

Chapter 3

Manufacture of Rubbing Bricks

GEOLOGY OF THE CLAY

Building clays are fine-grained deposits of earth that were typically laid down in still water conditions. The main constituents are silica and alumina. Iron and sulphates of calcium, magnesium, sodium and potassium may be present.

Rubbing bricks for use in gauged work must have specific physical characteristics to suit that purpose. Their properties and qualities in general should also conform to the requirements of BS EN 771-1:2003 *Specification for Masonry Units: Clay Masonry Units*, the European harmonized standard published by the British Standards Institution (BSI). This replaces BS 3921:1985 *Specification for Clay Bricks*, which was withdrawn in 2006.

Almost every geological period since the Carboniferous has yielded clays suitable for making bricks. The topmost brickearths and clays for rubbing bricks contain a proportion of loam and sand; typically, the natural silica content is around 80%. The south-east of England abounds in clays of this type. The clays have their own locational names such as the Chillisford clay used by The Aldeburgh Brickworks, the London Bed clay used by The Bulmer Brick and Tile Company Ltd and the Swinley clay once used by Thomas Lawrence of Bracknell. The natural excess of silica and sand in these clays, combined with the low firing temperature, produced bricks that could be rubbed to fine arrises and surfaces, and sawn with a wire bow-saw. Many others lay claim to manufacturing rubbers, but they do not possess the necessary clay and the resultant bricks are too hard to gauge down.

DISTINGUISHING BETWEEN BRICKEARTH AND BRICK CLAY

It is important to understand the distinction between the term ‘brickearth’ and ‘brick clay’. Smalley¹ suggests the following definitions:

Brickearth: Loam used for making bricks. Especially in the Pleistocene of the Thames Valley and Eastern England. A sedimentary deposit related to the loess of western and central Europe, consisting largely of quartz (SiO₂) of a characteristic particle size range (20–60 μm) and perhaps up to 30% by weight of clay minerals. Of recent age, usually less than 20,000 years old. Used as found to make medieval bricks; from about 1700 mixed with combustible material to make stock bricks.

Brick clay: Clay-rich material used for making bricks; a geological deposit composed primarily of clay minerals, often from some named formation, e.g. Oxford clay, Keuper Marl, etc. Mineralogical analysis indicates a predominance of clay minerals; a brick clay will probably have a high plasticity index.

Table 3.1 shows a typical chemical analysis for North Kent brickearth. Brickearth typically used to produce classical/traditional rubbing bricks is generally from the topmost deposit of silt and loam-like material from the Pleistocene or Cretaceous periods. Naturally

Table 3.1 Typical composition of North Kent brickearth²

Chemical Components	%
Silica	76.76
Alumina	10.89
Magnesium	1.06
Lime	0.64
Sulphuric anhydride	0.03
Ferric Oxide	4.43
Sulphur as Sulphide	0.01
Alkalis	2.16
Loss on ignition	2.16