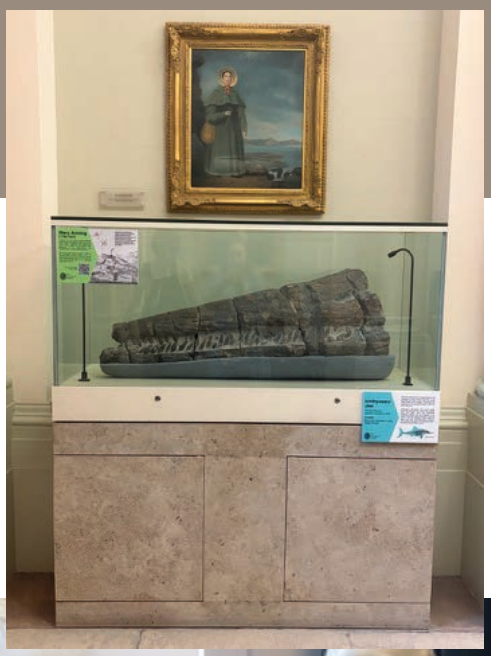
LONDON GEODIVERSITY PARTNERSHIP

Decorative Stones used in the Geological Society of London Burlington House







Dr Ruth Siddall, London Geodiversity Partnership, September 2026

A tour of the Decorative stones used in the Geological Society of London

Burlington House has belonged to the government since 1854 and is currently the home of the Royal Academy of Arts, the Geological Society, the Royal Astronomical Society, the Society of Antiquaries, the Linnaean Society and the Royal Society of Chemistry. The building has a complex architectural history. The land and its buildings were bought by Richard Boyle, 1st Duke of Burlington in 1667. The core of the current Palladian building (now occupied by the Royal Academy, RA) was designed by James Gibbs and then Colen Campbell. This building phase was completed in 1725 and was a two-storey building without wings. In 1753, the house was inherited by the Dukes of Devonshire (who already had a substantial pad on Piccadilly). George Cavendish, the son of the fourth Duke bought Burlington House from his nephew who was the Sixth Duke of Devonshire and made some interior modifications. In 1854 the building was purchased by the government and the Royal Society, Society of Chemistry and the Linnaean Society moved in. The RA moved into the building in 1867 and this required another storey to be added to the building to house its studios. This work was undertaken by Sidney Smirke. Charles Barry (junior) and Robert Richardson Banks were responsible for building the east and west wings and enclosing the quadrangle by building the range and entrance arch now fronting Piccadilly. The Societies moved into these wings and were joined by the Geological Society, Royal Astronomical Society and the Society of Antiquities. In the late 1960s, the Royal Society moved to Carlton House Terrace.

Note on terminology. The word 'marble' has 2000-year tradition of use, deriving from the Latin '*marmor*', meaning 'shining stone' and meaning a 'soft' (i.e. not granites) stone which takes a polish. As such it is applied to indurated limestones, travertines and even serpentinites as well as metamorphosed carbonate rocks. It is perfectly acceptable to use the word 'marble' to describe these decorative stones. Marble, in the geological sense is a carbonate-rock which has recrystallised during metamorphism. This a relatively recent definition of this term and is specific to the fields of geology and petrology.

Ground Floor

Entrance Foyer (from Piccadilly)

1. Portrait busts of geologists in the porch

Four portrait busts of British geologists are displayed in the porch and entrance foyer of the Geological Society. They are all carved out of the variety of white Carrara Marble known as Statuario or Statuary Marble. There numerous trade names for the different varieties of marble quarried in region of Carrara and Seravezza in Tuscany Italy. This mountainous region on the Mediterranean coast is called the Alpi Apuane and geologically it is known as the Metamorphic Tuscan Nappe. The Alpi Apuane is a Palaeozoic Basin, intruded by Permian magmatic rocks and overlain by a Late Triassic to Early Miocene limestones.

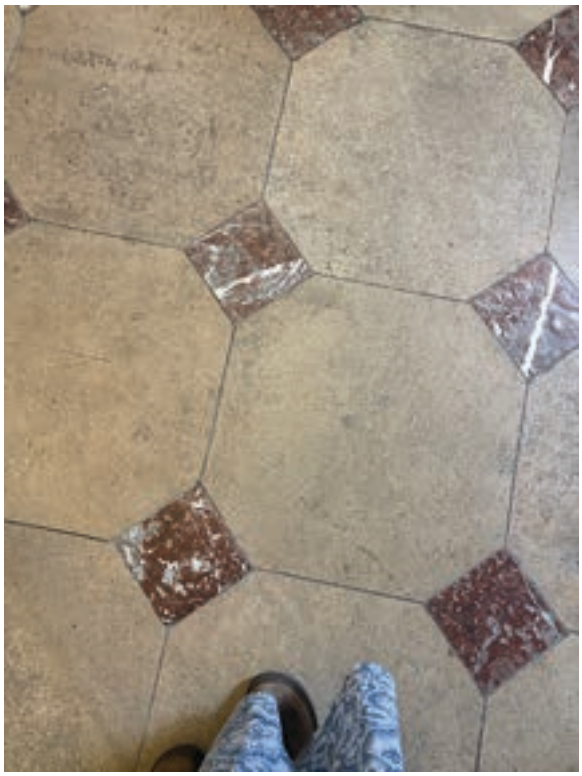
The sequence was subjected to two tectono-metamorphic events. Oligo-Miocene so-called D1 events are associated with crustal thickening and greenschist facies peak metamorphism. D2 events are associated with exhumation of the metamorphic core at 11 Ma which was associated with high strain, ductile shear zones and high-angle faulting. These are 'true' marbles in the geological sense and this region has been the main supplier of marble to western Europe since the eighteenth century.



From left to right; Adam Sedgwick, Roderick Murchison, John McCulloch and George Bellas Greenough.

2. Entrance Foyer Paving

The foyer is paved in octagonal slabs of Portland Stone with smaller squares of contrasting red marble inserted into the corners. The variety of Portland Stone used here is Whitbed. It is an even textured, massive oobiosparite with scattered and usually fragmented shell fossils which are predominantly the spiny oyster Liostrea.





Portland Stone is quarried on the Isle of Portland which extends into the Channel south of the town of Weymouth in Dorset. It is of Upper Jurassic age and represents a shallow tropical sea.

The red limestone is of Upper Devonian age and is from Belgium and is of a variety generically known as Marbre Rouge et Gris. It will be described in more detail below (9). Strips of a red, sandy limestone are found around the edges of the Foyer paving. These were quarried in Nottinghamshire and is a stone known as Mansfield Red. This is a sandy facies of the Cadeby Formation (formerly the Lower Magnesian Limestone) composed of up to 50% detrital quartz in a dolomitic cement. They are current-bedded, iron oxide (hematite) rich, fine-grained, dolomitic quartzite freestones. They were important building, paving and decorative stones in nineteenth century Britain. Note that the columns in the Foyer are plaster, carefully painted to imitate a pink, medium-grained granite.

3. Plinth to Mary Anning's Ichthyosaur

Beneath the portrait of the palaeontologist Mary Anning is a fossil Ichthyosaur jaw in a case standing on a plinth clad with slabs of Purbeck Stone. The Purbeck Group of freshwater limestones overly the Portland Group and are Upper Jurassic to Lower Cretaceous in age. This sequence is composed of many beds which are each a few tens of centimetres thick and each one has a different appearance and also different properties as building stones. The variety used here is probably Purbeck Grub which is a buff to pale brown coloured bioclastic limestone with scattered fragments of dark grey shells of the freshwater oyster Unio. It is from the Early Cretaceous Stair Hole Member of the Durlston Formation of the Purbeck Group. The Purbeck limestones are raised from several quarries around Langton Matravers on the Isle of Purbeck in Dorset.

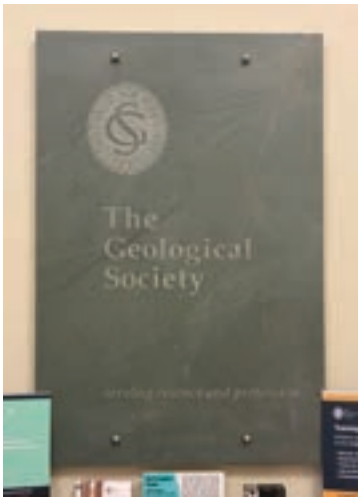




4. Radiator Cover in Foyer

A grey and white mottled variety of Belgian Marble is used as for radiator cover in the foyer. It is of Upper Devonian (Frasnian) age. It is a limestone marketed as Sainte Anne de Namur. It is a grey to black, reefal limestone with fossil corals (including Favosites, Alveolites, Cyathophyllum etc.) and lamellar stromatoporoids (Diapora) as well as stromatactis-type and other cavities infilled by white calcite spar. This stone was quarried in Gougnies, Gerpinnes & Erquelinnes, Namur, Belgium in the structural zone called the Namur Synclinorium.

5. Geological Society Plaque above the Radiator



A slab of blue-green slate mounted on the wall above the radiator described above is inscribed with the Geological Society's logo and the words 'The Geological Society: serving science and profession'. This is a variety of the so-called ornamental slate quarried from the Seathwaite Fell Sandstone Formation which outcrops in Cumbria. These slates are derived from a series of Ordovician volcanic ashes which were deposited in a caldera-lake environment associated with the Borrowdale volcano and is part of a series of rocks called the Borrowdale Volcanic Group. They underwent low grade metamorphism and cleavage formation during the late, transtensional phases of the Caledonian Orogeny in the Silurian. Evidence of their origin can be seen in the variety of bedding forms and other sedimentary structures which are visible on the cleavage planes and thes features have given them the vernacular title of 'ornamental slates'. They are quarried where they outcrop across Cumbria from a number of quarries across the Tilberthwaite and Seathwaite Fells. William Cavendish, the 2nd Earl of Burlington took over ownership of the quarries in the mid-nineteenth century. William's grandfather, George, was the builder of Burlington House.

6. Reception Desk

The spectacular reception desk in the foyer of the Geological Society is constructed of seventeen slabs of different decorative stones acquired from quarries across the British Isles. Its purpose is to showcase some of Britains most important buildings stones, all of which were available to builders throughout the numerous building phases of Burlington House. The desk was designed by Robert Sandford of Julian Harrap Architects and installed in 2007. It is heavier than your average reception desk, weighing in at 1.7 tonnes. There are two metamorphic rocks, Connemara Marble and Burlington Slate and these form the top two layers of the desk. Connemara marble from the Republic of Ireland is the only 'true' marble in the geological sense quarried in the British Isles. It contains a large amount of green minerals including amphiboles and serpentine-group minerals and these types of marbles are known as ophicalcite marbles. Burlington Slate is a relatively low grade metamorphic rock and still shows relict sedimentary structures associated with its formation as a volcaniclastic deposits deposited in a caldera lake environment. Three igneous rocks are used, these are all granites formed in association with mountain building and they form the foundations of the desk. Shap and Corrennie granite are associated with the Lower Palaeozoic Caledonian orogeny, and the De Lank Granite from Cornwall was intruded during the closing phases of the Variscan orogeny.

In between are a series of British and Irish building sandstones and limestones, ranging in age from Devonian to Cretaceous. The stones used are arranged almost, but not quite, in stratigraphic order. The late Eric Robinson challenged geologists to come up with a plausible explanation to explain the desk's stratigraphy ... The stones used, from top to bottom are as follows (Robinson, 2007):

	Name	Rock Type	Age	Quarry
1.	Burlington Slate	Sandstone	Ordovician	Broughton Moor, Cumbria
2.	Connemara Marble	Ophicalcite marble	Cambrian	Clifden, Connemara
3.	Chilmark Stone	Limestone	Jurassic	Vale of Wardour, Wiltshire
4.	Kentish Ragstone	Sandstone	Cretaceous	Kent
5.	Bath Stone	Oolitic Limestone	Jurassic	Somerset & Avon
6.	Blue Lias	Limestone	Jurassic	Ashen Cross, Somerset & Avon
7.	Portland Stone Roach	Limestone	Jurassic	Isle of Portland, Dorset
8.	Purbeck Marble	Limestone	Jurassic	Isle of Purbeck, Dorset
9.	Hollington Stone	Sandstone	Triassic	Hollington, Staffordshire
10.	Kilkenny Marble	Limestone	Carboniferous	County Kilkenny
11.	Hoptonwood Stone	Limestone	Carboniferous	Wirksworth, Derbyshire
12.	Watts Cliffe Grit	Sandstone	Carboniferous	Matlock, Derbyshire
13.	Woodkirk Stone	Sandstone	Carboniferous	Leeds, Yorkshire
14.	Caithness Flagstone	Sandstone	Devonian	Spittal, Caithness
15.	Shap Granite	Granite	Silurian	Shap Fell, Cumbria
16.	Corennie Granite	Granite	Ordovician	Corennie, Aberdeenshire
17.	De Lank Granite	Granite	Permian	Bodmin, Cornwall





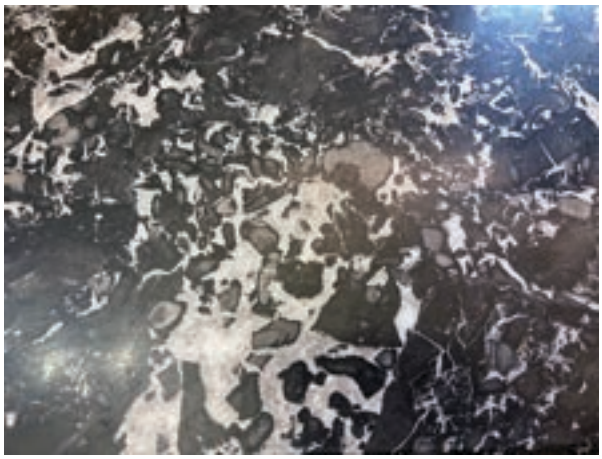
7. Bannister Sculpture on the First Flight of Stairs

A sculpture which also functions as a bannister is located below William Smith's map on the first flght of stairs. Like the Ichthyosaur plinth described above (3), this is also made out of Purbeck Stone and either the variety Purbeck Grub or Purbeck Thornback from the Stair Hole Member of the Early Cretaceous Purbeck Group.

8. Radiator cover in the stairwell foyer

The marble used to cover the radiator below the stairs is the same as that described above for the radiator in the entrance foyer (4). It is an Upper Devonian coral-rich, reefal limestone called Sainte-Anne de Namur and was quarried around the villages of Gougnies, Gerpinnes & Erquelinnes in Namur, Belgium.

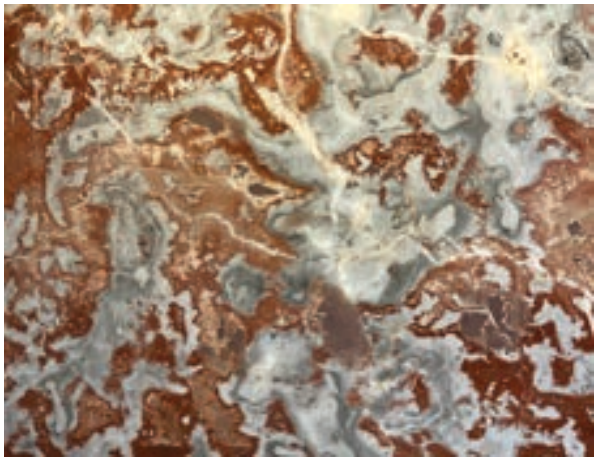




9. Gent's Urinals

Spectacular, red, stromatactis limestones are used to construct the urinal stalls in the gent's toilets. Stromatactis is a texture found in reefal limestones whereby cavities in the reef architecture are infilled with concentric bands of calcite during and post lithification. These are irregular flame shaped structures which give these limestones very distinctive textures. They are again of Upper Devonian (Frasnian) in age.





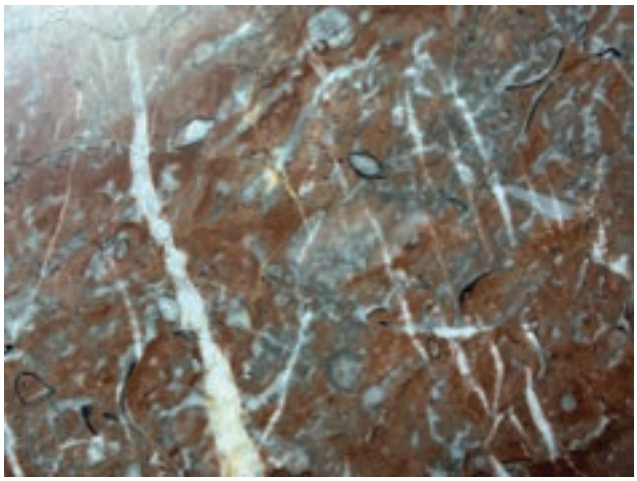
These limestones were quarried in Belgium and are generically known as 'Marbre Rouge et Gris' (red and grey marble) and exhibit a range of textures. They are reefal limestones raised from numerous quarries in the SE Dinant Synclinorium & NW Philippeville Anticlinorium. Reefal buildups, bioherms or 'mud mounds' are typically grey, grey and pink and red spiculitic wackestones with stromatactis, these build-up into levels progressively enriched in crinoids and corals, and then peloidal wackestones with stromatoporoids and cyanobacteria. The red-colouration is hematite, imparted by microaerophillic iron bacteria during a greenhouse climate.

Similar red, stromatactis limestones were quarried for marble in south-central France, however they lack the 'flashing' of calcite veins which are related to the deformation (folding) of the Belgian Devonian sequence.

10. Windowsills in the Lower Library

Another variety of Belgian ‘Marbre Rouge et Gris’ from the Dinant and Phillippeville areas (Upper Devonian). This stone is used for all three windowsills in this room. They are red and grey marbles with abundant white calcite veins which were caused by the folding of these reefal limestone sequences during the Upper Carboniferous Variscan orogeny. Numerous fossils are to be found including crinoid stems and ossicles as well as bivalves and brachiopods. In the red-coloured areas, some shells show a black rim, or are black all over. This is due to a microbe called Renalcis which was an important framework organism in many Lower Palaeozoic reef complexes. Grey areas concentrate lags of shell and crinoid fragments. These deposits would have formed on the flanks of reef mounds which were occupied by thickets of crinoids.

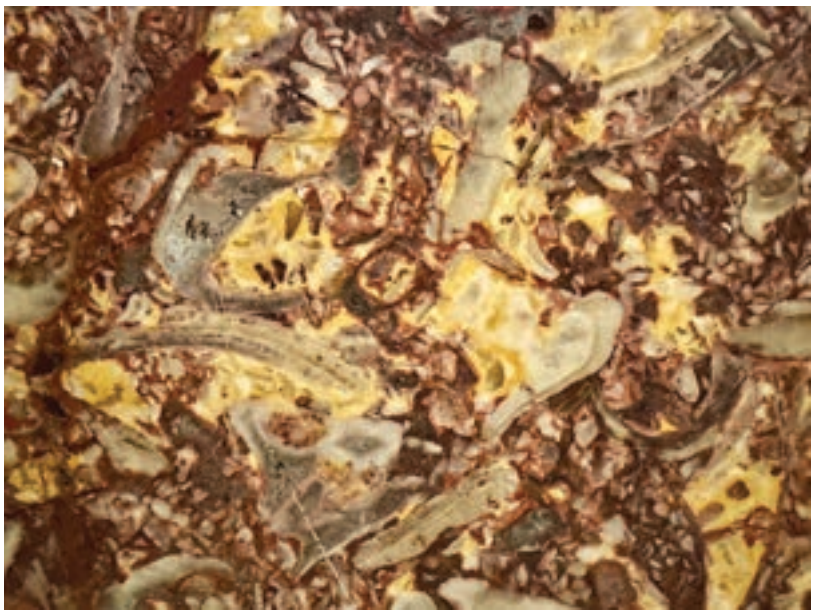




11. Chimneypiece in the Lower Library

The spectacular red and yellow limestone in the Library chimneypiece is made from a Spanish Marble called ‘Broccatello’ which has a history of quarrying which goes back to the Roman period.





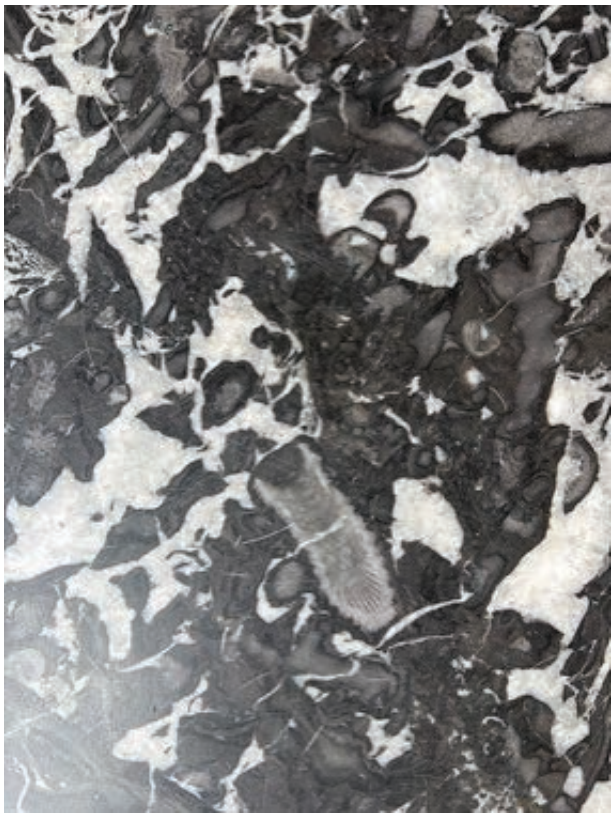
The name is derived from the rich, woven textile fabrics known as damask or brocade. It is crammed with the broken fossil shells of rudist bivalves and stained red and yellow by iron oxides (hematite and goethite). It is of Barremian, Early Cretaceous age. This marble was quarried at La Cinta Quarry at Tortosa, in Catalonia, Spain and was hugely popular for chimneypieces from the eighteenth through to the early twentieth century.

First Floor Rooms

12. Windowsill in room overlooking Burlington House quad

This is Sainte-Anne de Namur marble as described above (4). It is a grey reefal marble packed with fossil corals and with cavities infilled with white calcite. It is of Upper Devonian age and was quarried in Gougnies, Gerpinnes & Erquelinnes, Namur, Belgium in the structural zone called the Namur Synclinorium.





13. Gertrude Elles Room

The rich, wine-red marble in this room is a so-called griotte marble, a nodular limestone, rich in goniatite fossils. The colour is imparted by the iron oxide mineral hematite. The cores of the goniatites can be seen picked out in white calcite. Stones of very similar appearance are quarried in the Caunes-Minervois area (Griotte d'Italie) of the Aude Departement and also at Sost in the Haute-Pyrenées (Griotte de Sost), both in France and both are Upper Devonian age. The stone used in the Gertrude Elles Room is probably Griotte de Sost, which is a somewhat more dull red than the similar stone from Caunes-Minervois. This stone has a longer history of quarrying and was worked into the early twentienth century.

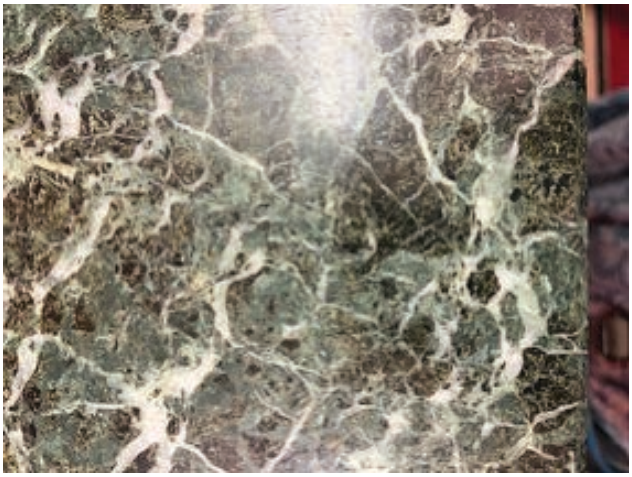




14. Council Room chimneypiece

The large chimneypiece in the Council Room is constructed of serpentinite quarried in the Val D'Aosta area of the French and Italian Alps and collectively known as Verdi Alpi (or Verte des Alpes). A wide variety of green to black serpentinites of subtly different textures and variably brecciated have been quarried in this area on both sides of the border since Antiquity. The variety used here is tentatively identified as Vert Maurin from Saint Paul-sur-Ubaye in the Alpes de Haute-Provence department of France. Vert Maurin was a particularly popular choice of serpentinite used for the construction of chimneypieces in the later nineteenth century.





It is a green serpentinite crossed with a network of white calcite veins. The rock is composed of serpentine-group clay minerals, chlorite and talc. In the broader Val D'Aosta area, lenses of serpentinite are found intercalated with schists. They represent slices of Cretaceous-age oceanic lower crust and mantle which were obducted as ophiolite complexes during the Alpine orogeny. They are associated with the Sesia-Lanzo Zone of the western Alps which is interpreted as the suture zone between the Apulian plate (Peninsula Italy) and continental Europe.

The Exterior of Burlington House and Paving in the Courtyard

Burlington House is built from Portland Stone Whitbed from the Upper Jurassic Portland Group and quarried on the Isle of Portland. Chequerboard red and white paving under the entrance arch are Portland Stone (grey) and Mansfield Stone (red). The Courtyard is paved with granite setts and several types of granite have been used here. The following granites have been identified:

- De Lank Silver Grey Granite – from De Lank Quarry on Bodmin Moor, Cornwall. Quarried from the Bodmin Pluton of the Cornubia Batholith, a coarse grained, two-mica granite. Variscan magmatism c. 278 Ma.
- Rosavel Granite – from Padrenda, in Ourense, Galicia, Spain. Quarried from the Padrenda Pluton of the Crespos Massif. A distinctive granite packed with euhedral, pink K-feldspar megacrysts plus plagioclase, quartz and biotite. Variscan magmatism c. 297 Ma.
- Rosa Monçao Granite – from Monção, Valença do Minho, Portugal. Quarried from the O Porriño - Monçao Granite Massif. A coarse grained, pink and grey granite. Variscan magmatism, c. 288 Ma.
- Rosa Monforte Granite – from Padre João Quarry, Monforte, Portalegre, Portugal. Quarried from the Santa Eulalia-Monforte Pluton, Alto Alentejo Intrusive Complex. Variscan Magmatism, c. 290 Ma.



Reference: Robinson, E., 2007, Desk Job., Geoscientist Magazine, 17, 5.