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The British Stone Federation

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STONE

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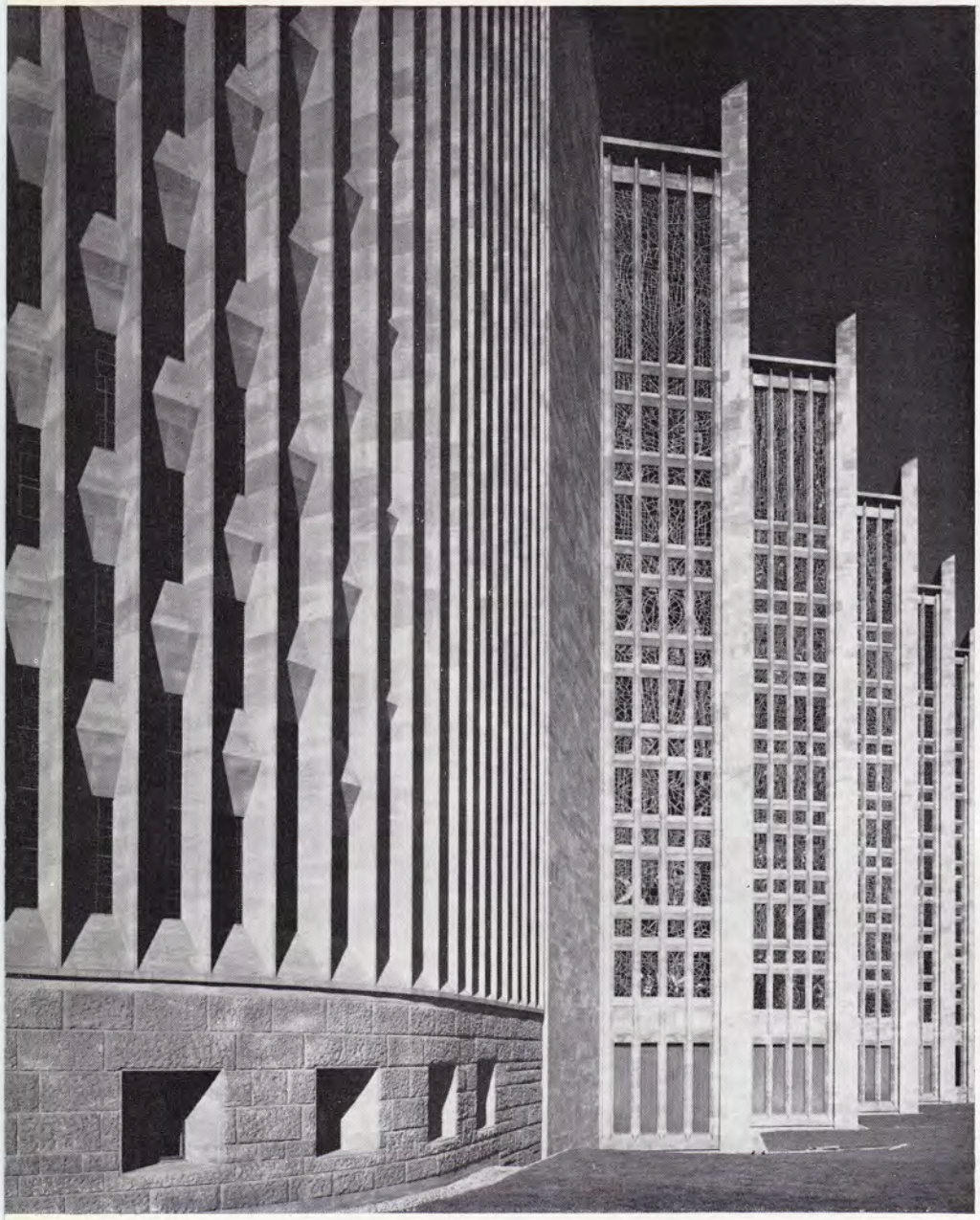
Stone for the Space Age

Prestressed concrete, soil mechanics, curtain walling, other new techniques and materials have created a new kind of architecture. But for certain purposes nothing can improve on natural stone. As can be seen from these pictures of recently completed structures, not only does it blend with the new idiom: it also enhances it.

LEFT: POLISHED TOR DOWN CORNISH GRANITE WAS USED FOR THE WINDOW PANELS OF THIS OFFICE BLOCK IN VICTORIA STREET, LONDON. THE MULLIONS ARE ALSO GRANITE—POLISHED BLUE PEARL. *Architects: T. P. Bennett & Son*

ABOVE: PORTLAND STONE AND MARBLE WERE EMPLOYED IN THE NEW BIRMINGHAM CHAMBER OF COMMERCE. *Architect: John H. D. Madin*

BELOW: GLASS COMBINES HAPPILY WITH PORTLAND STONE IN THE FACADE OF MANCHESTER LAW COURTS. *Architect: Leonard C. Howitt*



ABOVE: THE SHELL BUILDING ON LONDON'S SOUTH BANK IS ENTIRELY FACED WITH PORTLAND STONE.
Architects: Easton and Robertson, Cusdin, Preston and Smith

LEFT: HOLLINGTON STONE WAS CHOSEN FOR COVENTRY CATHEDRAL.
Architect: Sir Basil Spence

BELOW: DURABILITY RECOMMENDED CORNISH GRANITE FOR THE FACINGS TO THIS OUTLET TOWER AND BRIDGE AT THE NEW RESERVOIR AT WALTON, SURREY.
Designed by Chief Engineer, Metropolitan Water Board

Glossary for stone fixers

THE BRITISH STANDARDS INSTITUTION issues a *Glossary of Terms for Stone Used in Building** It includes the following list of terms under the heading 'Fixing', some of which may be unfamiliar to the reader:

Anchor bolt A T-shaped bolt for attaching fascia and similar stones to a supporting R.S.J. The arms of the 'T' engage in mortices cut in the joint faces of the stones, and the threaded end of the bolt is inserted in a hole drilled in the R.S.J. and fitted with washer and nut.

Cement joggle A V-shaped sinking in the side joint of each adjacent stone in the same course. After fixing, two sinkings together form a rectangular hole which is filled with cement grout in order to prevent lateral movement.

Centering A temporary wooden structure on which arches are built.

Corbel plate A metal plate let into and projecting from the backing to provide support for facing slabs.

Cramp A short length of metal or slate suitably bedded into sinkings cut in stones; used to tie stones to one another or to their backing.

Dowel A short piece of metal or slate bedded in sinkings cut in the joint faces of adjacent stones to prevent independent movement of the two stones.

Fixer's bedding Lime putty used by fixers.

Grout Liquid mortar consisting of cement and sand.

Grout nick See 'Cement joggle'.

Hollow bedded Blocks set with mortar at the ends only, the centre portion being left hollow to guard against breakage in case of settlement.

Slate cramp A piece of slate, approximately 7 in. by 2 in. by 1 in., generally used in flat coping stones and cut to a double dovetail form; embedded in Portland cement in sinkings formed to receive it.

Slate dowel See 'Dowel'.

Slate joggle A small piece of slate let into a vertical joint and into the top bed of the stone below to prevent independent movement of the stones.

Slurrying Protection of the finished surface by coating with a weak mix of lime and stone dust to prevent staining. This slurry is washed off on completion of the job.

**Obtainable from British Standards Institution, 2 Park Street, W1 (BS 2847: 1957, price 7s. 6d net).*

Building stones on display

*Unique collection at Geological Museum**

A MUSEUM is seldom looked upon as being of commercial or economic importance—the word itself tends to create an image that is often far from accurate. At the Geological Museum in Exhibition Road, South Kensington, London, those concerned with the extraction of rocks and minerals can obtain, merely for the asking, information on a wide range of geological problems, ranging from suitable areas for the location of specific mineral deposits, to the problems encountered in working any particular deposit, and the petrological identification of rock samples.

The Museum building is also the headquarters of the Geological Survey of Great Britain, which is responsible for producing the official geological maps of the country, and for a wide range of other work of economic importance. The Survey and the Museum are integral parts of a single institution, administered by the Department of Scientific and Industrial Research.

The Geological Museum has, in addition to its exhibited series of building and decorative stones, extensive reserve and reference collections. These include representative building stones from most quarries now working stone in Great Britain; specimens from many British sources now disused, which can be an aid to matching stone for building repair; and marbles and other ornamental stones from most countries of the world. These collections can be inspected by appointment. Application should be made to the Curator, giving details of the purpose and scope of the inquiry.

From 1851 to 1935 the Museum was housed in Jermyn Street. The present building, much bigger than its predecessor, includes a main hall and two upper galleries which are open to the public, and in which magnificent collections of rocks, minerals, and fossils are permanently displayed. There is also a very comprehensive library, to which the public has access, and here can be found some of the world's finest reference works on geology, together with an almost complete range of Survey memoirs and handbooks for the British Isles, and geological maps of world-wide coverage.

A detailed description of the exhibits would be impossible but some indication of their worth can be obtained from a few details of the 'Building stones' section. Here is displayed a comprehensive collection of British building stones; each specimen is a 6in. cube. The limestones and sandstones are arranged together in stratigraphical order, together with granites and other igneous rocks, and a representative suite of British marbles. A particularly interesting section of this display is devoted to the building stones of London, showing specimens of the principal stones used in London's architecture; each of these is accompanied by a label giving details of its geology and the names of some of the buildings where it is employed. In many cases there are photographs of the quarries from which the stones were obtained.

In the same area there is a display illustrating the geology of British roofing slates, and nearby is a collection of some 1,500 specimens of foreign marbles and ornamental stones used in decorative work.

***This feature consists of extracts from an article in 'The Quarry Managers' Journal' and is reproduced by kind permission of its editor.**

Another Marble Arch

THE DECORATIVE SCREEN at the top of the entrance staircase in the Geological Museum is one of the finest examples of ornamental work in British marbles. The term 'marble' is used here for any calcareous rock which can be polished or used for ornamental purposes; strictly, a marble is a granular limestone, recrystallized by heat or pressure.

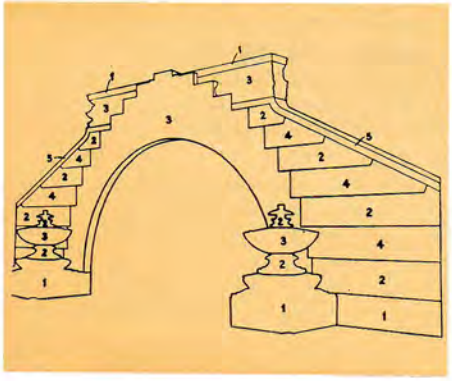
The stones employed are from Devon, Dorsetshire, and Eire (see key drawing):

1. *Ashburton*. Typical locality: Marble Quarries, Ashburton, Devon. A limestone of Devonian age, it is dark grey to black in colour with white and red patches and veins.

2. *Connemara*. Typical locality: near Clifden, Co. Galway, Eire. The most celebrated of all Irish marbles, Connemara is a metamorphosed Pre-Cambrian rock. It varies in colour and composition from light green with white calcite veining to a dark green variety which is almost pure dark green serpentine.

3. *Kitley Green*. Typical locality: Kitley Yealmton, Devon. A limestone of Devonian age, this is the only green marble from Devon. The tint varies but it is generally greyish green with dark patches. Calcite veins provide lighter areas.

4. *Petitor*. Typical locality: Petitor Quarry, Torquay, Devon. Again a limestone of Devonian age. There are three varieties: (a) Petitor Grey and Pink; cloudy grey to pink. (b) Petitor Grey (Petitor Spot); generally grey in colour and containing many fossil remains. (c) Petitor Pink; probably the most widely used. The ground is pink in colour with brown and red markings and with patches and veins of grey and yellow.



5. *Purbeck*. Typical locality: Swanage, Dorsetshire. A compact shelly limestone of upper Jurassic age, this is probably the most famous of British marbles. It varies in colour from reddish-brown, greenish-grey, to blue-grey, the latter being the best known.

Location of principal quarries throughout the British Isles

Birchover Sandstone

SOURCE Birchover Quarries (near Darley Dale).
GEOLOGY Natural sandstone.
COLOUR Light yellow shade, or of a mottled pink and buff.
CHARACTERISTICS Medium Grit. Easily worked.
AVAILABILITY Unlimited.
SIZES Almost any size can be quarried. Beds vary from 3 to 9 ft.
FINISH Rock-faced, pick-faced, punched-face, sawn-face, polished, or Carbo-sawn face.
PHYSICAL PROPERTIES Weight 160 lb. per cu. ft. Crushing strain 497 tons per sq. ft.
WHERE USED Birchover Stone has been used extensively throughout Great Britain for bridge building, public buildings, and the construction of reservoirs, among which are: twenty-seven bridges on the East Lancs-Liverpool Road; Sandon Bridge, Staffs; Padbury Bridge, Bucks; Penwortham Bridge, Preston; Martinscroft Bridge, Warrington, over the Birmingham-Preston Motorway; Newport Civic Centre; forecourts and terraces, Nottingham University; St. Nicholas's Church, Liverpool; Talybont Reservoir, Brecon; Claerwen Dam, Rhayader; Lady Bower Reservoir, Bamford; Digley Reservoir, Huddersfield; Selset Reservoir, Tees Valley Water Board; Greenbooth Reservoir, Rochdale.

ADVISORY SERVICE

The British Stone Federation has made a close study of all the problems relating to the use of stone, and has set up an advisory panel which gives architects and others free advice and help on stone matters.
Inquiries should be addressed to
The Secretary
The British Stone Federation
St Stephens House, Westminster, SW1

Before and After

THE CRAFT OF THE STONE MASON IS STILL VERY MUCH ALIVE. A REMARKABLE EXAMPLE OF RESTORATION AT THE LIBRARY OF CHRISTCHURCH COLLEGE, OXFORD.

THE BRITISH STONE FEDERATION *have pleasure in announcing that a new, comprehensive, authoritative manual on*

The modern uses of stone for building

is in active preparation and will be published soon by William Heinemann Ltd. Contents will include chapters on the nature of stone — considerations in the choice of stone — design considerations — specification — quarrying — preparation and finishes — handling and delivery — fixing — cleaning and finishing — maintenance and preservation — engineering uses — sculpture and monuments — interior uses and in landscape gardening — guide to quarries and stones available.

New Code of Practice

An illustrated booklet setting out a recommended Code of Practice for fixing stone, granite, marble, and slate slabbing to structural frames has recently been issued by the British Stone Federation. Among other things it deals with the causes of failure in cladding — the need for accuracy of backing and setting-out position of anchor slots, etc — dimensions of slabs — cramps and other fixings — bonder courses and supports — tieing back — compression and expansion joints — mortars — grouting and waterproofing the back of cladding.
Copies can be obtained on application to The Secretary, The British Stone Federation, St Stephens House, Westminster, SW1

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