Park which is one of the largest in Central Europe covering 1800 square kilometres. At an alpine hostel we disembarked and were joined by two guides who were to lead us up the mountains in search of minerals. These guides spend a lot of time in the mountains looking for precious stones and staying overnight in their huts high up in the mountains. We set off uphill, joined by Dr. Honigschmid and his wife, but after a while the party split into two, the more energetic going up to the top whilst those with a more relaxed approach stayed at a point by a stream where we found some small emeralds but were quite content to potter about in and around the stream enjoying the sunshine and eating our packed lunches.

After several hours we descended to the main valley where we looked into a small butter and cheese making establishment using the milk from the 25 cows seen grazing in the valley. An idyllic scene in summer but presumably the operation is abandoned in winter when humans and cattle return to the villages.

Our whole party joined up in the hostel for light refreshments followed by a musical entertainment provided by our two guides who clearly have plenty of time in the nights spent up in the mountains to practice their playing and singing. After this pleasant interlude we returned to our coach and drove back to the little village of Bramberg where the Heimatmuseum founded by Dr. Honigschmidt is located. This museum has been built up over the 50 years that the Doctor has lived here since his release from a British P.o.W. camp and after being married. Apart from the dazzling collection of minerals there were many other displays of natural history, old keys and other household items. AT the end of our visit Dr. Honigschmid produced bottles of schnapps and glasses to bid us farewell. Once again, as in Austria, Michael Cotton acted as our interpreter because the *Doctor had little English.*

6. Eichstätt

Leaving Salzburg the following morning en route for Eichstätt 200 kilometres to the north-west we called in at the Duernberg salt mine. Although our visit was geological in intent we were soon swept up in what is clearly a major tourist attraction involving dressing up in white overalls, being taken by a "train" down through the old mining tunnels, experiencing two exciting - or terrifying! - long wooden slides and finally a boat trip. There was a serious side to our visit looking at very instructive displays of mining techniques used from Celtic times up to the 20th century when the mine closed for working. One has to remember the importance of salt to civilization through the centuries; it is little wonder therefore that the operation of the Duernberg mine located right on the border of Austria and Germany should have given rise to major disputes between the two countries.

After this visit we drove to the historic town of Eichstätt, arriving too late to visit the Jura Museum that day but leaving us plenty of time to explore this fascinating old city. It was the seat of the Zichstätte Prince Bishops who were very powerful fellows in their time. It has many fine houses and The Residence was the home of the archbishops. Following this bit of sightseeing most of us went to an old restaurant for a very pleasant meal.

On the following day we climbed partly by coach and then on foot, to the world famous Jura museum which is housed in the old hilltop castle used by the Prince Bishops in the 16-18th centuries. The Director of the museum, Dr. Gunter Viohl, escorted us round the marvellous collections of very special Jurassic fossils including the famous bird fossil *Archaeopteryx* which had been discovered in the Sohnhofen limestone. There is a fascinating aquarium hall which serves as a link between fossils and extant creatures by virtue of housing "living fossils" such as the nautilus, many corals and other marine creatures whose ancestors would have been around in the late Jurassic period.

From the museum we took the coach to the first of two quarries we were to visit where we saw the famous Sohnhofen Plattenkalk which, in this quarry, was in very thin layers showing extensive displays of dendrites. After an excellent lunch - Bavarian pork schnitzel can be well recommended - we departed for the second quarry where the beds of limestone were appreciably thicker. It was in this quarry that the *archaeopteryx* had been discovered but there was little chance of finding any worthwhile fossils because the quarrymen, many of them "Turkish "gaste workers", had been there before and had a profitable sideline in selling specimens in the local market!

Nearby was a small museum with more displays of fossils; but the major item of interest was the exhibition of the original lithographic process which entailed marking thin plattenkalk slabs with wax pencils followed by dousing with water which soaks into unmarked areas. This is followed by the application of grease to the drawing before inserting the slab of stone into a massive "printing" machine to produce the lithographic drawings of such famous artists as Toulouse-Lautrec and Daumier. If this process was still used today one doubts whether our Sunday papers would be quite so bulky!

7. **Andernach**

On Wednesday 18 August we travelled from Eichstätt in the south-east of Germany (Bavaria) across to the west to enter the Rhine valley south of Mannheim. Over the years canals have been dug to link the Danube to the south of Eichstätt with the northern German river system and our route followed the Main-Donau canal through Nuremberg. We then followed the Rhine Graben through to Coblenz and Andernach which we reached in the late afternoon. Our hotel, the Rhein, was situated near to the Rhine and we therefore had the opportunity to see how busy this river is with barges carrying everything from coal to cars.

Andernach is the twin town of Farnham and a reception had been planned to meet the Burgomaster and the Secretary of the Andernach-Farnham Friendship Association. This event was a little disorganized and it was left to Dorcas Cresswell to arrange the wine; we also did not have the pleasure of meeting the Burgomaster but his Deputy came to respond to speeches and receive a gift from Paul whilst they in return presented an information pack about Andernach for each of us. After the reception many of us went into the old town through the gateway close behind the hotel. Andernach Old Town is a fascinating walled city very different from the developed town outside the city walls. The restaurants were a-plenty and groups of our party found their way to various eating places later in the evening.

Our two nights stay in Andernach provided the base for our visit to the East Eifel Volcanic Field on the following day.

8. **East Eifel Volcanic Field (E.E.V.F.)**

Travelling west from Andernach we reached the Laacher See which is the centre of the youngest volcano in the E.E.V.F. which erupted 11,000 years ago. Volcanic activity has occurred over 700,000 years in this area but the Laacher See eruption was a modern giant ranking with such events as Krakatau in terms of the quantity of magma produced. It was Plinian type eruption producing large quantities of phonolitic and tephritic pumice, scoria and ash, most of which was deposited in an easterly direction towards the Rhine but some went much further east to Poland. The Laacher See volcanoes are conveniently situated to the major cities that have sprung up in the Rhine valley; this means that the igneous materials produced have been extensively quarried for use as building stone (phonolite and basalt), glassmaking and cement. Originally the stone was quarried underground but we were to visit open cast quarries at Michels and the Wingertsberg Tephra Pits as well as an underground mine under the Vulkan Brewery. In addition to the convenience of exploiting local materials, the ready accessibility of the quarries has meant that the E.E.V.F. is a prime centre for the study of volcanic process.

Our first visit was to the small tourist centre situated by the Maria Laach Abbey. This Benedictine abbey is in a delightful setting overlooking the Laacher See and was founded in the 11th century. It is massively built using local volcanic material such as phonolitic lava and tuffs. From here we went on several walks, one of them being a trail through the woods above the Abbey where examples of phonolite, scoria etc. could be seen. A small Natural History Museum was sited off this trail and was well worth a visit.

In the afternoon our first visit was to the Michels quarry, having picked up our guide, Birgit Hammes, at the Rathaus in Mendig. This quarry is still being worked for phonolite which lies beneath a tephra cover. We saw a huge boulder being brought up from deep down in the quarry to be taken to the nearby works where we saw large diamond tipped circular saws cutting up the phonolite for use in building. At this quarry we were set to search for specimens of haüyne, a blue coloured mineral forming part of a mineral assemblage to be found in the Laacher See tephra.

Leaving the Michels quarry we next visited the Wingertsberg Tephra quarry, a sight which the writer of this article found one of the most astonishing he'd seen on field trips. The superb volcanoclastic sedimentary structures encapsulating 11 days of a Plinian eruption have thankfully been preserved from further destruction by quarrying. Furthermore a trail of illustrative charts has been set up describing the various facets of the structure's development such as, for example, the "chute and pool" phenomenon where blocks, some up to 4 metres in diameter, have landed on the ash sediment causing the flow to reverse direction. For those more knowledgeable readers the handout compiled by Diana and Paul provides 16 full pages of text and illustrations relating to the East Eifel Volcanic Field.

Before returning to Andernach we visited the Vulkan Brewery which is now a large tourist attraction, a giant drinking and eating house. Some members of the party took the lift down to the brewery storage area deep in the basalt quarry beneath the brewery. Another pleasant evening in the old town of Andernach sampling the local beverages and food.

9. **Idar-Oberstein**

Friday 20th August and farewell to Andernach and the Rhine valley to cross over the Moselle heading south to the double city of Idar-Oberstein which is an internationally famous centre of the gem industry. The stone polishing process for which Idar-Oberstein is renowned depended originally on local mines quarrying into the red volcanics and conglomerates of the area and using fast flowing water from the streams in the deeply incised valleys to provide power for the polishing machines. Mining for agate is centuries old, possibly back to Roman times, but by the mid 19th century Brazilian agates could be imported more cheaply than local supplies. We visited the very extensive Steinkaulenberg Agate Mine which ceased working in the late 19th century and is now a visitor centre with guided tours showing stones such as agate, amethysts and jaspers in situ on the mine walls. A small museum nearby has illustrations showing the history of mining for agate and close by is a building demonstrating the cutting and polishing processes.

We had our lunch break in a restaurant in the nearby park before going to the gemstone shopping area (Schmuck Zentrum) in the Idar half of the city. The whole of the very long main street is inhabited by dealers in precious stones, many of whom specialise in one particular type of stone. It was possible, though increasingly difficult, just to window-shop looking at the marvellous display of minerals including some enormous "desert roses". Few, if any, members failed to make a purchase and, after a very pleasant afternoon, we headed west to our last overnight stop at Trier on the border of Germany and Luxembourg.

10. **Trier**

Our last meal together as a party in the outside restaurants at the Nellis Park Hotel on the outskirts of Trier was somewhat spoilt by the very slow service and, as a consequence, lukewarm food. However, there was an end-of-term feeling looking forward to our return home the next day.

On the Saturday morning before departure many of us made the taxi trip to the town to see some of the historic buildings of Trier including the well preserved Porta Nigra built in the second century and now the largest surviving Roman city gate north of the Alps. The early Roman Emperor Augustus recognised the strategic location of the present day Trier on the banks of the Moselle and established the city of Augusta Treverorum - Augustus' city in the land of the Celtic tribe of Treveri. Thus Trier is Germany's oldest city which, apart from being the home of a succession of Roman Emperors, became an ecclesiastic centre where archbishops took up residence and flourished during the rule of Emperor Constantine who lived here in the 4th century and encouraged the spread of Christianity such that Trier became a Christian Metropolis equal to Rome.

More or less in the centre of the town is the Hauptmarkt which, being a Saturday, was busy setting up its market stalls. Standing in the market square one is dazzled by the array of magnificent old buildings, many of them presumably built by rich merchants. A short walk from the market square - the neighbourhood where the rich Burghers held sway - brings one to the Dom which was the Archbishop's cathedral. There was no doubt a good deal of dispute between these two power bases in medieval times! Near to the cathedral is the very early Gothic church of Lielfraurenkirche which has an elegant interior layout

Unfortunately it was a fleeting visit to this splendid city because the coach awaited to take us home through Luxembourg, Belgium and France and back to Surrey.

What a trip; what leaders we had in Diana and Paul; what a driver in Brian; what a linguist in Michael Cotton - and the rest of us weren't a bad bunch either!

I'm on a Committee

Oh, give me pity, I'm on a committee
Which means that from morning to night
We attend and amend and contend and defend
Without a conclusion in sight.

We confer and concur, we defer and demur
And re-iterate all of our thoughts.
We revise the agenda with frequent addenda
And consider a load of reports.

We compose and propose, we suppose and oppose
And the points of procedure are fun!
But though various notions are brought up as motions
There's a terribly little gets done.

We resolve and absolve, but never dissolve
Since it's out of the question for us.
What a shattering pity to end our committee
Where else could we make such a fuss?

The Densa quiz

How dumb are you? Do this quiz if you dare and see. Most answers are numeric; that is 1, 45, 72 etc.

Do they have a 5th of November in America? Yes/No.

How many birthdays does the average man have?

Some months have 31 days. How many have 28?

How many outs in an innings?

Can a Welshman be legally married to his widow's sister?

Divide 30 by $\frac{1}{2}$ and add 10. What is the answer?

If there are 3 apples and you take 2 away, how many do you have?

A doctor gives you 3 pills telling you to take one every half hour. How many minutes would the pills last?

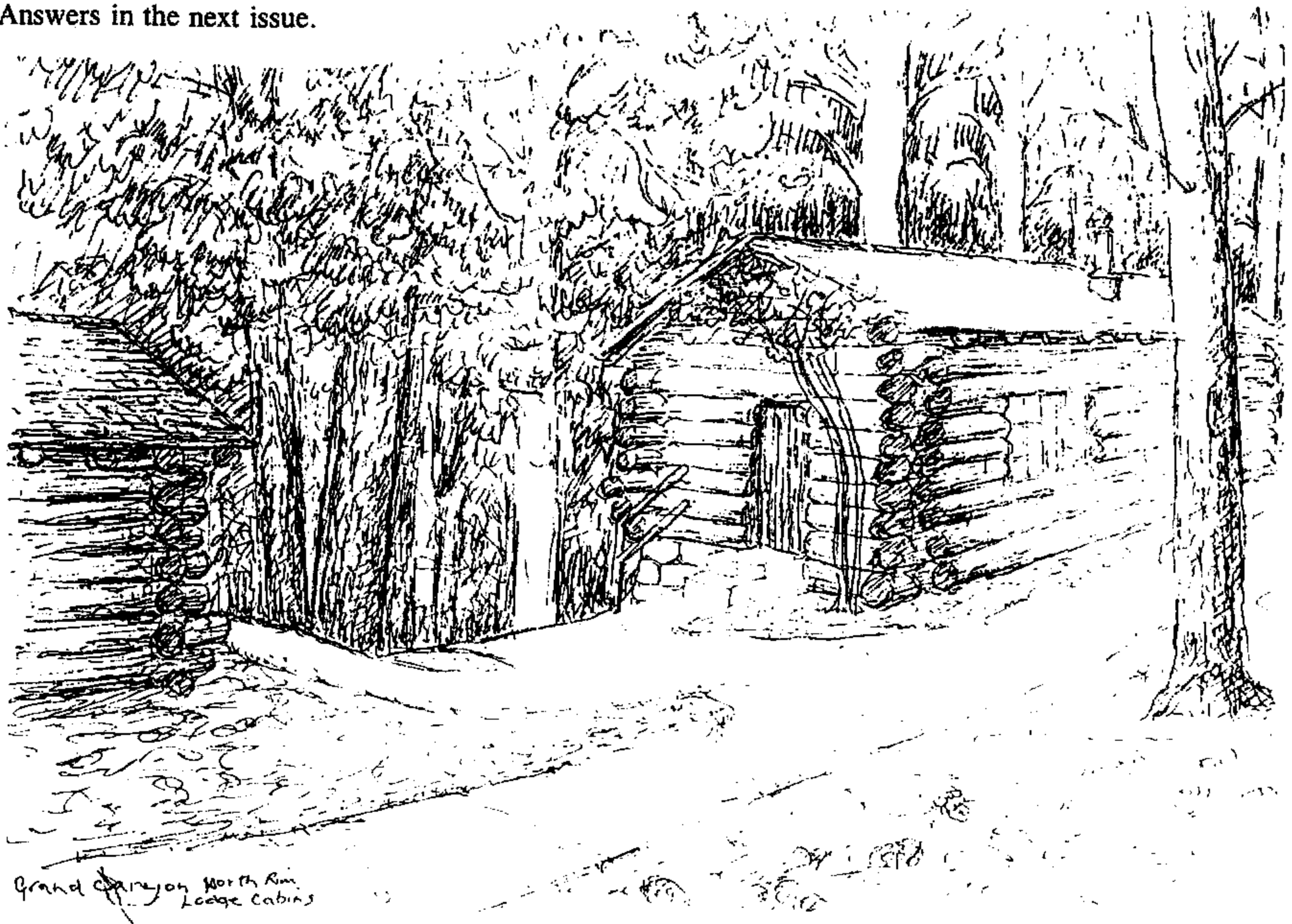
A farmer has 17 sheep standing in a field and all but 9 drop down and die. How many sheep are left standing?

How many members of the animal family did Moses take into the ark?

A clerk in the butcher's shop is 5 feet 10 inches tall. What does he weigh?

How many two penny stamps are there in a dozen?

Answers in the next issue.



Grand Canyon North Rim
Lodge Cabins

Thanks to Jackie Clark for the pen and ink sketch of Grand Canyon North Rim Lodge Cabins

Forthcoming Trips planned for the Geological Society

16 April - Kempton Park - our visit will still be going ahead but the numbers interested in going will not warrant the hire of a mini bus. If you are interested in coming and have not already signed the list, give me a phone so that we can organise lifts.

6 May - Diana Smith has had to change the date with the G.A. for Newlands Corner and you will be informed if it is going to be re-scheduled.

27 - 29 May - Earth Alert Conference, Brighton - many members of the Society will be going down to Brighton for three of the five days that the Conference is being held, and a subsidised mini coach has been arranged for the trip.

30 June - 2 July - South Wales - this event is being postponed to later in the year, probably October, when it is hoped that there will be more support for this promising trip to be led by Dr. Paul Davis.

9 - 19 September - The Millennium Scottish Trip - there are still a few places available for this exciting trip to Scotland, which will be incorporating the Inverness and Aberdeen areas, as well as a day trip to Skye. The group will be travelling with Farnham Coaches and spending the night in Glasgow on the way and on the return journey. We are very lucky to have two exceptional leaders for the trip from the Open University, Sue Hay and Steve Cribb. If you are interested in joining the trip and would like to see a copy of the itinerary, please do give me a phone.

2001

The Irish Trip is being planned for the middle of May and gauging by the enthusiastic support already shown by the members, this event promises to be another exciting field trip. Both Northern and Southern Ireland will be included and we will be visiting Belfast, Ballycastle, Omagh, Dunfanaghy, Donegal, Sligo, Westport, Galway City, Connermara and Dublin. Panning for gold is on the itinerary, a visit to the Giants Causeway and the famous Marble Arch Caves, even a climb up Croagh Patrick and possibly a bog train ride, together with the spectacular scenery - this will be a trip to remember! If you are interested in coming to Ireland do let me know.

Dorcas Cresswell - Field Secretary.
Phone - 01252 793884