

42 Bridge Road  
Alveley  
Bridgnorth  
Shropshire  
Wv15 6JU

tel: 01746 781 033  
mobile: 0797 333 0706  
e-mail: andrewcfharrison@yahoo.com

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GEOL SOC: BUILDING STONES OF BIRMINGHAM  
- PART 2: CENTENARY SQUARE TO BRINDLEYPLACE

BY

ANDREW HARRISON

approx words: 1770

**Tuesday 21<sup>st</sup> May 2019: Geological Society: West Midlands Regional Group.** Tour of Birmingham's Building Stones, Part 3: Centenary Square to Brindleyplace, Led by Julie Schroder.

In May 2019, Geological Society West Midlands Regional Group (Geol Soc, WMRG) members met in Central Birmingham to view more of the City's building stones. Part 1 was undertaken in May 2018 and covered the section of trail between Victoria Square and Allied Irish Bank, off Cathedral Square. Part 2 was undertaken in November 2018 and covered Trail 3 around the Bullring Centre. Once again, the group was led by Julie Schroder (Black Country Geological Society), who has been instrumental in pulling together these Birmingham building stone trails.

This time 13 Geol Soc WMRG members met for 18:00 next to the Hall of memory on Centenary Square, where Julie provided an introduction to the evening. The route covered was generally along Trail 2.

Starting towards the eastern end of Centenary Square our first stop included the Hall of Memory, the Baskerville Monument and Baskerville House. The Hall of memory is a war memorial completed in 1925 to commemorate Birmingham citizens lost during the First World War. The Baskerville Memorial pays homage to John Baskerville, letter founder (1706-1775), who lived in the vicinity of Centenary Square between 1748 and 1775. Baskerville House was designed by T. Cecil Howitt and completed in 1940. Today it operates as office space.



All three structures are predominantly constructed from the Whitbed layers belonging to the Portland Stone, from the Isle of Portland Dorset. Globally used for constructing war memorials and commonwealth war graves, this rock comprises fine oolitic limestone formed in warm, shallow and tropical Jurassic (Tithonian Stage) seas. Fossils within this stone include oysters - *Liotstrea sp.* and *Spondylus sp* (Hall of Memory) and reef forming algae - *Solenopora portlandia* (Baskerville Memorial). Decoratively carved stone around the entrance to Baskerville House comprises Portland Basebed, which stratigraphically sits below the Whitbed and formed under similar conditions.

The lower parts of the Hall of Memory are constructed of a coarse-grey granite containing both biotite and muscovite mica and white feldspar. The granite is believed to be Cornish in origin from Carnsew in the Carnmenellis Pluton. The same granite reportedly forms the foundations to Baskerville House.

At the far eastern end of Centenary Square, adjacent to Baskerville House, sits a statue of Edward VII.



The main statue is a white marble and the basal plinth medium grained Upper Carboniferous sandstone. Although the sandstone origin is unknown it may have come from the Millstone Grit sequences found in the Lancashire and West Yorkshire Pennines. Similarly, the origins of the white marble used to form the Edward VII statue is currently unknown.

Portland Whitbed stone has also been used to construct the First Municipal Savings Bank and the plinth to the Matthew Boulton, James Watt and William Murdoch statue located on the opposite side of Broad Street. To the south side of Centenary Square. The Bank also includes a brownish granite from the Carnmenellis and Bodmin Plutons (Cornubian Batholith), Cornwall.

Our next stop was the Symphony Hall located at the western end of Centenary Square. Opened in 1991, it is home to the City of Birmingham Symphony Orchestra and hosts around 270 events a year. The exterior is clad predominantly in a grey granite with horizontal bands of red granite (However, according to Julie this has succumbed to the ongoing redevelopment works being undertaken in the City Centre). The grey granite, also known as Grigio Perla (Grey pearl), is from the Buddoso Pluton located on the Isle of Sardinia, Italy. Variscan (280Ma to 290Ma) in age, it is slightly porphyritic with greyish white plagioclase feldspar in a groundmass of quartz, biotite and pinkish potassic feldspar. The red granite, also called Balmoral Granite, originates from Kurpi Quarry and others, near Turku in

Vehmaa, southwest Finland. This granite has been aged at around 1.5 billion years and comprises bright red feldspar, smoky quartz, biotite and hornblende. It is a variety of Rapakivi Granite called Pyterlite.



On the Broad Street corner of the Symphony Hall is a small slate dedication plaque to an Arts Council and British Gas award for the complex in 1992. The main plaque is an Ordovician grey slate quarried near Blaenau Ffestiniog, North Wales. Surrounding the plaque is a green Ordovician slate from a quarry working the Seathwaite Fell Formation in the Lake District.

Crossing to the south side of Broad Street, between the Regency Hyatt Hotel and the Wetherspoons pub, our next stop was the Inner Spirit Sculpture. Erected in 2001 the sculpture includes Welsh Heather Slate monolithic slabs bounding a blue glass column. Feather-like ridges can be observed along the slate cleavage and joint planes, known as plumose structure, formed as joints propagated through the rock. The feather orientation pointing at the direction of joint propagation.



Pale greenish grey reduction spots within the purplish slate identify it as coming from the North Wales Lower Cambrian Slate Belt that runs southwest-northeast from Nantlle, through Llanberis to Bethesda. Famous for use as roofing slate, the rock in this sculpture has likely come from the only remaining active quarry at Penrhyn near Bethesda.

The windowless block forming the adjacent Wetherspoon pub's eastern end is clad with what at first appears to be concrete. However, closer inspection reveals it to be an ivory-coloured oolitic



limestone rich with fossil debris (bivalve shells and echinoid spines). The rock is a Middle Jurassic limestone from the Portuguese Lusitanian Basin – probably Candeeiros Limestone from Porto de Mos. The buildings' lower plinth is a green gneiss-migmatite approximately 2.75 billion years old and the oldest rock type seen on the trail. It was likely quarried from the Campo Belo Metamorphic Complex in Minas Gerais, Brazil and includes quartz, plagioclase feldspar, pyroxene, chlorite and epidote.

The doorway to the Celebrity Indian Restaurant on the opposite (north side) of Broad Street has a decorative Victorian doorway that includes columns of Peterhead Granite.



A little weathered this rock can be seen to include medium grained quartz, pinkish feldspars and biotite flecks. This post-tectonic granite being Caledonian in age and intruded approximately 406Ma. Quarried north of Aberdeen it was a very popular decorative stone during the Victorian era. Most of the building is constructed of a yellowish-brown Carboniferous Sandstone that exhibits crossbedding. The stone's origin is unknown but may be either Darley Dale Stone or one of many other sandstones sourced from North Wales, the Midlands or Northern England.

From Broad Street we headed into Brindleyplace, first stopping at One Brindleyplace / Oozells Square formerly occupied by Deutsche Bank. Here the paved colonnade was of interest.



Paving stones comprising a medium grained pale brown sandstone exhibiting crossbedding, a high organic content, large fossil plant fragments and much iron staining. Again, the stones origins are unknown. However, it may be an Upper Carboniferous sandstone from the Pennines, i.e. the Fletcher Bank Stone from Halifax or from the Millstone Grit Group. Alternatively, it may come from a variety of rough Coal Measures rocks quarried around Huddersfield and / or Rossendale.

Oozells Square was remodelled as part of the Brindleyplace redevelopment and includes a water feature (diagonally cut channel) through its centre lines with cherry trees and granite benches and a granite arch. The water feature has been constructed from black dolerite, possibly sourced from Mashonaland, eastern Zimbabwe, from a series of sills intruded approximately 1.87 billion years ago.



The rock includes plagioclase feldspar, pyroxene and hornblende and is magnetite rich. The Square's granite features are De Lank Granite from St Breward, Cornwall. Located within the Bodmin Pluton (297Ma).

Leaving Oozells Square and heading for Brindley Place – Central Square, Oozells Street is cobbled with various stones used during the 18<sup>th</sup> and 19<sup>th</sup> Centuries that include granites from Jersey and diorites from Guernsey. Occasionally what looks like a cobble of the Carboniferous, Rowley Rag (dolerite) can be seen and other stones include Ordovician Mountsorrel Granodiorite and Neoproterozoic Diorite (Charnwood, Leicestershire), Tertiary volcanic Whinstone (Great Whin Sill, Northumbria) and Trefor Granite (North Wales). However, not all the cobbles or their origins can be identified.





We ended our guided tour in Central Square and Brunswick Street in Brindleyplace. Planning for the Brindley development started in 1987 and building commenced in September 1993. Named after the canal builder, James Brindley, the complex covers 17 acres (69,000 m<sup>2</sup>) and comprises mix-use redevelopment. Housed within its brick dominated buildings are the National Sea Life Centre, Royal Bank of Scotland, Orion Media, Ikon Gallery of art and the Crescent Theatre.

Of note on the trail are the street furniture and architecture that decorate the area. Sinuous steps leading to Zizzi's Restaurant at the eastern end of the Square are Whitbed layers belonging to the Portland Stone. Although sparsely fossiliferous, this limestone contains good examples of bivalves - *Trigonia sp.*, and the gastropod *Aptyxiella portlandica*, also known as the 'Portland Screw.'

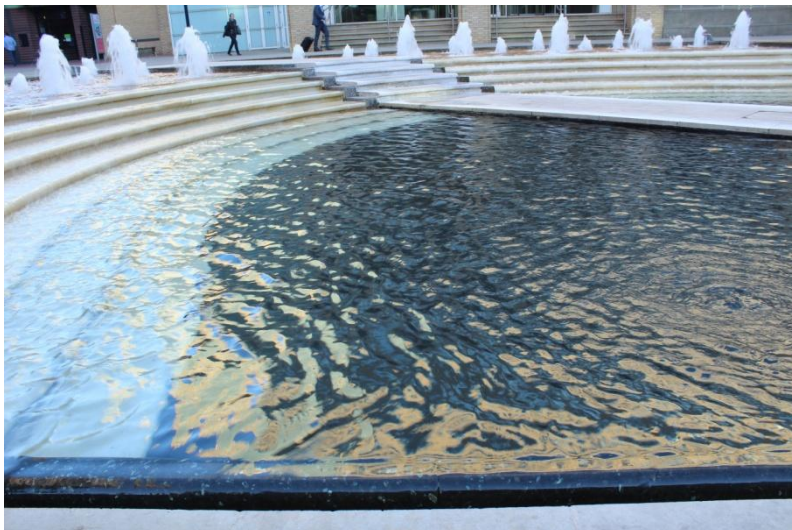


The Square is paved with York Stone, a generic name used for flaggy sandstones belonging to the Carboniferous Pennine Lower Coal Measures Group (formerly known as the Lower Coal Measures). Fluvial in origin, these fine to coarse grained sandstones contain variable amounts of mica, fossil plant remains and carbon. The stone has been cut in such a way that it resembles wooden planks.





A fountain towards the centre of the Square is walled with Portland Stone benches and polished kerbs of Emerald Pearl Larvikite.



The dark coloured igneous rock from the Oslo Graben Rift system (290 Ma), Larvik in Norway, characterised by its 'schillerescent' feldspars that flash silvery-blue. Baltic Brown Rapikivi Granite has been used to pave the fountain's edge, which originates from the Wiborg Batholith that straddles the Finnish / Russian border and was intruded approximately 1.5 billion years ago. This granite is well known for its distinctive pink potassic feldspar 'ovoids' often rimmed with dark greenish plagioclase and set in a smoky quartz, hornblende and biotite matrix.





Cobbles of Mountsorrel Granodiorite, Markfieldite and Whinstone along with York Stone slabs have been used to pave Brunswick Street. The York Stone exhibiting excellent examples of Liesegang banding.



A grey medium to coarse grained granite with brick shaped pink potassic feldspar phenocrysts has been used as street furniture on Brunswick Street in the form of large cubes. The granite origin is unknown, but potentially may be from the Iberian Peninsula or China – the current main granite suppliers to the UK building industry.

Finishing our tour shortly after 20:00, some of the group headed home and the remainder adjourned to the Old Joint Stock for some refreshment.

I would like to thank Julie for another very interesting. For more information about the trails visit the BCGS website (<http://bcgs.info/pub/local-geology/building-stone-trails/> ).