reaction to acid. (Fig 15, 16)
The strange area is fairly confined. An upstanding plug was the basis of a small cave and showed that material was more resistant to marine erosion than the limestone. The distribution of the karst features suggested an uneven polygon in places. Yet again it was a struggle to envisage the sequence of events.
Lastly and for convenience as it is near the exit to Anglesey, was a visit to the site under the Marquis of Anglesey Column. Access is from the A5 to a carpark and an explanation board that was not as up to date as others we had seen. The quarry is the where the Blue Schist is found. This is part of the Menai Strait fault system and lies between the Menai Fault and the Berw Fault. There seems to have been low temperature but high pressure metamorphism. Indeed bits of unaltered basalt, an ocean floor sediment from about 585mill B were visible in the schist. The explanation is that this was not at depth for long enough to be fully metamorphosed into schist but was scraped off and squeezed upwards as the remainder was subducted about 550mill BP. This may have all happened in a deep ocean trench.
My default dates are from the BGS web site, but narrower specific ones are used when there is recent zircon crystal U-Pb dates available. The Japanese work suggests a date for the New Harbour Group of 472 mill BP +/-30 which is Lower Ordovician, and South Stack 501mill BP +/-10 which is mid Cambrian. The main theories are contradictory and in a state of constant modification so I will leave that to experts.

My thanks go to Dave Green who ably and enthusiastically guided us around and made us think hard. The errors in the account are all mine. We were blessed with idea sunny weather, and the delights of the wild flowers along the coastal paths. The geopark status is well deserved.

German Geoparks

Isabel Buckingham

When visiting Germany for work, holiday or just passing through it is worth checking the Geoparks if you have any time in hand at all. As my husband has a small German registered plane we are asked to some out of the way locations and can end up unexpectedly landing somewhere due to bad weather.
The starting point is www.nationaler-geopark.de which offers translation and has interactive maps. All national Geoparks are listed, not all yet with UNESCO status, as well as those being

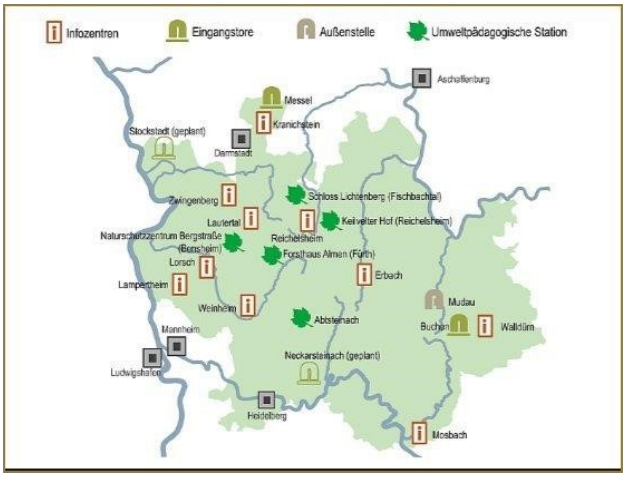
Map 1, *German Geoparks*

worked on at present. Some have twin designation as Nature Parks for recrea-

tion, and those have less easily accessed geological information. Two are cross border, one with Poland and one with Czech Republic. All web sites offer translation into English, details of information centres and trails but variable geological information. This is always much better locally. (Map 1) A visit to a gliding field in the Eifel Mountains is what started my awareness. www.geopark-vulcaneifel.de explained the

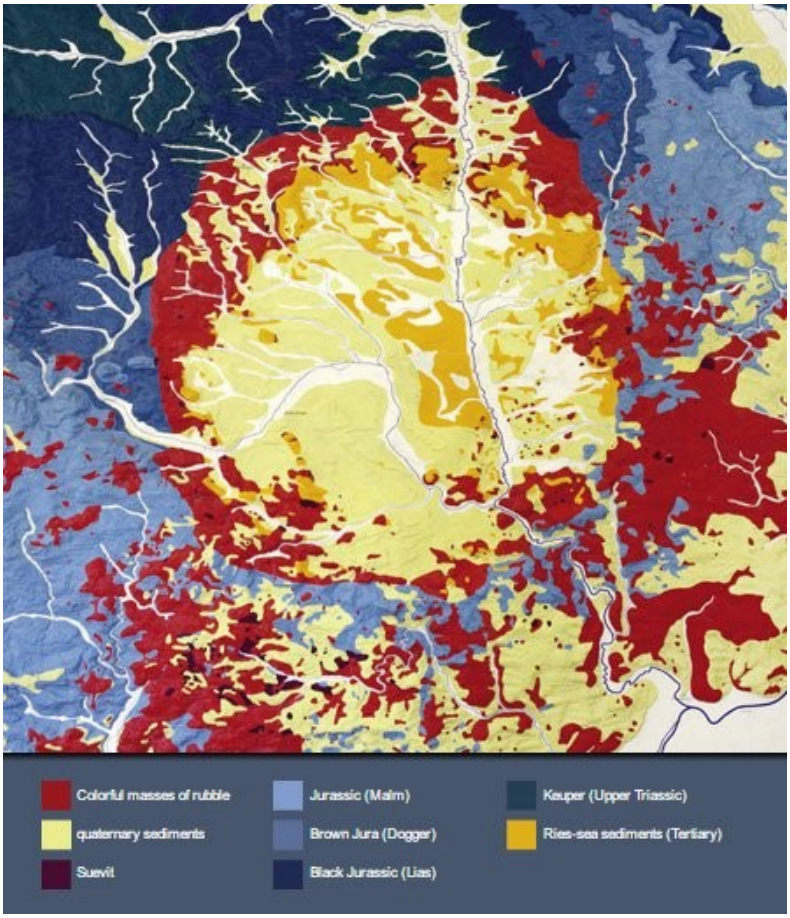
Map 2, *Eifel geopark map*

spectacular scenery we flew over, and the realisation that I had already visited the most recent maar. I saw that we could combine flying with where I wanted to visit by careful planning. (Map 2) By chance this was the first German Geopark.
The plane needed a new canopy and the work was to be carried out near Mosbach in the Necker valley which happened to be in the southern part of the Bergstrasse-Odenwald Geopark, which is described as "Between Granite and Sandstone-Continents on the move". (Map 3) Information was easy to access for a non-German speaker as information boards were in three languages and trails were well marked. It was a quick way to make sense of an area I'd never visited, and the Rhine rift valley graben was well explained.
When on holiday in the Czech Republic I'd found out about the Ries Meteor Crater in Bavaria, so when we were asked to a fly-in, not in the locality, I demanded a visit. The local German pilots all suggested flying round the rim of this 25km diameter crater. This is spectacular and unique in Europe.



Map 3 *Bergstrasse-Odenwald Geopark*

See www.geopark-ries.de The research was carried out for NASA between 1960-62 by Edward Chao and Eugene Shoemaker who identified this as an impact crater, and the Apollo Astronauts were trained there.
About 14.5 million years ago an asteroid about 1 km in diameter hit very obliquely from the north west, splattering debris to the south east for 400 km. The various stages were carefully established by experiments, the initial 15km diameter crater being enlarged to 25km by the collapse of pulverised rock. The resultant coloured breccia is suevite for which this is the type site and this is the term used world wide. The superb museum is in the town of Nordlingen, more or less in the middle of the crater and this also has the best preserved town walls in Germany, and a rail museum. The Geopark Museum is in German but when requested they have not only an English language film, but supply written English notes to carry round. My only warning is that we stayed centrally and on a warm night left the windows open. The many church clocks strike every half hour and amorous storks clacked their beaks all night. There are geological trails and walks. (Map 4)
For 4 million years after impact the crater filled with water and eventually the lake drained south where the gorge remains. The glacial maximum from the Alps did not get quite that far north. There is a depth of loess. Details are on the web site but the museum has much more. It is clear on Google earth.

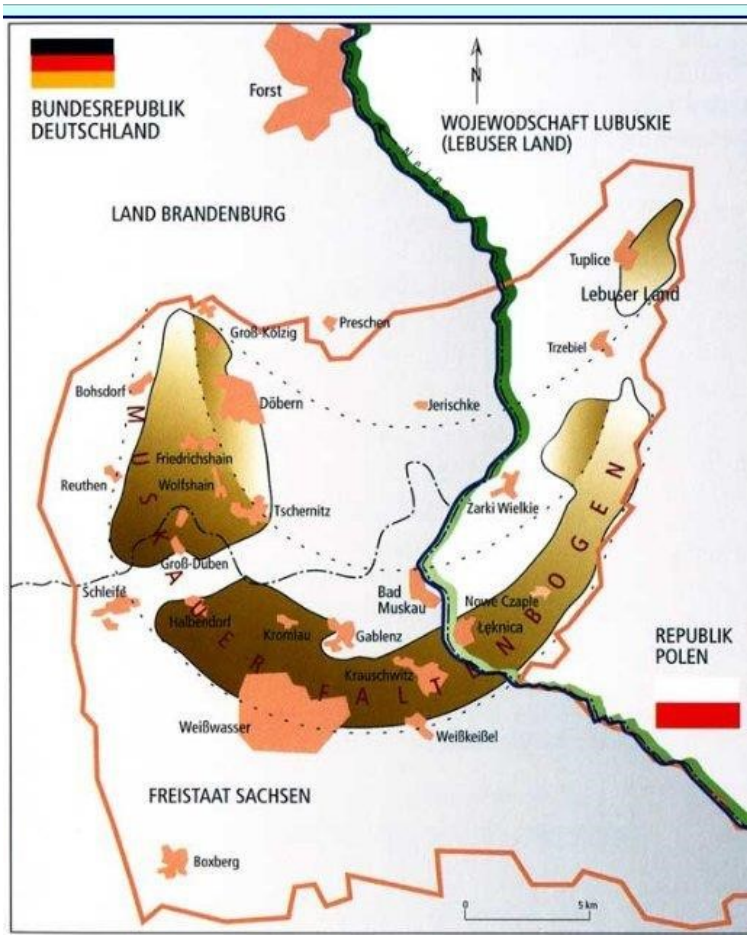


Map 4, *Ries Geology*

going to visit Germany bear this in mind, and if nothing else access the Ries Geopark site and learn about asteroid impact results.

Lastly in June 2016 deteriorating weather resulted in an unexpected arrival at Kamenz not far into Germany from Poland and not far from the Czech border. We'd been flying over a most unusual landscape of wooded ridges and shallow lakes. This on investigation is the Muskauer Faltenbogen Geopark and Nature Park which straddles the German Polish border and covers 580 sq kms. The penultimate glaciation saw a tongue of ice 20kms wide and the same length and <500m thick, push south. (Map 5) The push moraines also rumpled lignite and clay, and there is a depth of loess. Much small scale mining and other industry resulted. This is described as the most studied moraine in Central Norther Europe. As ever there is easy access and explanations.

Frankly I envy the organisation and funding that has and is going into Geoparks in Germany and compare with the shoestring attitudes in parts of UK. Other countries can see the benefits of geotourism. If you are



Map 5, *Muskauer Faltenbogen Geopark*