LECTURE

Building stones of Northamptonshire

Summary of the lecture given to the Society on Saturday 13th November 2004 by Dr Diana Sutherland, Visiting Fellow at Leicester University.

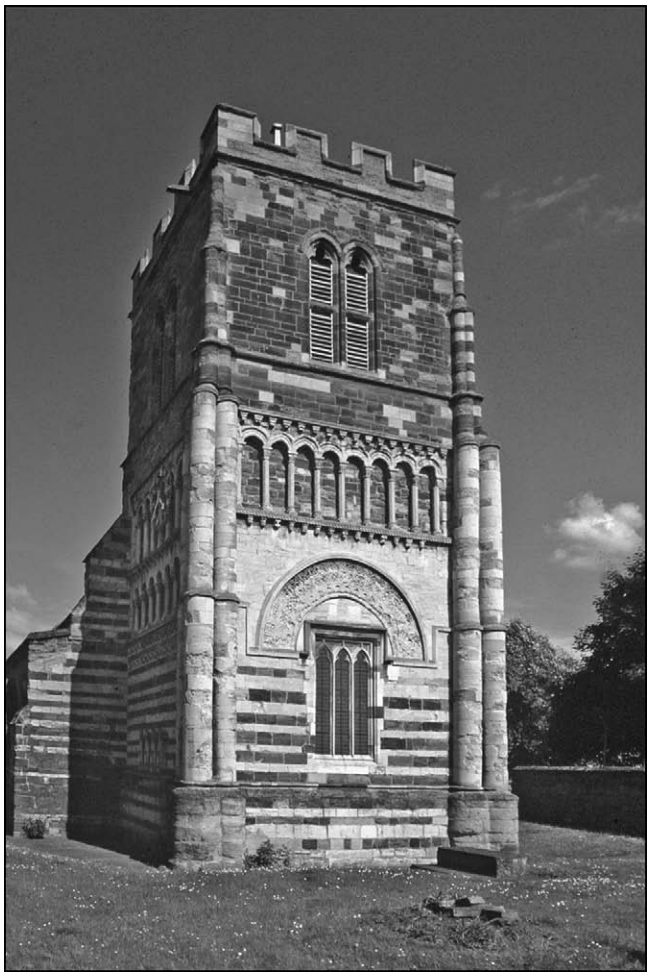
In 1712, John Morton, author of The Natural History of Northamptonshire, noted the great 'Variety of Quarry-Stone' and 'the Goodness and Plenty of it' encountered throughout the length of the county. He mentioned 'Quarries: here of White Stone, there of Red; here of Freestone, there of Ragg.' Few of those quarries remain today, but the stone that came out of them can be seen in the villages and market towns across Northamptonshire, yielding a great deal of geological interest. The building stones of such remarkable variety come from the sedimentary rocks of the Lower and Middle Jurassic, an array of ironstones, ferruginous sandstones and different limestones that occur interbedded with clays. The distribution and character of the various stones used in building provide a picture of the changing Jurassic paleogeography of this area of the East Midlands – distinct, in the Middle Jurassic for example, from the thick limestones of the Cotswolds.

Fieldwork in Northamptonshire many years ago established that the stone for village building generally closely matched the local geology. Vernacular buildings typically are built of rubblestone, roughly shaped blocks, in courses or randomly set in plenty of mortar, that came from the nearest stone-pit. Better-quality dressed stone for quoins, sawn ashlar with fine mortared joints, or carved mouldings, is not necessarily very local, though it mostly came from sources of freestone (a rock able to be worked freely in any direction) within a few kilometres. Until the later 19th century very little came from outside the county.

The formerly extensive cover of till and gravels has been dissected by the river systems, revealing Jurassic rocks in the western uplands and notably in the valley of the Nene and its tributaries. In ascending order, the formations that yielded building-stone are: Marlstone Rock (calcareous ironstone), the Northampton Sand (various ironstones, sandstones and sandy limestone), Lincolnshire Limestone (Collyweston 'Slate' and various limestones including Weldon Stone), the Rutland Formation (Kingsthorpe White Sandstone, and limestone that continues as the Taynton Limestone in the southwest), and the Blisworth Limestone Formation (locally a freestone).

The distribution of the different building stones is dependent upon geological factors. The deposition of the sedimentary formations was governed by changing paleogeography, related to fluctuations in sea-level and intervals of local non-deposition. Particularly noticeable is the absence of Northampton Sand in the east and southeast of the county; this marks the edge of the contemporary London-Belgian Landmass, where sediment was either not deposited or was subsequently removed during intra-Jurassic erosion. The Lincolnshire Limestone, providing excellent building stone, is confined to the north of Northamptonshire, thinning southwards, dying out by Kettering, and in places not reaching as far east as the Nene valley.

The distribution of the different building stones is most obviously linked to the gentle dip of the Jurassic strata to the southeast, accounting for the broad bands of successive formations across the county from the Marlstone Rock of the Lias in the west to the Northampton Sand of central Northamptonshire, with Blisworth Limestone as the main building stone of the east and south-east. The distribution pattern is further affected by the partial cover of glacial deposits, (although stone can be quarried from beneath a moderate overburden), and by the recent dissection of the terrain giving access to the outcrops along valley sides. The stone encountered in the villages across the county is governed by all these factors, but primarily the geological interest begins by looking closely at the stone, just with the help of a hand-lens.



The Norman church of St. Peter, in Northampton, built of ferruginous sandstone and ironstone from the Northampton Sand Formation, with Blisworth Limestone; the grave at the foot of the tower is that of geologist William Smith.

The Marlstone Rock Formation creates the prominent escarpment overlooking Warwickshire and Oxfordshire, and provides the rich brown building stone of more than 30 villages close to the outcrop in the west, from Kings Sutton to Ashby St Ledgers. As well as rubblestone, the rock is also seen as well-dressed ashlar, quarried for example on the estate for Edgcote House, built in 1752. The rock varies from dark ironstone near Byfield to ferruginous limestone nearer Daventry, and almost everywhere it contains fossils such as bivalves, brachiopods and belemnites, with indications of bioturbation, the product of a moderately shallow sea teeming with life.

Most of the brown stone villages of the county are built of a younger rock, the Northampton Sand Formation, which is separated from the Marlstone Rock by 60m of Whitby Mudstone (once a source of brick-clay). The Northampton Sand is extremely variable, and its local character is reflected in the many different types of building stone from the formation. The lower part, which may also be known as the Corby Ironstone Member, was extensively quarried for iron-ore from the 1850s to 1980, but in earlier centuries it was dug for building stone. The lowest beds which are usually sandy, sideritic and calcareous (a rock later rejected as 'bastard stone' in the iron-ore quarries) was favoured for building in the area north of Kettering, from Rothwell to Rockingham. Like the Marlstone Rock, it weathers from plum-coloured or greenish cores to a tawny colour. The overlying oolitic ironstone, where heavily weathered to dark limonite, made a durable building stone for churches and good houses in Finedon and Wellingborough from the 14th to the 20th centuries. Rare moulds of marine bivalves such as *Trigonia* are seen in the stone.

West of the Ise valley, the Ironstone Member is overlain by the 'Variable Beds', or Duston Member, which are chiefly limonitic sandstones once quarried in Northampton and Duston, and still worked at Harlestone. There are many examples of warm ginger-brown sandstone ashlar, such as the 18th century stables of Althorp, and Dallington Hall (where the geologist Samuel Sharp lived). North of Northampton a local development within the Northampton Sand provided a distinctive type of pale golden sandy limestone containing crinoid ossicles; once quarried as building stone in flat blocks known as 'Pendle', it gives a different character to villages such as Boughton and Pitsford. At Mears Ashby, the limestone bed was worked as freestone.

The Lincolnshire Limestone in the north begins with the sandy limestone, locally fissile, that was the source of the famous Collyweston 'Slate'. The rest of the Lower Lincolnshire Limestone, used locally for building, is fine-grained, sometimes sandy, and seldom oolitic, The Upper Lincolnshire Limestone, conspicuously oolitic, provided the finest freestones; Weldon Stone is the best known variety, a porous oolite with small oyster shells, good for ashlar and mouldings, and used for many country houses.

Widespread erosion was followed by deposition of the Rutland Formation, the early Stamford Member providing the rare Kingsthorpe White Sandstone, locally containing rootlet markings. A bed of limestone, rich in oysters, thickens in southwestern Northamptonshire to continue as the Taynton Limestone; it was quarried at Helmdon to build Northampton's 13th century Eleanor Cross.

Villages and market towns in the south and east are built of Blisworth Limestone, often micritic, but including spar-cemented rock with oyster shell and "superficial ooliths" (ovoid grains, with a thin calcite coating over shell fragments, which are usually more numerous than spherical ooliths). Freestone was obtained from Cosgrove Raunds, and good ashlar from near Oundle. Northamptonshire is noted for buildings of striped polychrome stonework, which combined the use of local dark brown Northampton Sand ironstone and Blisworth Limestone. The 12th century church of St. Peter in Northampton is a fine example, and is also interesting to geologists as the burial place of William Smith in 1839.

References

Morton, J., 1712. *The Natural History of Northamptonshire*. J. Knaplock: London. 608 pp.

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