

Issued by

The British Stone Federation

70 Victoria Street S.W.1

Telephone VICToria 6018/9

Architectural Engineering Monumental

# STONE

information on current stone practice. No. 15: October, 1958

## Cornish granite—an ancient stone for the modern age

Each British stone has its own particular blend of qualities; where solidity and endurance are the prime needs the engineer, as well as the architect, has sound reasons for choosing granite.

**L**AND'S END, St. Michael's Mount, the coves and promontories of the gnarled Cornish coastline, are traditional symbols of rugged, inflexible toughness. The rocks of this area are among the oldest in England—relics of an ancient mountain range, the roots of which, at the time of its upheaval, were molten granite. Very slowly, under tremendous pressures, the constituent minerals crystallized: first the feldspar and mica, and finally the quartz—one of the hardest minerals, which thus cements the granite together, thereby constituting one of the most resistant of materials.

Through millions of years the Armorican mountains have been worn away by erosion until, in places, the granite roots are now exposed in large outcrops at Land's End, Penryn, Luxulyan, Bodmin Moor, and Dartmoor.

From earliest times the stone was used locally, and Cornwall's megalithic monuments are among



HIGHLY POLISHED LIGHT-GREY GRANITE CLADS THE FACADES OF THE NEW TUC BUILDING

the island's earliest stone structures. Many of the old Cornish churches and houses are built of it, but it was not till the improvements in transport towards the end of the 18th Century that Cornish granite was used in any quantity elsewhere. With industrialization it was needed for constructing docks and quays, embankments, bridges, reservoirs, lighthouses and breakwaters, and other engineering projects. It became popular too with architects of public buildings such as town halls, museums, commercial offices, and banks—nothing could be more suitable for conveying an impression of prosperity and security.

Today Cornish granite is still in demand, and for various engineering purposes its advantages are recognized as being unsurpassed. Many architects and builders, too, are realizing how happily it fits in with contemporary architectural

conceptions, and how satisfactorily it blends with steel, glass, and the newer man-made substances. Its obdurate toughness makes for simplicity of form, avoidance of fussy detail, clean lines and massive planes. It can be cut in thin slabs of large surface area, and be worked with great accuracy.

Granite's effectiveness as a facing material can be seen in the new TUC building in Bloomsbury, all the street facades being clad in polished light-grey Cornish granite—some 10,000 ft. super in 2 in. slabs—from the Tor Down and De Lank quarries. This creates an impression full of subtlety and warmth. Part of one elevation is curved on plan to a radius of 70 ft. and the mirror surface dramatically reflects the surrounding buildings.

Often Cornish granite is used for plinths, bases, columns, door and window surrounds, thresholds, and similar features. New Scotland Yard is an interesting example of how it can be employed for the lower part of a building with brickwork above. The Hampshire County Council's offices in Winchester furnish another impr-



LAUNCESTON CHURCH  
A MAGNIFICENT WITNESS  
TO GRANITE'S DURABILITY

Location of principal quarries throughout England, Scotland, and Wales.



## Whatstandwell Stone

**SOURCE** Whatstandwell, near Matlock, Derbyshire.

**GEOLOGY** Medium-grained gritstone.

**COLOUR** Warm light-brown inclining to pink.  
**CHARACTERISTICS** The texture of the stone is firm and compact; suitable for all localities and stands well, both in and out of water; resistant to atmospheric pollution; suitable for most classes of work, particularly docks, harbours, railways, and general engineering projects.

**AVAILABILITY** The quarries have been extensively worked, but can still supply an unlimited quantity based on reasonable demands.

**SIZES** To suit requirements; maximum weight of blocks: 20 tons.

**FINISH** Sawn, scapped, rock-faced, tooled or rubbed.

**PHYSICAL PROPERTIES** Weight: 142 lb. per cu. ft. Crushing strength: 446 tons per sq. ft.

**WHERE USED** Since 1800 has been employed extensively. It was used almost exclusively by George Stephenson for his railway undertakings. Other works include: Grimsby Docks; East & West India Docks, London; Avonmouth Docks; Derwent Valley pipeline; the Rubery Water Scheme; Hams Hill Electricity Station, Birmingham; Trent Bridge Widening, Nottingham; Gas Offices and Chantry Bridge, Rotherham; Severn

### 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  
 70 Victoria Street S.W.1.

# Stone Preparation

## 2—Secondary sawing

*This is the second of a series of six articles.*

**T**HE previous article, on primary sawing, described the methods of cutting block stone into horizontal or vertical slabs with two sawn faces. Secondary sawing is the term given to the sawing of the other four sides so as to give the piece of masonry its desired shape.

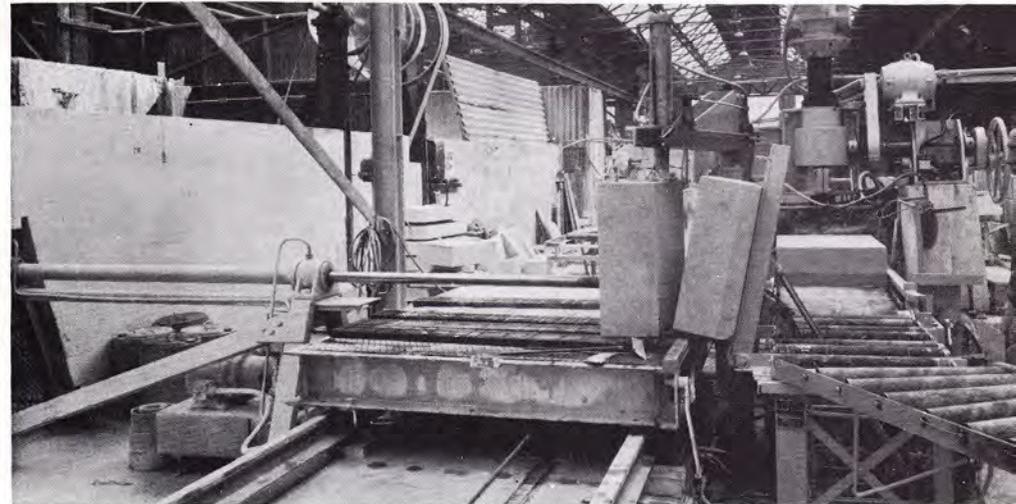
All saws used are of the circular blade type already described, with diameters ranging from 72 in. down to 20 in. The cutting agent on the rim of these saws is either impregnated diamond or carborundum; it can be either continuous or in segments.

For stones that need to be moulded or planed the primary sawn slabs are cut into scantlings and after machining are returned to the secondary saws for jointing of the ends. Much of the stonework prepared today is in the form of plain slabs known in the trade as 'ashlar'. Assuming that the primary saw has cut the slabs to the height

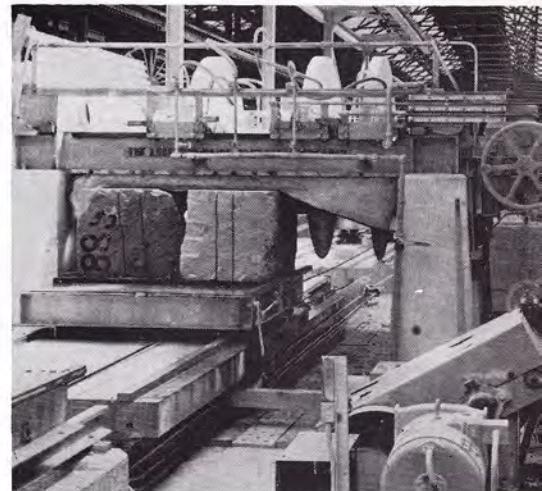


CIRCULAR SAW USED FOR JOINTING

HYDRAULIC RAM AND TILTING-TABLE FOR TURNING STONES OVER



THIS THREE-BLADED SAW IS EQUIPPED WITH IMPREGNATED DIAMOND CUTTING SEGMENTS



prescribed, these are then laid level on the bed of the secondary saw-table and the blade is adjusted to cut them up into the required lengths and thicknesses. Next, the ends or joints are cut, either by the same saw after the scantlings have been turned round or by a smaller saw on the line of production.

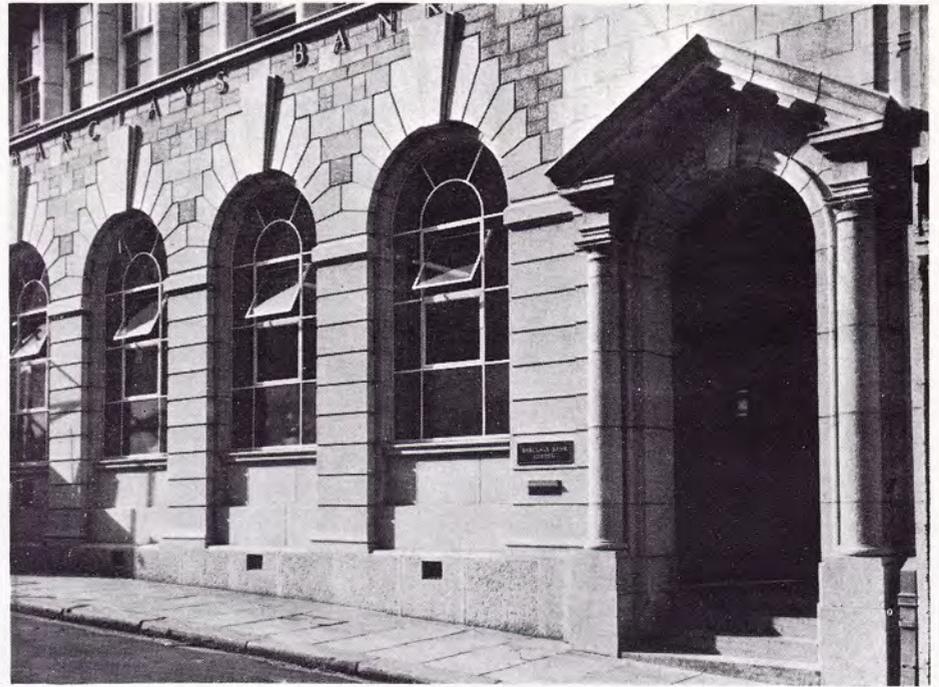
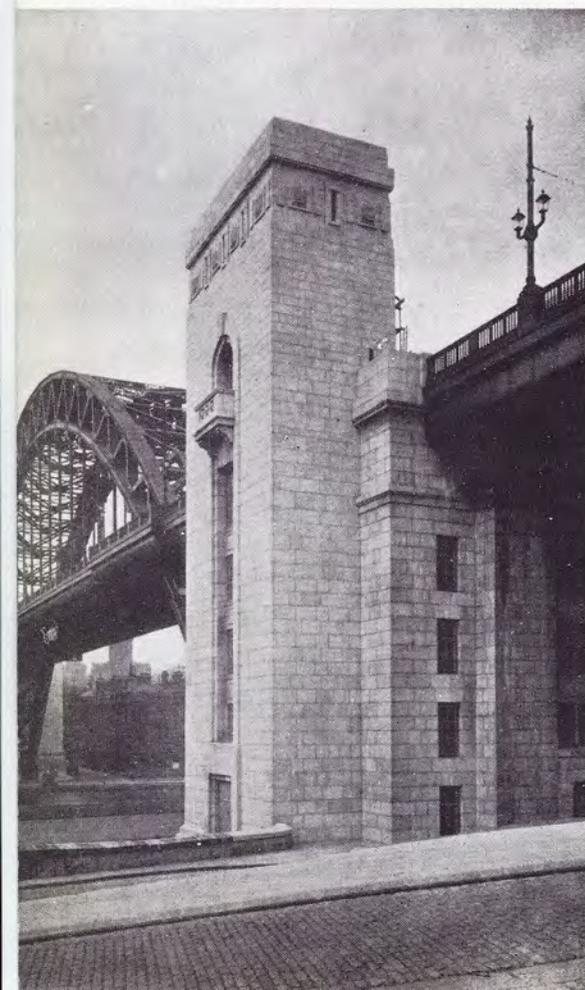
A further use of the secondary saw is to form the many notches and rebates needed in the backs of stone facings for concrete, steelwork, and the like.

Recent developments of the secondary saw have included the use of multiple blades, and the introduction of turntables and hydraulic-rams for moving or manipulating the slabs as they are cut. These are designed to reduce the amount of handling and movement of the stone during the course of its journey from the primary saw to the stacking shed.



THE OBELISKS IN CORNISH GRANITE ON LAMBETH BRIDGE

WAS A NATURAL CHOICE  
NEWCASTLE - GATESHEAD BRIDGE



A HAPPY BLEND OF DRESSINGS WAS ADOPTED FOR THE GRANITE FACADE OF THIS BANK IN FALMOUTH

## British Stone Federation Conference

Weymouth, hard by Portland Bill, was selected for this year's Annual Conference. Attendance was well above average and a particular welcome was accorded to Mr A. R. Robinson and Major Gordon (North of Ireland Granite Supply Co., Ltd.), Mr H. G. Cox (Perox Engineering Co., Ltd., Trowbridge), Messrs. H. F. & H. E. Johnson (Johnsons Wellfield Quarries, Ltd., Huddersfield), and Mr H. J. Palmer (James Akeroyd & Sons, Ltd., Derbyshire).

At the Annual General Meeting, Mr P. H. Pakenham (Bath & Portland Stone Firms, Ltd.) was elected President on the retirement of Mr W. E. Allison (Dunhouse Quarry Co., Ltd.) and the following Vice-Presidents were elected:

Mr J. W. Millray (Shap Granite Co., Ltd.), Mr W. B. Taylor (South Western Stone Co., Ltd.), Mr A. Robinson (North of Ireland Granite Supply Co., Ltd.).

More than eighty members and guests sat down to the Annual Dinner at which Viscount Hinchinbrooke M P proposed the toast of the British Stone Federation which was responded to by the new President. Mr J. W. Millray, as the senior Vice-President, proposed the toast to the Guests, and the response was made by Mr G. H. Lowthian (General Secretary of the Amalgamated Union of Building Trade Workers).

On the Sunday, the party was entertained with an afternoon tour of the Dorset countryside. Next day the male members visited the quarries and masonry works at Portland, at the invitation of the Bath & Portland Stone Firms, Ltd., and the South Western Stone Co., Ltd.

## ODD CHIPPINGS

Stone-carvers to work on the restoration of Oxford's Sheldonian Theatre were chosen by means of a competition. The test was to make one of the swags, a long half-elliptical garland of fruit, pairs of which were placed above the windows. The building's detailed ornamentation will be re-carved with the aid of hundreds of photographs and drawings.

\* \* \*

The historic 'London Stone', embedded in the blitzed ruin of Wren's St. Swithin's church in the City of London, is to be preserved. It will either be incorporated in any new building erected on the site or situated as close to Cannon Street as possible. The London Stone is thought to be a Roman milestone from which distances on their radiating roads were measured. It is mentioned in Shakespeare's *Henry VI*. Jack Cade

is said to have struck it with his sword (1450) when entering London with other rebels from Kent, to show that he was Lord of the City.

\* \* \*

Delegates at the annual conference of the Cumberland and Westmorland Associations passed a resolution declaring that new buildings in Lakeland should be built of local stone, not brick and concrete. This was thought to be more in keeping with the area's natural beauty.

\* \* \*

Forty-eight specially designed springs acted as cushions when the fallen stones at Stonehenge were lifted by the Ministry of Works. The springs prevented shocks from being transmitted to any part of the stones that might be cracked. One stone weighed more than 50 tons.

essive example; the building's rock-faced granite base seems to root the building to the earth.

An important virtue of granite is its relative imperviousness to attacks from atmospheric impurities; accumulations of soot and dirt are readily washed off. The sense it gives of compressed strength, its pleasing colours and textures, make granite an excellent stone for free-standing pillars, shop fronts, and, of course, gravestones and monuments.

A sculpture of four giant figures heaving on a rope, entitled 'Teamwork', commissioned recently by the Taylor Woodrow Group from Mr. David Wynne, is being carved from a block of Cornish granite weighing 30 tons from the Pelastine quarries.

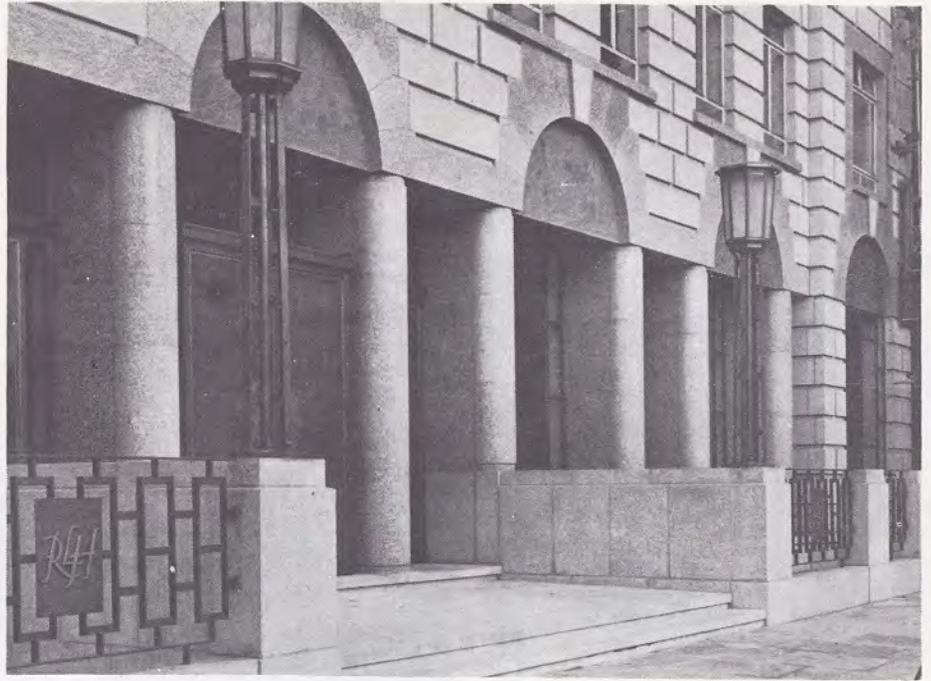
The British Stone Federation's *Quarry Directory*\* lists no fewer than 32 Cornish quarries and two in neighbouring Devon. Their names are typical of the county's rugged romanticism—Bosahan, Cheesewring, Pelastine, Retallack, Tresahor. As well as offering a wide variety of textures, the granite can be dressed with many different finishes. Generally speaking, the cost of dressing increases with the degree of smoothness. Size of stones also affects cost, blocks less than 1 ft. thick on the one hand or of very large size on the other being more expensive to quarry. Stones up to 40 cu. ft. (3 tons) whose greatest dimension does not exceed 6 ft. and whose least dimension is not less than 1 ft. are classed as 'ordinary' stones, and charged at standard rates.

All the granite quarries of Cornwall and Devon are open to the sky, though the rock near the surface is normally not so even in colour as that found at lower depths. Skilful blasting, using the natural fissures, known as 'joints', is the chief method of quarrying.

No list of projects demonstrating the use of Cornish granite can avoid being unfairly selective but, in addition to those already discussed, this account can perhaps best be concluded by

\*Obtainable from the Secretary, British Stone Federation, 70 Victoria Street, London, S.W.1.

BRENT MILL BRIDGE, DEVON  
A MODEL OF SKILFUL GRANITE FACING



EXTENSION TO ROYAL LONDON HOUSE. A GOOD EXAMPLE OF CORNISH GRANITE USED FOR THE BUILDING'S BASE

mention of a few others: Bucklersbury House; Royal London House, Finsbury Square, and its recent extension; the Institute of Marine

Engineers—all in the City of London. County Hall, London; the National Library of Wales, Aberystwyth, and the National Museum of Wales, Cardiff; the War Memorial on the front at Blackpool. Another notable example is the Roman Catholic Cathedral at Liverpool.

Among outstanding engineering projects have been the Eddystone and Fastnet Lighthouses; Penryn Viaduct; King George V Docks at North Woolwich; Singapore naval base; and many other public works overseas; practically all the London bridges over the Thames, and much of the embankment wall including the new section by the Festival Hall.

*An attractive film showing how  
Cornish granite is quarried, dressed,  
and fixed is now available.*

*Particulars can be obtained from*

THE SECRETARY

BRITISH STONE FEDERATION

70 VICTORIA ST, LONDON S.W.1

GRANITE PROVIDES AN IMPRESSIVE, POWERFUL ENTRANCE TO THE  
CO-OPERATIVE WHOLESALE SOCIETY'S BUILDING IN EAST LONDON

