BRITISH BRICK SOCIETY
N. MIDLANDS BULLETIN

No. 3 June 1975

Der Ziegler.

Ein Ziegler thut man mich nennen/
Auß Lätten kan ich Ziegel brennen/
Gelatt vnd hell/Kälend darbey/
Daschen Ziegl/auch sonst mancherley/
Damit man deckt die Heusser obn/
Für Regen/Schnee vnd Windes thobn/
Auch für der heyssen Sonnen schein/
Cynira erfund die Kunst allein.

from Jost Amman's
Stände und Handwerker...
(Frankfort 1568)

Bulletins and Journals

This is the third number of our North Midlands Newsletter. One hopes that it will be the last since its purpose has been (a) to show members what a variegated and interesting discipline we are engaged in advancing and (b) to show how much material can be made available for a *Journal of Brick and Building Material History*. These last three issues have tried to show the whole range of brick studies, from etymology to machinery and from measurements to making. It is a personal-and firm-view of the editor that one of the best ways for brick studies to become a subject is to have a reputable journal. It is hoped that the three numbers of the *Bulletin* will show the way ahead and also the pitfalls and problems. We shall have to evolve an elaborate system of references for our complex subjects and we certainly shall have to 'go beyond Salzman' in our references. Clearly there must be plenty of teamwork.

The national BBS has put up the idea of a committee to examine the possibility of finding ways and means to get some sort of journal on brick history off the ground. For discussion we have produced some imaginary and theoretical titles that might produce a good 'mix'.

(1) A *general article* (*e.g.* classification or terminology or a world picture)

(2) An article on bricks in context of *use* (*e.g.* an architectural or building study)

(3) An article on *making or manufacturing*

(4) An *analytical* article (chemical or physical or geological or statistical)

(5) A *historical study* of a firm or brick area

(6) A *survey* (from sociologist's, or geographer's or economist's point of view)

(7) A *source or sources* (*e.g.* an edited text or a reprint)

(8) An article containing *raw data* (*e.g.* markings on bricks, items in a collection)

(9) Notes and Queries section

(10) Bibliographies and occasional reviews

A useful book

Jane A Wright, a member of the BBS, has published *Medieval Floor Tiles/ Their Design and Distribution in Britain* (John Baker, London £6. 50; 1975) It is useful for reference, readable and broad in its scope. The illustrations are helpful and clear and there are some sumptuous colour plates.

A course 'Brick studies for local historians and archaeologists'

It is possible for the Adult Education Department of the University of Keele (or indeed of any other university willing to do so) to organise a week-end course on some aspects of Brick Studies. Such a course would be a weekend one (Friday evening to Sunday afternoon or variations thereof). There are many combinations of components but one may suggest three

(a) the substance of the Harley 'code', that is a chronological treatment of his types.
(b) an 'ABC of Brickmaking' and
(c) a special topic e.g. 'Some possible certainties in the dating of bricks' (a summary about all we *do* know about their dating.)

SUCH COURSES ARE POSSIBLE BUT ONE CAN ONLY NEGOTIATE THEM IF ONE CAN GUARANTEE A LIST OF OVER 25 NAMES OF PEOPLE WHO ARE WILLING TO COME.

While no one cannot expect all signatories to be free on one particular weekend, figures of this kind would be a useful lever. Please let us know if you have any preferences for a location (it will have to be either London or a place in the Midlands, like Keele or Birmingham). It will be much easier to arrange if people found their own local accommodation. But a college or institution may have to be considered even though residential fees look very alarming and leaving people to find their own accommodation shelves the problem a little! Please let me have your views. A suggested time is between Christmas and Easter 1976. We can discuss a more precise date if we get enough names. Please write to Dr.F Celoria , Department of Adult Education, University of Keele, Keele, Staffs, ST5 5BG.

All correspondence to Editor of N. Midlands bulletin

F. Celoria

Univ. Keele

ST5 5BG

NQ 15 (from Tony Smith)

Some Medieval Terms for Bricks

I give here some further examples of medieval terms used for 'brick' (vide Bulletins 1 and 2). First of all, some references from L.F.Salzman's Building in England down to 1540..., 1967, which were not given in G.C.Hines' communication in Bulletin 2. p.14.

'In 1400, at Eltham, 5,000 "flaunderstile" ... were bought pro factura soiles jambpeces reredose et tuell' iij caminorum, that is, for the sills, or hearths, jambs, backs, and flues of three fireplaces.' P.98, citing Exch.K.R. Accts. 502, 15.

'At York Castle in 1364 plaster and "walteghell" ... were bought for the tuellis vulgariter vocatis chymnes and the reredoes [sc. fire-back] in the kitchen...'. P.98, citing Exch.K.R.Accts. 501, 11.

A doubtful example is the purchase in 1397 of 1,000 'white tiles of Flanders' for use in fireplace reredoses at Portchester Castle. P.99, citing Exch.K.R.Accts. 479, 23. This, however, may mean simply 'white tiles from Flanders', not 'Flanderstiles' in the sense of 'bricks'.

'...one of the earliest mentions in England of brick by that name is the purchase of 2,000 "breke pro chemeneys faciendis" at [Kings] Langley in 1427.' P.99, citing Exch.K.R.Accts. 466, 11.

'At Shene [Sheen, later Richmond] in 1440 three double fireplaces of brick (breke) are mentioned...'. P.100, citing Exch.K.R.Accts. 503, 9.

'...the glazing account for Westminster Abbey in 1469 includes an item "for brike and other necessaries for making the anelyng herth".' P.179, citing Rackham, Nave of Westminster, p.31.

A contract made in 1370 for building a range of eighteen shops in London mentions building materials; it directs the making of 'x Chemeneyes des queux viij serrount doublez et serrount faitz desus lez Mantles de Flandrisch Tyle, et desouth lez Mantles de perez et Tylescherd [broken bricks?].' The mason, Pieres de Webbenham is to be provided with all his materials except 'lez flaundrysch Tyles et plastre p^r lez Mantelscides dez auauntditz Chemeneyes', which materials Pieres is to find 'a ses propres costages'. The Flanderstiles seem to have been imported in this instance for Pieres is paid in advance a sum of 10 marks 'p^r une Nef pleyn de flandrischtyle...'. P.444, transcript of St Paul's MSS. no. 1074.

Eton College is an important brick building, not least because it falls just within the period c.1375-c.1450, which are the formative years of English brick building. Early patronage - a theme I am developing elsewhere - was largely by lay nobles;

the Crown employed the material from an early date, but apparently only on a small scale; works at Sheen (Richmond) Palace in the early years of the fifteenth century are perhaps the earliest royal works in brick on a large scale. But nothing of these remains, and for surviving early royal works in brick we have to go to two near-contemporary buildings - Eton College (1441 sqq.) and Queens' College, Cambridge (1448 sqq.). At the latter there yet seems to be a certain lack of confidence, for the walls are not of solid brick, but '...the brickwork is a facing to infilling of clunch or chalk rubble.' (RCHM, ...City of Cambridge, 1959, p.168) It is therefore interesting to note the firm stipulation of Henry VI that, even at the mostly brick-built Eton, brick shall not be allowed in the walls or grounds of the chapel. The King's revised scheme for the chapel (1447/8) directs that it shall be of 'Yorkschyre and Teynton ston', and then insists that 'neyther in the seid growndes ne walles schall in any wise be occupied Chalke Bryke ne Reygate stone ...' etc. P.527, quoting a document originally transcribed in Willis and Clark, Architectural History of the University of Cambridge, vol.1, p.366.

The use of brick at Sheen, Eton, and perhaps at Queens' may have been due in part to the personal enthusiasm of William Vesey, probably a foreigner, who rose to important administrative office under the Crown, but who was also called a 'brikemaker', and in 1437 was appointed to search for earth suitable for making 'brike'. P.142, citing Cal.Patent Rolls 1437-41, p.145.

Finally from Salzman, a contract between the Master and Fellows of Corpus Christi College, Cambridge and John Loose, a Norfolk mason (1459) directs the building of a bakehouse with walls 'of a foote and half in thikness the neyest of the creste after ij tyles and an half heygh but a foote aboue the wyndows of sent Bernards Hostell Notwithstanding the walles of the said Bakhouse [bakehouse] beying of Ragge clunch and Tyle iij fotes of the standard from the gronde leuell...' etc. An obscure part of the document mentions a further part of the structure 'v foote more al of breke'. The windows are to be 'of breke' and other work is to be of 'the best endureing breke'. P.533, quoting a document originally transcribed in Willis and Clark, op.cit., vol.1, p.308.

Some further references are taken from Historical Manuscripts Commission, Report on the Manuscripts of Lord de L'Isle and Dudley..., 1, 1925:-

A letter of September 29, c.1460 mentions 'a tyle kylne at Boston', probably a brick-kiln. P.188.

Building accounts of 1457/8 for Tattershall College mention the carriage over 4 miles of 'tiles' from the kiln to the College. In the same year payment was made to the widow of Bawdwin Docheman (the Bawdwin Brekeman who had made the majority of the bricks for Tattershall Castle etc. - vide Bulletin 1, 15th printed page) 'pro factura et anulacione de clx mille tegularum', certainly in this case bricks. P.198.

A Boston account of 1438/9 includes amongst the receipts

'£3, 12s. 0d. "de pretio xii M. tegulorum voc. waltyle...".' The same account mentions deliveries of 24,000 'waltyle'. A similar account of 1451/2 includes receipts from the 'tile kiln' for 10,000 'waltile'. Pp.221-2.

Finally, from the Farnham Castle accounts for 1475, the word 'breke' occurs combined in the names of Cornelius Brekemason, Adrian Brekemason, and ffloraunce Brekemason; vide M.J. Thompson, 'The Date of "Fox's Tower", Farnham Castle, Surrey', Surrey Archaeol.Colls., 57, 1960, 88.

Incidentally, the term 'Flanderstile' is often taken as a proof of importation. That some early bricks, including some called 'Flanderstiles', were imported is certain - there are documents - but, as I hope to demonstrate elsewhere, the vast majority of medieval English bricks were home-produced. 'Flanderstile' should not be taken on every occasion of its occurrence as proof positive of importation; the term may signal no more than the origin of this type of material. Parallels are many and obvious: Yorkshire pudding, japan work, damask, Fletton bricks, and (perhaps most relevant of all) Spanish tiles. Before 1920 A.Hamilton Thompson felt able to write that 'No one now believes the old theory that our best mediaeval brick-work was imported from abroad...'. (Trans. Leics.Archaeol.Soc., 11, 1913-20, 205) His confidence was sadly misplaced. As recently as 1973 one came across a popular-writer (J.Kinross, Discovering Castles in England and Wales, 1973, p.108) roundly asserting that at Tattershall Castle 'Flemish workmen brought their own bricks for the project ...', despite the fact that the building accounts, which tell us precisely where in England the bricks were made, were published over a decade ago by the late W.D.Simpson and despite the fact that the same scholar demonstrated the Teutonic, rather than Flemish, affinities of Tattershall Castle almost four decades ago! Really, the point should have got home by now.

Luton
April 1975

T.P.SMITH

NO 16

RIDGE TILES IN NORTH STAFFORDSHIRE by Gerald Emerton, Acton, Nantwich, Cheshire.

First of all it must be understood what a ridge tile is for, and what effect its use has had on size, design and shape.

Slates and tiles generally have been used for hundreds of years, which fact may be investigated and reported on separately, but there is little doubt that both slates and clay tiles were quarried or made as flat slabs of material which, like shingles, had to be laid to the second lap principal.

Most people realize that when these flat slabs of material reach the apex of a two sided roof, something of a bent shape is necessary to bridge the gap and stop wind and direct rain etc from getting in. But it is perhaps not always realized that the ridge tile must hold down the top course of flat slabs on each side and stop the wind from progressively spoiling the roof by blowing the slates or tiles off course by course.

It is from this second feature of the usefulness of the ridge-tile that the first clue comes. In most of the middle and more sheltered counties of England, it was possible to use a small and light Clay ridge tile from an early date and there are references in L.F. Salzman's excellent book, Building in England to 1540 (Clarendon, Oxford 1967), to tiles and ridge tiles being made and used. However, throughout most of Britain it was not possible to use light small Clay ridges simply because the amount of rain and frost quickly eroded the old lime mortars in use before the general introduction of Portland cement. Once the mortar was washed away the stronger winds would blow off the ridges, and then the tiles.

Ridge tiles were made small and light simply because it was not possible to make them large and heavy! but in those counties where the clay ridge tile was used, a standard hog-back shape was almost universally adopted.

The next point to make is that the large and heavy stone ridge tile was generally used throughout Britain. Made in long lengths and heavy section, even without mortar these ridges were, and are, proof against the weather.

The clay ridge tile had become popularly used in the area from Kent to Staffordshire well before the end of the seventeenth century however, the use of stone ridges persisted, (A) up to and into the railway era.

As far as I have so far been able to ascertain, all early ridge tiles and stone ridges were of the "hogback" shape (see sketch). This shape was influenced, in clay by being made of a flat piece of Clay bent over a former. In stone ridges it is difficult to crudely cut a ridge to any other shape. So we see that the "hogback" is the natural shape. Even the roof tiler and slater prefers the shape for a variety of reasons, from the closeness that it will lie on the roof to the fact that it can be walked along after laying. This shape is also economically stacked or held in pannier, wagon or kiln.

Ridge Tiles

OF NORTH STAFFORDSHIRE

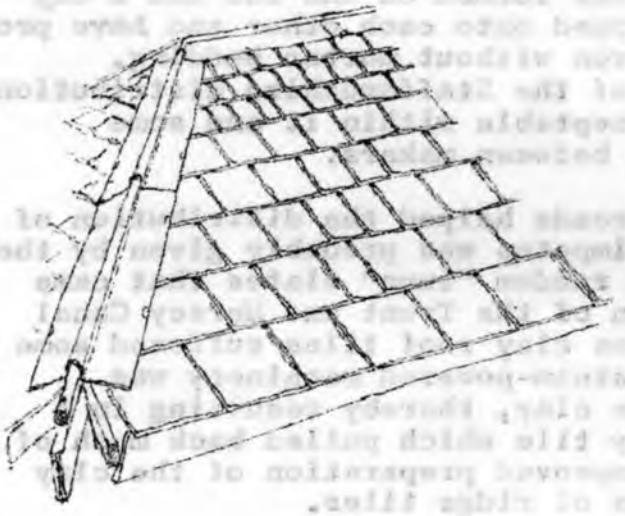
Gerald Emerton 1975

STONE HOG-BACK ridge tile, usually in random lengths of about 3 feet, used since Roman times.

CLAY HOG-BACK ridge tile, approximately 14" x 14" usually brick red, used from the middle ages to the late 17th century.

CLAY SADDLE-BACK ridge tile, vary according to maker from 14" to 17" in blue and brindled colouring, in common use from 1766 or earlier until about 1844.

Two principal variations: double and single panel.



SHEELED approximately 18" to 24" girth and weighing 7 lbs to 10 lbs per square foot and dressed over a timber roll.

Popular between mid 18th century and about 1830, used mainly with random slates from Cumbria and North Wales but also commonly used with clay tiles to cover hips.

ROLL-TOP ridge tile, 18" in length, usually blue but sometimes in brindled colours. Introduced about 1843, capped version came into use about 1860, red colours 1870.

Note the hole for oak dowel to link the rolls.

Probably the first ridge tile designed to use the superior preparation of clay made possible by the introduction of machine mixed methods.

In Staffordshire the ridge tiles of the period up to and about 1660 conformed pretty well to the general pattern, and it is still possible to spot odd examples on old roofs in the country towns of Staffordshire and in the natural area to which Staffordshire Clay tiles (and ridges) were carried. To the South and East this natural area becomes confused with other tile making districts, but to the North and West this early area appears to be defined by the towns of Leek, Sandbach, Nantwich, Market Drayton and Newport. There is also an apparent boundary between the North Staffordshire and South Staffordshire tiles at the river Dove near to Uttoxeter.

With the introduction first recorded in the 1660s of the use of the potters kiln, for burning clay tiles (B) in North Staffordshire, a considerable change took place. The improved economy of the country, the greater use of coal, and the general increase in building substantial houses and other buildings in brick, brought about the establishment in North Staffordshire of a very successful clay roof tile industry based on the production of the blue and brindled tiles that have proved to be so long lasting.

It is difficult to know for certain, but reasonable to assume that the ridge tile burnt to a 'blue brindle' colour in the potters kiln, was at first not a very well shaped product, for even up to 1725, although the red ridges had been used earlier, it was common to use stone ridges with the brindled tiles. (C) However, by 1766, (D) and probably earlier, an improved ridge tile was being made by the different tileries. As can be seen from the sketch, these saddle-back ridge tiles were burnt blue or brindled and measure approximately 14" x 14" and larger overall clay size. A small rib was formed on one end and a cap at the other, and these tiles lapped onto each other and have proved heavy enough to withstand wind even without mortar bedding. Although they were not used out of the Staffordshire distribution area, they proved universally acceptable within it and some minor variations can be detected between makers.

The construction of turnpike roads helped the distribution of these "saddle-back" ridges. An impetus was probably given by their use with the large quantities of random "tunn" slates that came into the area upon the completion of the Trent and Mersey Canal in 1777. The use of Staffordshire clay roof tiles suffered some decrease in demand, but by 1830 steam-powered machinery was being used to prepare and mix the clay, thereby resulting in a much improved blue hand-made clay tile which pulled back much of the lost popularity. With the improved preparation of the clay came a further step in the design of ridge tiles.

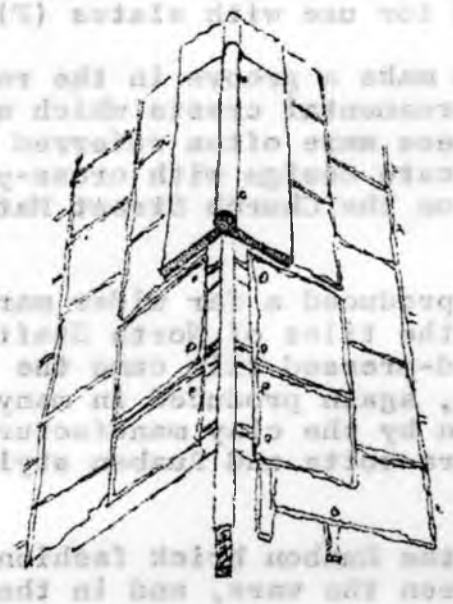
With the introduction of slates along the canal system came the increased use of slates on property with the low-pitch roofs behind parapet walls. Clay ridge tiles could not be successfully laid on hips and ridges at low pitches of 30° and even lower. The slate quarries provided slate ridges which were fixed into the woodwork and jointed with linseed oil putty, but these did not prove as popular as heavy sheet lead fixed onto a timber roll. This gave rise to the imitative design of the roll-top ridge which by 1843 was being made in Staffordshire tileries in the form of an 18" long blue roll-top flat wing ridge tile.

It was soon realized that a similar clay ridge tile could be made without the roll-top and by now the use of tiles and slates, which both required ridge tiles, was extending over wider areas as the industrial towns grew.

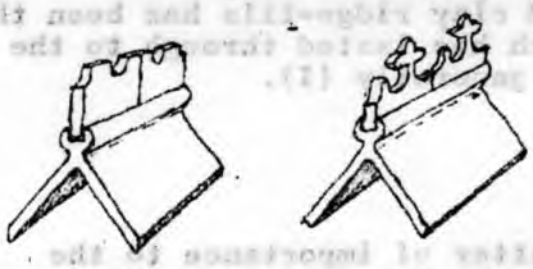
CLAY ANGLE ridge tile, in 18" lengths and usually blue.

Introduced in the 1840's to meet the growing demand for a ridge tile for use with regularly sized slates, sales of which were stimulated by the more general use of sawn battens.

CAPPED ANGLE ridge tile.

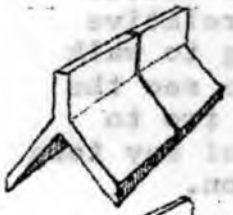


SLATE ROLL two-piece ridge tile, made in various lengths, jointed with linseed oil putty and screw-fixed to the roof structure. Their manufacture was made viable by the introduction of planing and sawing machinery at the quarries. Circa 1840.

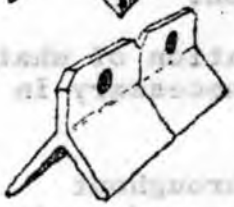


GROOVED ROLL-TOP ridge tile with CRESTS, satisfied the Victorian desire for ornamentation and nature-defying use of materials. Usually blue and in 18" lengths. They became popular during the 1860's.

The popularity of red clay tiles, often refered to as "Broseley Tiles", lead to the introduction of various crested patterns in red colours from about 1870.



PLAIN CRESTED ridge tile, lengths vary from 12" to 18".



NOTCHED or SCALLOPED and PERFORATED Crested ridge tile

ROLL-CRESTED and PERFORATED ridge tile

These varieties of ridge tile became virtually unknown after the 1914 - 18 war.

HALF ROUND ridge tile, commonly used from the 1920's.

It can be seen that the change-over from the general use of the saddle-back ridges of Staffordshire to the even more refined flat winged angle ridge with and without caps took place in the 1840's.(E) Whilst a profusion of other shapes of ornamental and crested ridges followed the roll-top ridge, the basic 18" blue-capped angle ridge tile became the most widely used through the rest of the nineteenth century and up to the first World War. Whilst most of the old tileries in Staffordshire have long disappeared beneath playing fields and the like, the 18" blue-capped angle ridge is still in demand for use with slates (F).

In the 1850's it became popular to make a groove in the roll-top ridge tiles and bed in vertical ornamental crests which were made in a multitude of designs and these were often referred to as "cress" (G). A particularly intricate design with cross-pieces still exists, although much damaged, on the Church Street National School building at Chesterton.

By the year 1870 the railways had produced a far wider market, even than that of the canal era, for the tiles of North Staffordshi . Along with the development of the hand-pressed tile came the development of the crested ridge tile, again produced in many patterns and copied throughout Britain by the clay manufacturers who were making the newly popular Terra-cotta and Ruabon styles of architectural clay ware. (H)

The first World War put a stop to the Ruabon brick fashion. Almost universally in the period between the wars, and in the early post-war years, the standard clay ridge-tile has been the 12" plain half-round pattern, which has lasted through to the virtual demise of Clay roof tiles generally (I).

Some Conclusions

The dating of buildings is a matter of importance to the historian and the industrial archaeologist. It is useful therefore to have a quick method of checking the relative date of a building at a glance. It is interesting to walk through local towns and villages and to be able to see the development that has taken place through the last two to three hundred years. This applies to the centre of any town even as diverse as say - Hanley or Market Drayton.

Caution must be used however, for some appreciation of what has happened to the roof in intervening years is necessary in order to avoid making mistakes.

These same rules can be applied to buildings throughout the country once a knowledge of the types of ridges and roof coverings has been achieved. North Staffordshire is unique in having the saddle-back ridge, other areas were not so advanced. The Broseley tile distribution area for instance continued to use the hogback ridge well into the nineteenth century.

We no doubt all have our reasons for being interested in building history, but for me there is a fascination in being able to read the messages incorporated in roofs in particular and buildings in general.

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Note A Stone ridges can be seen in Cheshire and Derbyshire relating to most periods. They were principally made at Kerridge Quarries, near Macclesfield, Cheshire. In earlier times they were made at various sandstone quarries throughout the area.

Note B See Robert Plot, A Natural History of Stafford-shire (1686) p.336

Note C Examples, two of many are Densoms Outfitters, High Street, Nantwich,and The Devonshire Arms Hotel, Hartington, Derbyshire.

Note D 1766 is the earliest date for which saddle ridges can be placed with any certainty. Farm house at Soudley near Newport, Salop, and a farm house beyond the duck pond at Hartington, Derbyshire. The farm house at Church Lawton (Cheshire) near to Kidsgrove, although slightly earlier, may not have the original roof covering on it, particularly with it being so near to the tileries.

Note E A farm at Adderley near Audlem, Cheshire, has adjacent buildings with date placues, both have blue hand-made tiles, but the building dated 1843 has saddle ridge tiles and the one dated 1844 has 18" blue capped angle ridge tiles. Many other dated samples exist throughout the distribution area which, by these dates, had extended to include towns such as Ashbourne(Derbys), Leek(Staffs), Congleton, Northwich and Malpas (Cheshire), Whitchurch, Wem and Newport (Salop), Stafford and Uttoxeter (Staffs).

Note F As manufactured by J. Caddick & Sons Ltd, Basford, Stoke-on-Trent, and Red Bank Manufacturing Co. Ltd., at Measham, Burton-on-Trent.

Note G "Cress" is no doubt dialect slang for "crests" but the word found its way into advertisements of the period.

Note H The village school building at Draycott-in-the-Clays, near Uttoxeter, Staffs, is dated 1845 and it is interesting to speculate whether the 4 x 3-knobbed crested rige tiles are original, or whether they were put on at a later date, using the original roll-top ridge tiles on the new rear extensions.

Note I Clay tiles continue to be in considerable demand, but it must be said that the early 1960's saw the economic importance of the clay tile finally ousted by the concrete interlocking tile. At the time of writing, no clay tile maker in the Midlands or North of England now makes hand-made clay tiles.

NQ17

Staffs bricks and tiles

Earlier issues of the North Midlands Bulletin should have mentioned the existence of an important article on Staffs bricks and tiles in volume II of the Victoria History of the County. The reference is as follows:

J Thomas
'Bricks and Tiles'
in a History of the County of Stafford vol. II pp. 255-259
ed. by M.W. Greenslade and J.G. Jenkins. (The Victoria History of the Counties of England, published by the Institute of Historic Research and Oxf. Univ. Press 1967)

NQ18

Mesopotamian bricks (from NQ12)

The full reference to Salonen's important book on early bricks and on the brick industry in ancient Mesopotamia should be as follows:

SALONEN, Armas
Die Ziegeleien im alten Mesopotamien (mit 52 Tafeln)
(= Suomalaisen Tiedeakatemian Toimituksia/Annales Academiae Scientiarum Fennicae
Sarja - Ser. B/Nide - Tom. 171

(Helsinki 1972)

NQ19

Plinthology (from L.S. Hartley, President B.B.S.)

In your Bulletin No.2, p. 18, under Notes & Queries Note 12, the Greek word for brick, "plinthos", suggests that if ever there should be required a word to describe the study of brick, it ought to be PLINTHOLOGY and not some fearsome hybrid of pseudo-Latin and Greek, such as can so easily arise.

I have tentatively put this to an audience in Essex last year, but would welcome the wider dissemination of the idea in the pages of your Bulletin.

18 February 1975

NQ20 A reply to query NQ5 on 17-century London brick 'keeles'
(by Martin Hammond, Regional Recorder BBS, Southern Region)

I would suggest that these are clamps. Bricks have been burnt in clamps in the neighbourhood of London since at least the 17th century. The diagram would have been drawn by solicitors not familiar with the technicalities of brickmaking. There are no signs of fireholes or wickets which would be conspicuous features of a Scotch kiln, but these too are built with buttressed and inward sloping walls.

NQ 21

Origin of the word 'BRICK' (from L.S. Hartley, President B.B.S.)

In Bulletins Nos. 1 and 2 have appeared some interesting notes of early uses of the word 'brick', but I do not see therein any mention of the earliest known use, namely that quoted by, inter alia, Miss J. Wright on pp. 27 and 65 of her book, Brick Building in England (Baker, London, 1972). This records that in 1340, a stair and dungeon were to be built at Windsor Castle "in petris et brikis": Salzmann also refers to this early use, in Monkish Latin, of an oblique case of 'brik' (or was it 'brikum' ?)

Nathaniel Lloyd in his History of English Brickwork (London 1934) quotes (p.10) the use , on the Continent, by Godfrey in 1264 of the word 'briche' and says that the O. French was 'brique' which meant primarily 'a fragment', but also what we now call a brick.

The modern Dutch word is commonly 'baksteen', but the Old Dutch seems to have been 'bricke', Old Flemish 'brijck', meaning also 'something broken off, a bit'.

All these old forms of 'brick' seem to stem from the A.S. 'brecan', meaning 'to break', with the adjective 'brice', (pronounced with a hard 'c'), meaning brittle.

I suggest that the Old French word comes from the Netherlands, and may indicate the route by which the smaller brick, the 'one-hand' brick which followed the great brick, came to France and England.

NQ22 Additional note on staffs brick adverts (1864) in NQ8 (Martin Hammond)

George Wooliscroft, Chesterton: I found a diamond-patterned paving brick in Nottingham, stamped 'Wooliscroft', and probably dating from the mid-1870s. This is now at the Industrial Museum at Wollaton Hall. Wooliscroft floor tiles are still in business.

NQ23 Early Blue Bricks in NQ10 (Martin Hammond)

I would agree with the date of the introduction of blue bricks. Certain improvement works on the Oxford Canal were of handmade blue bricks between 1829 and 1834, but the north portal of the Harecastle New Tunnel, on the Trent & Mersey Canal (1826) is faced with blue brick, and lined with 7 million blue brindles made on the spot at a temporary works set up on the hill above.

NQ24 Query (NQ11) on
Nat.-Coal Board Bricks from (Martin Hammond)

The leaflet dates from "before 1969", the year that the Watnall and Annesley works closed down. I surveyed the remains of both works a couple of years ago. Both made common bricks from colliery shale. The Annesley works had a 20 chamber Modified Hoffman kiln, and was adjacent to Annesley Colliery. Watnall brickworks was adjacent to Watnall Colliery, which was sunk in 1872. There was a small brickworks on the site in 1915, working red Keuper marl from a surface claypit, but the first phase of the present works was started in the 1920s by the Barber Walker Colliery Co, using the colliery shale, which was ground to powder, moistened, and, pressed in Bradley & Craven stiff-plastic presses. Besides a building housing the brick presses, and a toilet and washroom building, there are a Modified Hoffmann kiln, a Manchester kiln, and a Staffordshire kiln, of 18 chambers each, and a 20-chamber Staffordshire kiln. The Staffordshire kilns were built in the NCB era, and the chambers held 20,000 bricks each, and some were still filled with half burnt bricks. The other two kilns held 12,000 bricks per chamber. The site has been bought by a Portsmouth-based distribution company, but no development had taken place by the time I left Nottingham.

NQ25 A further model gazetteer for us in Midlands, see NQ14
(from Martin Hammond)

Donald Young compiled a similar gazetteer for Dorset- 'Brickmaking in Dorset' - Proceedings of the Dorset Natural History and Archaeological Society, vol. 93 (1972) pp. 213-242 This will need some revision as further sites come to light and because of the county boundary changes.

NQ26 On bricks in Gladstone Pottery Museum in Bull. no.2
(from Martin Hammond)

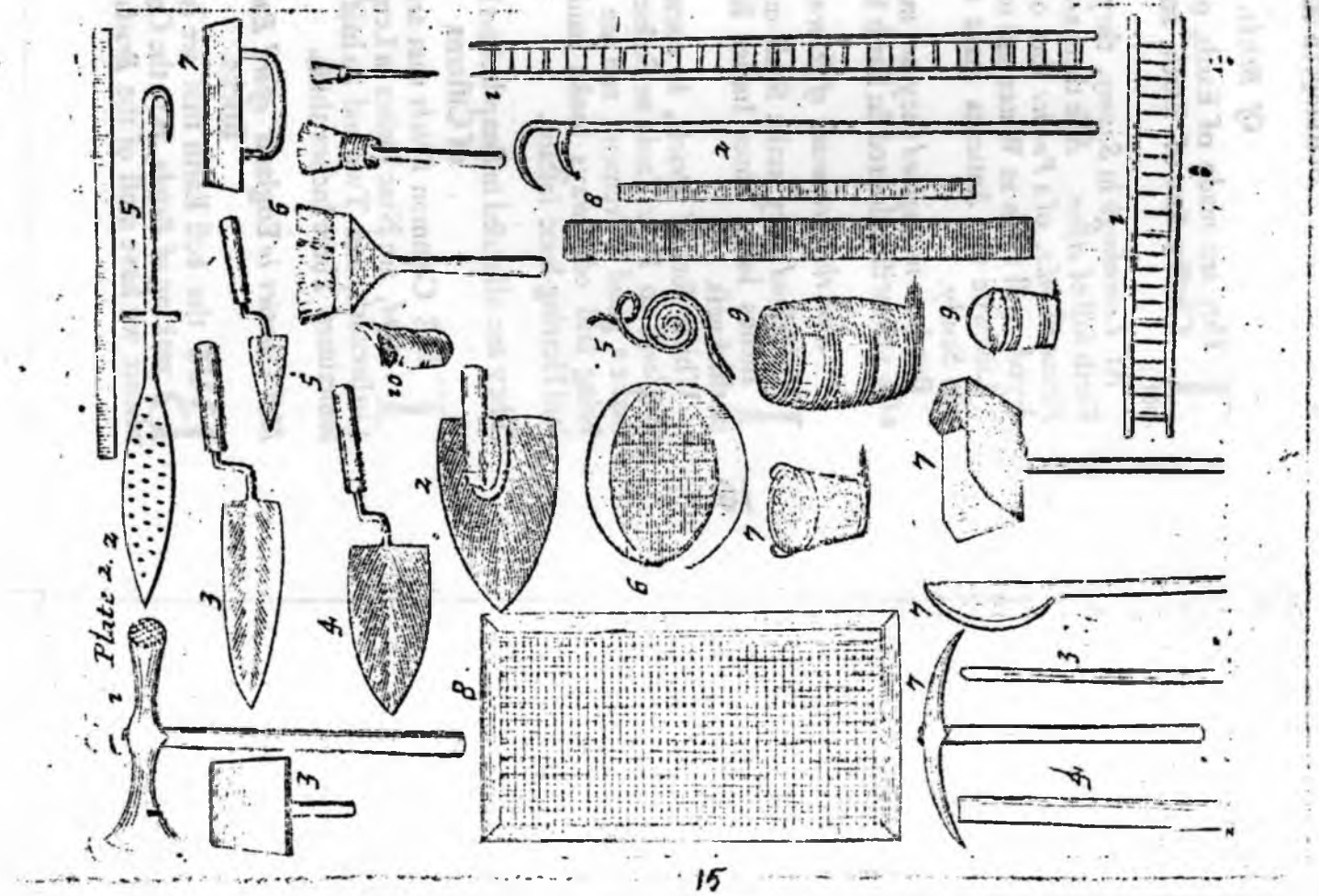
There are several names that I know among the list of bricks presented to the Gladstone Pottery Museum, I would confirm that the name WAINGROVES is correct. This was made at what is now the Butterley Brick Co's Waingroves works near Ripley, Derbyshire. Judging by the size it seems to be quite old, pre-British Standard size. Later examples were stiff-plastic, produced between the 1940s and about 1965, stamped:
BUTTERLEY
WAINGROVES and burnt in a Staffordshire kiln. The works was modernised in the mid-1960s and produces red and chocolate-brown perforated wirecut engineering bricks, burnt in an oil-fired tunnel kiln. I have seen UTOPIA bricks on a housing estate in Nottingham dating from the mid-1950s. Dennis, Ruabon, are still in business, but their entire production is now floor quarries. Flettons Ltd - in business 1927-70.

Portions of Moxon's notes on brickmaking might be worth reprinting in a journal. If so a better copy can be made than this one produced on a duplicator.

MECHANICK
EXERCISES:
OR, THE
DOCTRINE
OF
Handy-Works.

Applied to the ART of *Bricklayers-Work.*

LONDON,
Printed for, and Sold by *J. Moxon*, at the *Atlas* in *Warwick-Lane*, and at his Shop, at the Entrance of the West End of *Cornhill*, 1700.



Of Bricks.

THey are made of Earth, of which the whiteiſh Chalky ſort of Earth, and the Rediſh are the beſt.

At *Luneburgh* in *Saxony*, they make them of a fat Earth full of *Allom*. Alſo there are good *Bricks* made at *Pitane* in *Aſia*, of a *Pumice* ſort of Earth, which being dryed, will ſwim in Water and not Sink.

Likewiſe the Antients made them of Earth which was Sandy.

But here in *England* they are made for the moſt part of a yellowiſh coloured fat Earth ſomewhat Rediſh.

And they are made of ſeveral ſorts and ſizes.

IN *Holland* they make ſmall ones, being about Six Inches long, Three Inches Broad, and One Inch in thickneſs.

Which ſort of *Bricks*, is commonly uſed here in *England*, to Pave Yards or Stables withal; and they make a good Pavement, and are very Durable, and being laid edge ways looks handſomly, eſpecially if laid Herring-bone faſhion.

They are alſo uſed in Soap-boilers Fats, and in making of Ciſterns.

THE Common *Bricks* that are made here in *England*, are Nine Inches in Length, Four Inches and ½ in Breadth, and Two and an half in Thickneſs; and ſometimes Three Inches thick.

Moſt Counties in England *afford Earth for the making of* Bricks.

BUT the beſt Earth that we have in *England* for making of *Bricks*, is in the County of *Kent*, from whence we have moſt of the *Bricks* which are Rubbed and

and Hewed for the Ornaments of the chief Fronts i the City of *London*: The Ornamental part of whic Fronts, are done with the Reddeſt Bricks they ca pick from among them; and the Rough or Plain Work is done with the *Grey Kentiſh Bricks*; alſo thoſe *Gre Kentiſh Bricks* are uſed in making of Ciſterns to hol Water, and Horſe-Ponds, and alſo Fats for Soap-Bo lers; and I am of the Opinion, that no time will Im pair or decay thoſe *Grey Kentiſh Bricks*: But, as *Pli* ſays, (ſpeaking of *Bricks*,) that they will laſt t Eternity.

There are alſo in moſt Counties of *England*, Brick made for the Paving of *Floors* of *Rooms*, *Cellars*, *Dair houſes*, &c. which are made of a ſtonger ſort of Earth than the Common *Bricks* for Building, the *Earth* be ing a kind of *Clay*, and in ſome Countries are calle *Clay Bricks*, which are dearer than the *Ordinary Brick* by about Six Shillings in a Thouſand.

Likewiſe in ſeveral Counties, but chiefly in *Surre* are made Paving *Tiles* of Three ſeveral Magnitudes the largeſt ſort being Twelve Inches long, and Twelv broad, and one Inch and an half in Thickneſs.

The Second ſort are Ten Inches long, and Ten In ches Broad, and one Inch and a Quarter thick.

The Third ſort are Eight Inches long, Eight Broad and one Inch thick.

Either of which ſorts being Polliſhed or rubbed wit ſharp Sand on the Surface, and the joints made exactly ſquare, and the ſides equal, by hewing them with *Brick Ax*, and rubbing them on a rubbing Stone wit ſharp Sand, makes an Excellent Pavement and pleaſing to the Eye, eſpecially when laid *Arris ways*.

Having thus deſcribed the ſeveral ſorts of *Bricks* and alſo Paving Tiles, we come in the next place to Treat of *Tiles*, made and uſed in the Covering of *Roofs* of *Houſes*, both Publick and Particular, of which are Four ſorts or Kinds.

The Firſt ſort are called *Plain Tiles*, being made of a ſtrong ſort of Earth like *Clay*; and are, or ſhould be Ten Inches and an half in Length, in Breadth Six Inches and a Quarter, and in Thickneſs Three quarters of an Inch.

The ſecond ſort are *Gutter* or *Hip Tiles*, which are uſed ſometimes for *Vallies* and *Hips* of *Roofs*, altho' here at *London*, the *Vallies* are commonly Tiled with *Plain Tiles*, and the *Hips* with *Ridge*, or (as ſome call them) *Roof Tiles*: Theſe *Gutter Tiles* are in Length Ten Inches and an half, with convenient Breadth and Thickneſs accordingly, and are made Circular or hollow, and wider at one end than at the other.

The third ſort are *Ridge* or *Roof Tiles*, being in length Thirteen Inches, and made Circular breadthways like an half Cylinder, whoſe Diameter is about ten Inches, or more, and about half an Inch and half a quarter in thickneſs: Theſe are laid upon the upper part, or ridge of the Roof, and alſo on the Hips.

The Fourth ſort are *Pan-Tiles*, being about thirteen Inches long, with a Nob or Button to hang on the Laths, and are made hollow or circular breadthways, being eight Inches in breadth, and about half an Inch in thickneſs, or ſomewhat more. The beſt ſort of theſe are brought from *Holland* into *England*, and are called *Flemmiſh Pan-Tiles*, we having ſuch Tiles made here in *England*, but not ſo good: Which *Flemmiſh Tiles* are ſometimes glazed, and are of a Lead, or blewiſh colour, and being glazed they are very durable and handſom.

Having done with the Deſcription of *Tiles*, for the Covering of Roofs, we come in the next place to treat of *Morter*, and firſt of *Lime*, being the chief Material of which the *Morter* is made, for the Cementing or Joining of *Tiles*, as well as *Bricks* together, we will Treat of it in the firſt place.

Of

Of Lime.

THere are two ſorts, one made of Stone, which is the ſtrongeſt, and the other of Chalk, both ſorts being burnt in a *Kiln*.

The Lime that is made of ſoft Stone or Chalk is uſeful for Plaſtering of Seelings and Walls within Doors, or on the inſides of Houſes; and that made of hard Stone, is fit for Structures or Buildings, and Plaſtering without Doors, or on the out ſide of Buildings that lies in the Weather; and that which is made of greaſy clammy Stone, is ſtronger than that made of lean poor ſtone; and that which is made of ſpongy ſtone, is lighter than that made of firm and cloſe ſtone; that is again more Commodious for Plaſtering, this for Building.

Alſo very good *Lime* may be made of *Mill-ſtone*, not courſe and Sandy, but fine and Greaſy.

Likewiſe of all kinds of Flints (but they are hard to burn except in a *Reverbratory Kiln*) except thoſe that are roled in the Water, becauſe a great part of its increaſe goes away by a kind of Glaſs.

But the Shells of Fiſh, as of Cockles, Oyſters, &c. are good to burn for *Lime*.

And the Fire in *Lime* burnt, Aſſwages not, but lies hid, ſo that it appears to be cold, but Water excites it again, whereby it Slacks and crumbles into fine powder.

Lime alſo is uſeful in divers things, for 'tis uſeful in Oyles and Wines, and good to Manure Land with; ſome ſeaſon new Wine with it, mittigating the unpleaſantneſs of the Wine therewith.

Moreover *quick Lime* being caſt into an Arched-Vault, and Water thrown upon it, conſumes dead Bodies put therein.

Alſo *Dyers* and *Tanners*, and likewiſe *Phyſicians*, uſe it, but they chooſe the neweſt, to wit, that which is

is

is newly drawn out of the *Kiln*, and not ſlack'd with Water or Air.

It will burn ſo Vehemently, that it makes cruſts, and will fire Boards or Timber againſt which it lies; but being ſlackt for ſometime, it burns no more, yet it warms and dries, and diſſolves Fleſh; and being waſhed three or Four times, it Bites or Eats not, but dries quickly.

Lime mixt with Sand is much uſed in Buildings, and *Vitruvius* ſays, that you may put three parts of Sand that is digged (or pit Sand) and one part of *Lime* to make *Morter*; but if the Sand be taken out of a *River*, or out of the Sea, then two parts thereof, and one of *Lime*; as alſo to *River* or *Sea* Sand, if you put a third part of Powder of *Tiles* or *Bricks*, (to wit, *Tile*, or *Brick* duſt) it works the better.

But *Vitruvius* his Proportion of Sand ſeems too much, altho' he ſhould mean the *Lime* before it is ſlacked, for one Buſhel of *Lime* before it is ſlack'd, will be Five Pecks after 'tis ſlack'd.

Here at *London*, where for the moſt part our *Lime* is made of *Chalk*, we put about Thirty Six Buſhels of Pit Sand, to Twenty Five Buſhels of *Quick-Lime*, that is about one Buſhel and half of Sand, to one Buſhel of *Lime*.

And *Lime* mixt with *Sand*, and made into *Morter*, if it lie in an heap two or Three Years before 'tis uſed, it will be the ſtronger and better, and the reaſon of ſo many inſufficient Buildings, is the uſing of the *Morter*, as ſoon as 'tis made, as *Agricola* ſaith.

Moreover there is other *Morter* uſed in making of Water-courſes, Ciſterns, Fiſh-ponds, &c. which is very hard and durable, as may be ſeen at *Rome*, at this day, which is called *Maltha*, from a kind of *Bitumen* Dug there; for as they build moſt firm Walls thereof naturally, ſo they uſe it in making of Ciſterns to hold

Water

Water, and all manner of Water-works; and alſo in finiſhing or Plaſtering of Fronts to repreſent Stone.

And I find two kinds of Artifices uſed by the Antients, both of which is Compounded of *Lime* and *Hogs-greaſe*, but to one is added the Juice of *Figs*, and to the other *Liquid Pitch*; and the Lumps of *Lime* are firſt wet or Slack'd with Wine, then Pounded or beat with *Hogs-greaſe*, and Juice of *Figs*, or with the ſame and *Pitch*; that which hath *Pitch* in it, is blacker and eaſily Diſtinguiſhed from the other by its Colour, and that which is Plaſtered with this *Tarrace*, is done over with *Linſeed* Oil.

Metaliſts uſe a kind of *Tarrace* in their Veſſels for fining of *Mettals*, that the melted Mettle run not out; for as the Moderns reſtrain *Water*, and contain it, ſo the Antients, this liquid Mettal, and 'tis compounded or made of *Quick-Lime* and *Ox Blood*, the *Lime* being beat to Powder and ſifted, and then mixt with the *Blood* and beat with a *Beater*.

But their *Cement* differs from both the *Maltha's* in Compoſition and uſe, for 'tis made of Duſt or Powder of *Marble*, and *Glew* made of *Bull* or *Ox* Leather, and with this they glew pieces of Marble or Stones together.

In later times, two kinds of *Cement* are in uſe, in both which they uſe the Powder of *Marble*, or other *Stone*, to one is added the Whites of Eggs, to the other is added *Pitch*; to theſe ſome add other things, as the Gravers of *Gems*, they make it of *Tile Duſt* and *Pitch*.

Another Material which *Bricklayers* uſe are *Laths*, which are made of heart of *Oak*, for out ſide Work, as *Tiling* and *Plaſtering*; and of *Fir* for inſide *Plaſtering* and *Pantile Lathing*; their uſual lengths being 5 Foot, and 4 Foot, and ſometimes longer or ſhorter; their Breadth ſometimes 2 Inches, and one Inch and an half,

the

the thickneſs about ¼ of an Inch or thicker: But for *Pantiling*, the *Laths*, are about Ten Foot long, one Inch and half Broad, and half an Inch or more thick.

Another Material is *Nails*, of which they uſe three ſorts, one is called *Reparation* or *Lath Nails*, which are uſed for plain *Tile Lathing*, and outſide and inſide *Lathing* for Plaſtring; another ſort are four Penny, and Six Penny Nails, uſed for *Pantile Lathing*; and a third ſort are great Nails for Scaffolding.

Moreover they uſe *Tile-Pins*, which are ſometimes made of *Oak*, and ſometimes of *Fir*, which they drive into holes that are made in the *Plain Tiles* to hang them upon their *Lathing*.

They alſo put *Ox* or *Cow* Hair into the *Mortar* which they uſe for *Plaſtering*, being called *Lime* and *Hair*, which Hair keeps the *Mortar* from Cracking or Chaping, and makes it hold or bind together.

And whereas they make uſe of the ſharpeſt Sand they can get (that being beſt) for *Morter*, to lay *Bricks* and *Tiles* in; ſo they chooſe a fat *Loamy* or Greaſy Sand for Inſide Plaſtering, by reaſon it ſticks together, and is not ſo ſubject to fall aſſunder when they lay it on Seelings or Walls.

Having given you an account of the ſeveral Materials that are uſed in *Bricklayers* Work, we ſhall in the next place Treat of their Tools and their uſes, which are as follows.

Tools uſed in Brick Work.

1. A *Brick Trowel* to take up the Morter with, and to ſpread it on the *Bricks*, with which alſo they cut the *Bricks* to ſuch lengths as they have occaſion, and alſo ſtop the joints.

2. A *Brick Ax*, with which they cut *Bricks* to what ſhape they pleaſe, as ſome for Arches both ſtreight and Circular, others for the mouldings of Architecture, as Archytrave Friez and Cornice.

3. A

3. A *Saw* made of Tinn, to ſawe the Bricks which they cut.

4. A *Rub-ſtone*, which is round, and is about fourteen inches diameter, and ſometimes more or leſs at pleaſure, on which they rub the Bricks which they cut into ſeveral ſhapes, and alſo others which they cut not, being call'd *Rubbed Returns*, and *Rubbed Headers* and *Strechers*.

A *Square*, to try the bed of the Brick, (*viz.* that ſide which lies in the Morter) with the ſuperficies or face of the Brick, to make the Brick ſquare, or at Rect-angles one ſide with the other, which is done by rubing it on the Rub-ſtone till it exactly anſwers, or fits to the Square.

6. A *Bevel*, by which they cut the underſides of the Bricks, of Arches ſtreight or circular, to ſuch oblique Angles as the Arches require, and alſo for other Uſes.

7. *A Small Trannel of Iron*, or a large Nail ground to a ſharp point, with which they mark the Brick, either from a Square or Bevel, or a Mould made of thin Wainſcot, or Paſtboard, to direct them in the cutting thereof.

8. Some uſe a *ſloat Stone*, with which they rub the moulding of the Brick, after they have cut it with the *Ax*, pretty near to the Pattern deſcribed on the Brick, by the *Trannel* from the Wainſcot, or Paſtboard Mould, that ſo they may make the Brick exactly to anſwer to the Pattern or Mould. Others uſe no Stone at all, but cut the Brick exactly to the Pattern with their Brick-Ax, leaving the Ax ſtroaks to be ſeen on the Brick, which, if they be ſtreight and parallel one to another, look very prettily, and is the exact way of Working; but then they muſt take care, to Ax the Brick off, with an Ax that is exactly ſtreight on the edge, that the moulding in the Brick be neither round

nor hollow, from ſide to ſide of a Header, or from end to end of a Stretcher.

9. *A Little Ruler*, about 12 Inches in length, and 1 Inch and ½ broad, which they lay on the Brick to draw ſtreight Lines by, with the *Trannel* or *Nail*.

10. A *Banker*, to cut the Bricks upon, which is a piece of Timber about ſix foot long, or more, according to the number of thoſe who are to work at it, and 9 or 10 Inches ſquare, which muſt be laid on two Piers of Brick, or fixt on Bearers of Timber about three foot high from the Floor, on which they ſtand to work.

11. They work up a Pier of Brick-work, about the ſame height to lay their *Rubbing-Stone* upon, which muſt be laid in Morter that it may lye faſt.

12. A *Grinding-Stone*, to ſharpen their Axes, Hammers, Trowels, *&c.* upon.

20 13. A *Pair of Line Pins of Iron*, with a length of Line on them about ſixty feet in length, to lay each Row, or Courſe of Bricks, level on the Bed, and ſtreight on the Surface by, a Line ſeldom holding to ſtrein, or draw ſtreight in length, above 50 or 60 feet.

14. A *Plumb Rule* about 4 foot long, with a Line and Plummet of Lead, to carry their Work upright, or perpendicular withal.

15. A *Level*, about 10 or 12 foot long, to ſet out their Foundations level, or parallel to the Horizon, and alſo to try whether the Walls of the Building, or Jambs of Chimneys, be carried level, as they raiſe the Work, that ſo they may bring up all their Brick-work to an exact horizontal height, at the laying on of ever floor of Carpentry.

16. A *Large Square*, to ſet their Walls at rectangles, which may alſo be done without a *Square*, by ſetting 6 foot from the angle one way, and 8 foot the other way, then if the Diagonal line, or Hypotenuſe, be exactly 10 feet, the angle is a rectangle: If not, you mu

ſt

muſt ſet the Wall that is to be at rectangles to the other, either this or that way, till the two meaſures of 6 and 8 feet anſwer exactly to 10 feet.

17. A *Ten Foot* and a *Five Foot Rod*, as alſo a *Two Foot Rule*, to take and lay down Lengths, and Breadths, and Heights.

18. A *Jointing Rule*, about 10 foot long, and about 4 Inches broad, whereby to run the long Joints of the Brick-work.

19. A *Jointer of Iron*, with which, and the foreſaid, Rule, they joint the long *Joints*, and alſo the *Croſs Joints*, theſe being done with the *Jointer* without the *Rule*.

20. *Compaſſes*, to deſcribe the ſeveral Mouldings on Wainſcot or Paſtboard.

21. A *Hammer*, to cut Holes in Brick-work, and drive Nails for Scarfolding.

22. A *Rammer*, to Ramm the Foundations.

23. A *Crow of Iron*, to dig through a Wall, and alſo a *Pick-Ax*.

The *Manner* and *Shapes* of the foreſaid *Tools*, you may ſee in *Plate* 1. and the Name of each *Tool* in the Page next the Plate wherein they are delineated.

The Names and Uſes of Tools *relating to* Tyling.

1. A *Lathing Hammer*, to nail on the Laths withal, with two *Gauge Streaks* (for Lathing for *Tyling*) cut upon the handle of it, one at 7 Inches from the head, and the other at 7 Inches and an half; ſome indeed Lath at 8 Inches, but that is too wide, occaſioning Rainings in.

2. A *Lathing Staff of Iron*, in the form of a Croſs, to ſtay the croſs Laths while they are nailed to the long Laths, and alſo to clinch the Nails.

3. A *Tyling Trowel*, to take up the Morter and lay it on the Tiles, it being longer and narrower than a *Brick-Trowel*, altho' for a ſhift many times they uſe a *Brick-Trowel* to Tyle withal, when they have not a *Tyling-Trowel*.

4. A *Boſſe*, made of Wood, with an Iron Hook, to hang on the Laths, or on a Ladder, in which the Labourer puts the Morter which the Tyler uſes.

5. A *Striker*, which is only a piece of Lath about 10 Inches long, with which they ſtrike, or cut off the Morter at the britches of the Tiles.

6. A *Broome*, to ſweep the Tyling after 'tis ſtrooke.

Of the Names and Uſes of Tools *relating to* Plaſtering.

1. A *Lathing Hammer*, being the ſame as before in Tyling, with which the Laths are nailed on with its head, and with its Edge they cut them to any length, and likewiſe cut off any part of a Quarter, or Joyſt, that ſticks further out than the reſt.

2. A *Laying Trowel*, to lay the Lime and Hair withall upon the Laths, it being larger than a *Brick Trowel*, and faſtned to its handle in a different manner from the *Brick Trowel*.

3. A *Hawke*, made of Wood about the bigneſs of a ſquare Trencher, with a handle to hold it by, whereon the Lime and Hair being put, they take from it more or leſs as they pleaſe.

4. A *Setting Trowel*, being leſs than the *Laying Trowel*, with which they finiſh the Plaſtering when it is almoſt dry, either by Trowelling and briſhing it over with fair Water, or elſe by laying a thin Coat of fine Stuff made of clean Lime, and mixt with Hair without any Sand, and ſetting it, that is to ſay, Trowelling and briſhing it.

5. A

5. A ſmall *Pointing Trowel*, to go into ſharp Angles.

6. *Briſhes*, of three ſorts, *viz.* A *Stock Briſh*, a *Round Briſh*, and a *Pencil*. With theſe *Briſhes*, they wet old Walls before they mend them, and alſo briſh over their new Plaſtering when they ſet, or finiſh it, and moreover white and ſize their Plaſtering with them. The *Pencil*, or *Drawing Tool*, is uſed in blacking the bottoms, or lower parts of Rooms, &c.

7. *Floats*, made of Wood, with handles to them, which they ſometimes uſe to float Seelings or Walls with, when they are minded to make their Plaſtering very ſtreight and even, theſe *Floats* being ſome larger, and ſome leſſer, than the *Laying Trowels*: Likewiſe they uſe *Floats* made to fit to Mouldings, for the finiſhing of ſeveral ſorts of Mouldings with finiſhing Morter to repreſent Stone, ſuch as *Cornices*, *Facias*, *Architraves*, &c.

The finiſhing Morter to repreſent Stone, ſhould be made of the ſtrongeſt Lime, and the ſharpeſt Sand you can get, which Sand muſt be waſhed in a large Tub, very well, till no Scum or Filth ariſe in the Water, when you ſtir it about, which ſometimes will require to have clean Water 5 or 6 times, when the Sand is ſomewhat foul; and it requires a greater Propertion of Sand than the ordinary Morter, becauſe it muſt be extreamly beaten, which will break all the Knots of *Lime*, and by that means it will require more Sand.

8. *Streight Rules*, of ſeveral lengths, to lay Quines ſtreight by, and alſo to try whether the Plaſtering be laid true and ſtreight, by applying the Rules to their Work.

9. A *Pale*, to hold *Water* or *Whitewaſh*, or *White* and *Size*.

10. Some uſe a *Budget* or *Pocket* to hang by their ſides, to put their *Nailes* in when they *Lath*, and others Tuck and tye up their *Aprons*, and put the *Nailes* therein.

Having

NQ28

Sources on the etymologies of words for bricks in various languages

The only way to understand the origins and histories of words meaning 'brick' is to use the historical approach by collecting a sequence of phrases showing words in context. Reputable dictionaries using the historical approach are not easily obtainable but at least some of them should be made better known. A preliminary set of references is listed below with abbreviations to be used in this bulletin.

1. Buck *Dict.*

Buck, Carl Darling *et al*:

A dictionary of selected synonyms in the principal Indo-European languages/ A contribution to the history of ideas
(Univ. of Chicago Press, Chicago 1949)
pp. 603-604 (= section 9.54 Brick)

This gives, with etymological discussion, 32 examples of words for brick in Indo-European languages.

2. MED 'Brike'

Middle English Dictionary
(University of Michigan Press, Ann Arbor, 1958)
pp. 1171-1172

This has Middle English examples from c1423-1479 of words like *brike, breke, brike-brennere, brikemakere, brikeleier, brikeman, brikemason, brikekiln, brikeston, brikewal.* This is later than and supplements the *Oxford English Dictionary*

3. OED 'Brick' (also 'Brickbat', 'Brick-dust', 'Brick-earth' etc.)

The Oxford English Dictionary (originally known as *New English Dictionary or NED)*
vol. I, pt II (Oxford 1888) pp. 1093-1094

The dated examples range from c1440 to the 1880s
The *Introduction, Supplement, and Bibliography* published in 1933 has some further references on p. 117 which are expanded in *A Supplement to the Oxford English Dictionary*, vol.I, A-G (1972) where, on pp. 357-358, are some recent examples of the word *brick* and its compounds, but mostly metaphorical usages

4. EDD 'Brick'

Wright, Joseph
The English Dialect Dictionary
vol. I (Oxford etc. 1898)
p. 399

This brief entry gives examples of words compounded with *brick* in various countries. These include a

Staffs dialect phrase phonetically rendered. All examples except one are of the 19th-century. The *Supplement* (in vol. VI published in 1905) has a few extra examples of usage on p.45

5. Wartburg 'Bricke'

Wartburg, Walther von

Französisches Etymologisches Wörterbuch...

15 Band/I.Teil
(Basel etc. 1969)
pp. 276-279

This massively documented entry in one of the best etymological dictionaries on the French language traces the Middle Dutch word *bricke* through its progress in French from the 13th century to the 1960s in all its compounds and meanings (from 'quarry' to 'crumb' and from 'bread' to vulgar slang). The article, with its many abbreviations, is not easy going, but it would merit translation and expansion in a *Journal of Brick and Building History*.

An earlier version of 'bricke' in vol. I (A-B), pp. 523-522 of *FEW*, as it is often abbreviated, was published in Tübinger in 1948, being a reprint of a series in fascicules published in the 1920s. It does not seem to be as full as the 1969 version.

6. Godefroy *Dict.* 'briche'

Godefroy, Frédéric

Dictionnaire de l'ancienne langue française et de tous ses dialectes du ix^e au xv^e siècle...

vol. I
(Paris 1937 reprint)
pp. 730-731

On *briche* meaning 'crumb' or 'fragment'. The entry is slight and needs supplementing from Godefroy's *Complément* given below:

7. Godefroy *Dict. Complément* 'Brique'

Godefroy, Frédéric

Dictionnaire de l'ancienne langue française et de tous ses dialectes du IX^e au XV^e siècle... Complément

(Paris 1893) pp. 377-378

This entry contains the early (1292) Tournai reference to a wall of 'brike' a foot thick and a few other dated references to 'briquetage', 'briqueter' 'briquetier' etc.

8. Tobler-Lommatzsch *Altfr.* 'Bricke'

Tobler, Adolf and Lommatzsch, Erhard

Tobler-Lommatzsch Altfranzösisches Wörterbuch

vol. I
(Berlin 1925)
columns 1139-1141

This entry in an etymological dictionary rich in quotations from early French literature, traces the various meanings and metaphors that have been associated with *briche* ('crumb', 'fragment' etc. as well as 'brick' or 'tile'). Though entries are not dated the references are ultimately traceable.

NQ 29 A Lichfield brickmaker's inventory of 1660

The following extract is taken without permission from David G. Vaisey (ed.) Probate Inventories of Lichfield and District 1568-1680, being Collections for a History of Staffordshire, Fourth Series, Vol. 5 (Stafford 1969) p. 122. The entry comes from the inventory (on pp. 121-122) of Dennis Napper, of the parish of St. Michael, Lichfield. It was drawn up by seven named persons on 17 Jan. 1660.

Not all brickmakers' inventories will necessarily list their stock and tools, but it may be a useful project for someone to make a special study of Staffordshire brickmakers' inventories.

In the backside			
Brickes: one thousand and a halfe		18	0
Three thousand tyles	1	16	0
Gutter: twentie dosen	1	0	0
Crestes: sixe dosen		9	0
One thousand of semel stuffe		2	6
Att the clay pittes: 2 thousand and halfe of raw brickes		6	3
One mathooke		1	0
Two old spades, and ould mouldes for brick and tyle		1	0
One old wheelborrowe and one broken wheeleborowe		1	2
One cowe and haye	2	0	0
Two porringer dishes in the house			8
A buckett and chaine, two scopes and a loome		1	8
One other loome and a little forme in the entrie		1	6
Three paire of breeches, two dublettes, two jumpe coates, one longe coate, a hatt, two paire of stockinges and other his apparrell	1	10	0
One old bedstead att Morris house att Greenehill		1	0
Od implementes not mencioned		1	0

NQ30 The Guernsey Brick Scene (from Martin Hammond)

Guernsey. I suppose that being regional recorder for the Southern Region, the Channel Islands are part of my 'Kingdom'. I recently visited Guernsey with the surf-club. There was not much surf, a little more sun, and a great deal to drink (we were guests of the local surfers). In spite of a hangover, I was one morning able to make some notes on the local brick scene. The traditional building materials on the island are grey granite and light brown quartzite, with slate or pantiles for roofing. The more modern houses are like suburban houses anywhere else, often faced with colour-washed render, but sometimes with *London Brick Co.* facings. The boiler rooms for the greenhouses (or the tomatoes) have chimneys about 3ft square and 20ft high, and nearly all of these are built of *London Brick Co.* common bricks. There is evidence of bricks being imported from Hampshire during the last century or two. In a Martello tower at Vazon Bay there is a chimney built into the thickness of the wall and it is constructed of dark red bricks about 2" thick. Similar bricks are used in piers in the basement supporting the ground floor beams. In a German wartime bunker nearby there are some rustic wirecut facing bricks, made of a cream-coloured silty clay; this type was not seen anywhere else, and are reminiscent of certain bricks from Holland.

There is evidence of some local brickmaking, but I did not see any brickworks on the island, and the bricks may have come from Jersey. They varied from brownish red to orange in colour according to the firing temperature and were apparently handmade from the local drift clay, which contains a lot of quartzite sand and gravel. They nearly always had a shallow, V-shaped frog, and a few had the name HELMAN impressed either centrally in the bottom of the frog, or on one side, as shown. I was unable to measure any, having no equipment with me, and anyway most of the examples I saw were broken, or water-worn, but they were all about the standard British 2⅝" thickness.

In the capital, St. Peters Port, I found that the pavements in the centre of the town were finished with diamond-pattern Staffordshire blue paviours and these were being replaced in one place. There was no makers name on the new bricks, they were just flat on the bed. The pavements are narrow and irregular in width, and the colour blends well with the grey granite kerbs and building stone. Also I saw some red hand-thrown chimney pots decorated with white slip, the same as found on some old houses in Poole, on a house dated 1763.

Roofing tiles, besides the pantiles include orange-coloured inter-locking tiles which may, have come from either France, or Bridgwater, and Staffordshire red or brindled plain tiles. Clay drainpipes and a sewerage scheme were made by Naylor Bros of Denby Dale, Yorks, and concrete sewer pipes and manhole rings by Redland.

NQ 31

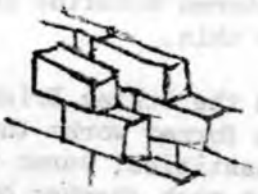
Brickmaking in Notts, Hants, Sussex and elsewhere

(some thoughts and observations from Martin Hammond)

I have recently been to two works where bricks are clamp-burnt, and have been able to compare present-day practice with that described by Dobson *(Bricks & Tiles* part 2, pp. 26-37). The most noticeable differences are that far less breeze is used to light the clamp - only a 2" layer above the skintles, and the outside of the clamp is not plastered with clay. A double layer of bricks laid on edge breaking joint is used instead. Also the bricks are set in parallel blades all headers across the clamp.

The first one I visited was on Hayling Island, where Mr G Pycroft, a builder, makes his own bricks during the summer. He has a field in which are his tool huts, etc., but most of it is taken up by the hack ground, the clamp, heaps of weathering clay and breeze awaiting sifting, and a shed containing the 'Monarch' brickmaking machine driven by an electric motor which can also work a circular saw. The clay is dug from an adjacent field, which is now nearly worked out, or from local foundations and roadworks, and weathered, preferably over the winter. It is then tempered and wheeled in small trucks to the top of the Monarch machine. This machine fills the ready-sanded single moulds, which have a solid attached bottom. They are turned out by hand and placed on pallet boards on a bearing-off barrow, and dried in the hacks for about a fortnight. They are then piled in the clamp, the two skintles courses are arranged at right-angles, not diagonally. A layer of corrugated iron sheets in the clamp foundation prevents rising damp, and further sheets are placed against the windward site of the clamp. The breeze which comes mostly from old rubbish dumps is sifted in a rotary sifter, and the soil mixed with the bricks: 4-5 barrow loads per 1,000 bricks. The breeze, which contains a fair amount of broken china and glass, is spread in a 2" layer on the skintles and the bricks set 21 courses high above this. The top 3 courses are burnovers from previous firings, and the platting consists of one course of burnt bricks on edge, and another laid flat, frog upwards to catch any rain. 70,000 bricks were made last season. The clamp is about 16ft wide at the base, 30ft long, and takes 5 weeks to burn out. Most of the bricks are mottled red/purple/yellowish grey, but those from about 3ft in from the outside of the clamp are an even light-red colour. The burnovers approximate to the natural khaki yellow ochre colour of the clay. Sand for moulding is a red-burning yellow sand, which is dried in a 'dome' - a conical chimney about 4ft high in which a fire is made, and around which the sand is piled. It is then sifted through perforated zinc and stored in a dry place.

The 'bestowing' of the outside of the clamp is done the same as shown by Dobson, except two layers of bricks on edge are used for the upper part. The works was started in 1935 by Mr Pycroft's father.



Mr Pycroft complains of increasing difficulty in getting suitable breeze for firing. Boiler ashes have been tried but they contain too much clinker and not enough combustible material.

The hacks are built upon two parralel 6" x 3" baulks of timber supported on bricks. There are 5 hacks each about 30 yards long and 10 feet apart. A barrow-run of steel strips is laid half-way between each hack. Hack-caps and loo-boards, as described by A.B. Searle, *Modern Brickmaking* (1956 p. 137) and others are used. The hacks are aligned north-south, the clamp east-west. The latter being detrimental as it was fired during the westerly gales last October, and there are a large number of burnovers caused by excessive cooling by the wind.

At Rudgwick Brickworks in East Sussex, near Billinghurst the bricks are made by the soft-mud process, dried in gas-heated sheds, and burnt in clamps of 1 million bricks. Coal firing to light the clamps was used until November 1973 when a new system of gas firing, pioneered at this works, was introduced. Live-holes 9" wide and 13½" high are arranged at 2'3" centres through the clamp. Fine coal dust, apparently dried slurry from coal-washing plants is mixed with the clay. The bricks are set in the clamp in much the same way as at Pycroft's, with special shapes in the middle near the top, and the bestowing done with burnt bricks as described above. Diagonal skintles are used, changing direction halfway across the clamp. Gas burners are applied to the first 7 live-holes at one end of the clamp (or about a day,)and when the bottom bricks are red-hot the burners are moved to the next 7 live-holes on each side of the clamp, and the first 7 holes on each side are sealed up with bricks and wet clay. And so on down the length of the clamp. A clamp takes a fortnight to fire this way. The clamps are built on a bed of sand under a concrete - framed asbestos-roofed structure resembling a Dutch barn. There is space for two 1m brick clamps, and one of 500,000 bricks, with concrete-paved covered loading areas between. Tarpulins rolled up under the eaves can be let down in adverse weather. The clay is mottled yellow and grey, but the bricks burn to a dark red/purple/yellow-grey multi-colour. Those from near the bottom of the clamp tend towards shades of red, those higher up are greyish yellow, known as 'sea-sand'. Lightly burned 'place stocks' are orange in colour. The bricks have since last Easter been set in the clamp by the London Brick Co. 'Self-stak' system, using fork-lift trucks with prongs with inflatable pads. This means that instead of being set all headers, they will be set with alternate courses at right-angles to each other, with gaps for the prongs. I was told that to equip completely for gas-clamps at Rudgwick cost almost as much as to build as a modern continuous kiln - about £350,000 in 1973.

The works appears to be world famous. Enquiries have come in from as far, as Japan, Australia, and the U.S.A. and world patents are pending on the gas firing system. In fact I was politely warned not to enquire too deeply into the operation of the system. The line between bonafide interest and industrial espionage is sometimes very thin.

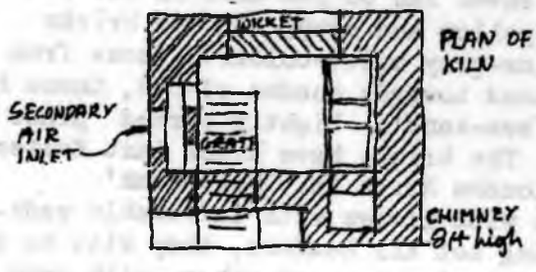
The same day I visited the Ockley Brick Company's works at Ockley and Ewhurst. At the former works they produce repressed wirecut facings in large quantities, burnt in 4 gas-fired Belgian Kilns of 30-36 chambers each,each chamber holding 11,000 bricks. The bricks go straight from the presses to the kiln by fork-lift truck, and so half of each kiln is devoted to drying and pre-heating. The kilns have wide wickets suitable for fork-lift truck operation, one wicket to 2 chambers. There are no grates in the floors, and fire gases are extracted via horizontal dampers under arches in the outside walls. The latest kiln was built in 1972-73. The draught is forced by a fan instead of a chimney.

At Ewhurst, handmade and Berry-moulded bricks are made and dried in sheds heated with waste heat from the kilns, which are gas-fired rectangular downdraught kilns holding 32,000 bricks each. There are 10 kilns, all connected to one chimney.

The clay used at these two works is the same as that used at Rudgwick and is mixed with coal dust. A little barium carbonate is added at Ockley to reduce efflorescence.

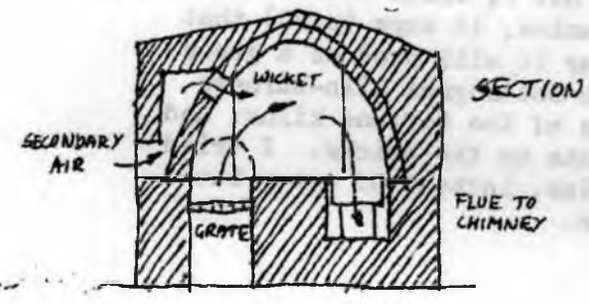
I have been making some bricks myself lately out of a mixture of grey ball clay, sand, and sifted ashes from a neighbour's coal fire, the proportion of clay-sand-ash being 3-1-1. I made some 2" bricks in a steel-lined wooden mould with a loose wooden stock-board. The clay should be soft but not sticky. A clot is formed and dusted with dry sand, but the mould is dipped in water each time it is used. This gives quite a smooth surface to the brick, although I did apply textures of shingle or coarse coal-dust when the bricks were partly dry. The excess clay is cut off with a wire, and the top of the brick smoothed with a strike, sanded lightly and turned out on to a pallet board. The brick is then set in a hack to dry. I made a batch of 25 bricks, which just about fills the kiln.

The kiln chamber is 2'3"x1'7"x1'4" high, with a parabolic arch over it. Under it are the fire grate and a horizontal flue to the chimney, over which the floor is perforated. The grate occupies about ⅔ of the chamber floor and the chimney is at the front of the kiln and adjacent to the firehole, and the wicket is at the back, and is sealed with bricks and mud during firing. The kiln works on the down-draught principle. Having set the kiln with the bricks and various test pieces, I lit the fire at 8pm on Friday evening in the ashpit and staked it, for about an hour with



hedge cuttings and rose prunings, until there was a good pile of glowing embers. The front of the firehole and ashpit were then closed up for the night. At 8am on Saturday morning there were still embers glowing and the interior of the kiln was warm despite the hard frost. A fire was made, on the grate with wood, coal and coarse breeze, sifted from the ashes and baited every half hour with more coal and breeze, until 11am when the kiln was thoroughly warm and all water had been evaporated from the bricks. The kiln was then fired as fast as it would go with wood and small amounts of coal. Red heat showed at 2pm, 1100°C was reached at 5pm, and it was soaked or pitched until 8pm. At 8.30am Sunday morning the wicket was taken down, and the bricks removed at 10am. They were all satisfactory as regards colour (buff/pink/purplish brown) but nearly half of them had fire-cracks in them

I am having trouble with large amounts of black smoke after each baiting when burning wood. It is not so bad with coal but I did arrange a supply of secondary air heated by passing it over the outside of the chamber arch and through the small holes in it above the grate. The only cure at the moment appears to be to put a very little wood on at a time, and to keep the fire really clean. I seem to remember reading somewhere that wood requires a very large amount of secondary air to burn its volatiles, though the size of secondary air inlet is no bigger than would be considered adequate for a large coal-fired kiln.



The contents of the kiln weighed 123 lb.(fired weight) and the firing consumed 89 lb. of wood, 43 lb. of coal, and 8 lb. of breeze. Allowing for the poor quality of some of the fuel, the thermal efficiency of the kiln is about 20% some 19 lb. of ashes remained at the end of the firing.

The bricks are intended for repairs to a local church,St Osmund's, Parkstone. The church was built in the Byzantine style in 2" facing bricks and red and buff terra-cotta, mostly between 1914-16 but it was started ten years earlier, and a small addition was made in 1927. The bricks vary in colour from almost white through shades of pink, brown and purple to dark grey. The white ones are underburnt and many have perished and need cutting out and replacing. The bricks were specially made, so I am told, at Sandford Pottery near Wareham, which closed down about ten years ago, and stopped making bricks long before then. My clay supply came from near Wareham and in its natural state is grey streaked with purple. Most of the bricks in the church are wirecut, and a texture of shingle or coal dust applied to some of them before firing. A few, including certain specials, are hand-made. The clay was apparently mixed with sand to improve workability and reduce shrinkage. In 1950 the upper part of the south aisle had to be rebuilt, and a dark red 2" sandstock facing,

which does not match at all with the old work was used. These were made at the Kinson Pottery, Parkstone. My clay was mixed with loamy sand and some 'soil' (sifted breeze) but I think the proportion of clay was too low, so I shall increase it when I make up the next batch. It was fitting that the first batch of bricks were drawn from the kiln on the day of the 70th anniversary of the laying of the foundation stone of the church, and I took three samples to church to show the Vicar and churchwardens. We had a splendid High Mass that day, and for me it was a fitting culmination of six months of preparation of clay and equipment and building the kiln, which was incidentally built entirely of materials found in the garden - clay and sand-lime bricks, fireplace briquettes, and lumps of concrete pointed with mud mortar. I have since found a source of second-hand firebricks at Carters Tiles in Poole.

I am going to show the bricks to a few builders and others who might be interested to assess their sales potential.

In *Journal of Ceramic History* no. 1, which deals with sources on the history of 17th-century ceramics, it says (p.20) that if horse-dung is mixed with the clay it will produce a green glazed surface. I am told that the Nottingham kiln-burners used to urinate down the feed-holes of the Hoffman kilns, and it gave quite striking colour effects on the bricks. I tried tempering a sample of clay with urine, instead of water but the effect on firing was negligible.