**STONE, NICHOLAS** (1586-1647), English sculptor and archi­tect, was the son of a quarryman of Woodbury, near Exeter, and as a boy was apprenticed to Isaac James, a London mason. About 1603 he went to Holland and worked under the sculptor Hendrik de Keyser (1567-1621) and his son Pieter, and married his master’s daughter. Stone is said to have made the portico to the Westerkerk at Amsterdam. Returning to London about 1613 with Bernard Janssens (fl. 1610-1630), a fellow pupil,@@1 he settled in Southwark and obtained a large practice; in 1619 he was appointed master-mason to James I., and in 1626 to Charles I.; and he died in London on the 24th of August 1647. Stone, whose work is associated with Inigo Jones’s introduction of Renaissance architecture into England, ranks as the great .sculptor of his time and the rejuvenator of the art in England. He is best known by his monuments, notably those to Sir Francis Vere, the earl of Middlesex, and Francis Hoiles in West­minster Abbey; Sir Dudley Digges at Chilham church, Kent; Henry Howard, earl of Northampton, in Dover Castle (removed to Greenwich); Sir Thomas Sutton, at the Charterhouse (with Janssens); Sir Robert Drury at Hawstead church, Suffolk; Sir William Stonhouse at Radley church, Berkshire; Sir Thomas Bodley at Merton College, Oxford; Sir William Pope, in Wroxton church, near Banbury; Sir Nicholas Bacon, in Redgrave church, Suffolk (with Janssens); Dr John Donne (winding-sheet), at St Paul’s Cathedral; and Sir Julius Caesar, in St Helen’s, Bishopsgate.

He had three sons: John (d. 1667), a sculptor; Henry (d. 1653) —commonly known as " Old Stone ”—a painter, whose copies of Van Dyck were famous, and whose portraits of Charles I. and others are in the National Portrait Gallery; and Nicholas (d. 1647), " sculptor, who worked under Bernini at Rome and left a sketch-book, which, with a note-book of his father’s (giving a list of his works between 1614 and 1641), is in the Soane Museum.

See an article by A. E. Bullock in the *Architectural Review,* 1907, and the same author’s illustrated monograph *Some Sculptural Works of Nicholas Stone* (Batsford, London, 1908).

**STONE,** a market town in the western parliamentary division of Staffordshire, England, on the river Trent, 7 m. N. of Stafford by the North Staffordshire railway. Pop. of urban district (1901), 5680. Part of the walls and crypt remain of an abbey which dates from the foundation of a college of canons in 670. The church of St Michael dates from 1750, the abbey church having collapsed in the previous year. Alleyne’s grammar school is a foundation of 1558, The chief industry is shoemaking, but malting, brewing and tanning are also carried on. At Bury Bank, on the hills to the north, an earthwork is traditionally considered to be the site of the capital of the Kingdom of Mercia; there are other works in the neighbourhood at Saxon Low.

**STONE** (O. Eng. *stán*; the word is common to Teutonic languages, cf. Ger. *Stein,* Du. *steen,* Dan. and Swed, *slen∖* the root is also seen in Gr. *στία*, pebble), a detached piece or fragment of rock. The word is thus applied to the small fragments scattered in the ground or on roads, to the water-worn pebbles of the sea shore or river beds, and to the hewn, dressed or shaped rock used as a building material, with which this article deals. A qualifying word generally accompanies “ stone ” when the term is applied to pieces of rock cut to a particular size and shape and used for a specific purpose, *e.g. "* mill-stone,” “ hearth-stone,” “ grave-stone,” &c. The term “ precious stone ” is used of those minerals which, from their beauty of colour, &c., their rarity, and sometimes their hardness, are valued for their suitability for ornaments (see Gems). The word is also often applied to many objects resembling a stone or pebble, such as the hard kernel of certain fruits, as of the cherry, plum, peach, &c., or the *calculi* or con­

cretions sometimes formed in the gall or urinary bladder or the kidneys (see Bladder Diseases and Kidney Diseases). The “ stone ” has been a common measure of weight in north­western Europe. In Germany the “ Stein” was of 20 to 22 lb. In the British system of weights the “legal” stone, or “horse­man’s ” weight is of 14 lb avoirdupois; in weighing wool it was also of 14 lb, but is now usually 16 lb. The “ customary ” stone for fish or butcher’s meat is of 8 lb.

*Buiilding-stone.—*In selecting a stone for building purposes many important points have to be considered. The stone must be strong enough to bear the load placed upon it, it must be durable and weather well in the atmosphere of the district, and its colour and appearance need to be studied. It must further be ascertained whether a sufficient supply is available, and the price also must be taken into account; some difficulty is often experienced in obtaining a suitable stone at a moderate cost, and considerations of expense frequently have more to do with the choice of a stone than the architect would wish. Where there is risk of fire, as is often the case in business and factory premises, it is necessary to select a stone able to stand the effect of a great heat without damage. Great experience of the strength of stones and of their behaviour in different situations is desirable; hut even when this knowledge is given and the greatest care is combined with it, some point may be overlooked. For example, the stone facing of the Houses of Parliament at Westminster was chosen on the recommendation of a committee composed of men of eminent scientific and technical skill; yet it has not weathered well because it is not constituted to resist the destroying effects of the London atmosphere.

The prime factor in the choice of a building stone should be the climate to which the material has to be exposed. Stone that in the pure country air has proved extremely durable may quickly decay in an impure city atmosphere, or when subjected to the strong salt winds from the sea.

Extremes of temperature, too, are, generally speaking, prejudicial to the life of stone, the alternations of heat and cold setting up move­ments in the substances of the stone, which, though slight, will in many cases hasten its disintegration. There are few materials which more quickly decay and fail than stone placed under unsuitable conditions. An analysis, made by E. G. Clayton, of a sample of incrustation found on the Portland stone masonry of St Paul’s Cathedral, London, gave the following result:—

Weight per cent.

Water (lost at 100°) 2∙06

Water (lost at 1500) 22∙48

Carbon (soot) 1∙10

Calcium sulphate 59·38

Calcium phosphate 2∙22

Calcium silicate 1∙63

Magnesium silicate 0\*67

Iron silicate 2∙40

Sand and uncombined silica . . . 8∙06

100∙00

The deposit when reduced to a fine grey powder and placed under the microscope did not appear to contain any organic matter. Mr Clayton says that this test points to the fact that the principal constituent of limestones, namely calcium carbonate, has been changed into calcium sulphate by the action of sulphurous and sulphuric acids ever present in the smoky London air. Impurities of this nature lodge on the face of the stone and are diluted and driven into the pores by subsequent rain. Having by their chemical action destroyed a portion of the substance of the material, they cause a slight crust to form on the surface which is in turn washed off. Carbonates of lime and magnesia, the chief constituents of ordinary marbles and limestones, are very susceptible to the solvent action of these acids. Pure water has little or no chemical action upon most building stones, but a danger arises to a porous stone even when situated in pure air. Water will soak into some stones in consider­able quantities, and in frosty weather this fact constitutes a serious menace to the rock; for water when passing from the liquid to the solid state exerts if checked an enormous pressure, and the face, and sometimes the bulk, of the stone is frequently damaged in this way. One of the best precautions that can be taken by an architect is a personal visit to the quarry, to examine the stone in its natural situation. This, of course, will give little clue to its behaviour in an impure atmosphere, and therefore, if the particular stone has been previously used in the same district, the buildings in which it has been employed should also be inspected. A hard and lasting stone will show the marks of the tooling, and the arrises of the blocks will be sharp and good, even after many years’ exposure.

@@@1 Also called Janssen *(Dict. Nat. Biog.),* Jansen and Janson. Possibly he was the brother of the Gerard (Geraert) Jansen or Johnson, of Southwark, who in 1616 executed the bust of Shakespeare in Stratford church; but it is uncertain whether the latter was identical with, or the son of, the Dutch tomb-maker Gerard Jansen described In Sir W. Dugdale’s *Diary* as having, in 1593, lived for twenty-six years in England and as the father of five sons.