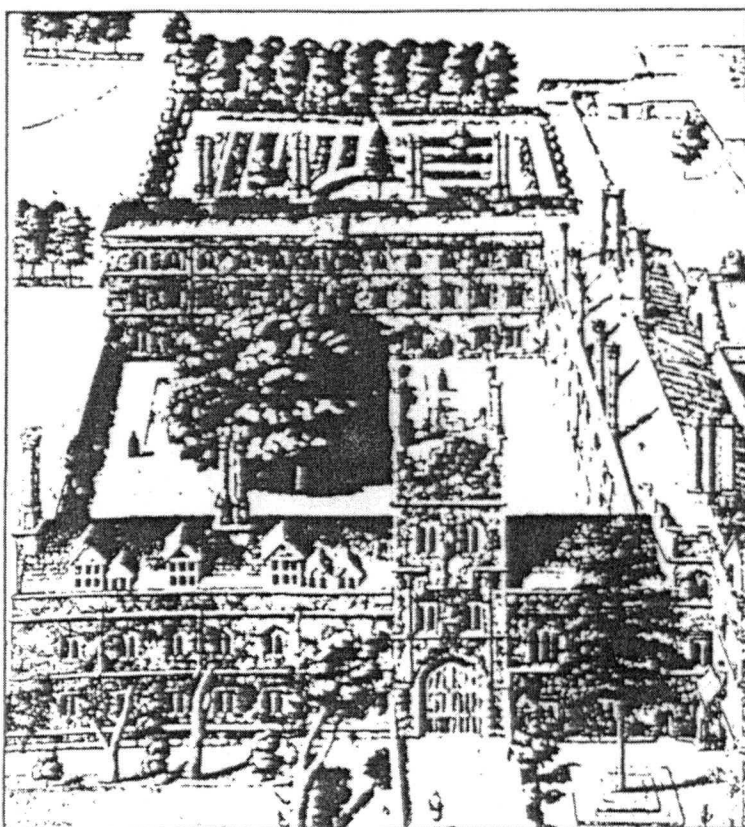


ISSN 0960-7870

BRITISH BRICK SOCIETY

INFORMATION 74

JUNE 1998



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Cover Illustration:

Jesus College, Cambridge: gatehouse and First Court,
from a print by David Loggan (c.1688).
See the article by Ron Firman, this issue.

Editorial: The British Brick Society - a Silver Jubilee

This issue of *BBS Information* essentially contains only the two principal items and this is deliberate editorial policy. Both Ron Firman and Terence Paul Smith were both contacted in 1971-73 to form a small committee to inaugurate the society following the late Laurence Harley's initiative in contacting Geoffery Hines with suggestions for a society or group to study brick.

It is to pay tribute to their continued interest and support that this issue of *BBS Information* is devoted to substantial pieces by the two surviving initial members of the society.

By April 1973, there was a sufficient body of just over fifty members to send out a two page newsletter, *BBS Information One*. An early member and the society's second president was Nicholas Moore whose death is signalled in this issue of *BBS Information*.

It was a measure of the society's early vitality that by the time of the inaugural Annual General Meeting in the rooms of the Society of Antiquaries of London, Burlington House, Piccadilly, London, on Wednesday 24 January 1974, that the society had held meetings in Ipswich and Bedford in Autumn 1973 and a second issue of *BBS Information* had appeared. North-east Suffolk and Doncaster were venues for local meetings in 1974.

Further meetings followed in Nottingham, London, Suffolk, and Barton-on-Humber. Lincs., in 1976 but for a decade thereafter the society became restricted to the Annual General Meeting and the publication of issues of *BBS Information*. An Autumn Meeting at Farnham in 1986 resumed the practice of local events. Since 1989, the society has developed to hold both a Spring Meeting and an Autumn Meeting; a Northern Spring Meeting was added to the calendar in 1994.

The third issue of *BBS Information* was produced soon after the first Annual General Meeting. It was the start of the idea of three issues of *BBS Information* a year. This has been achieved each year except for two, 1978 and 1989. Since 1983, the editor, first T.P. Smith and then myself, has striven to produce an issue of twenty pages, with occasionally one or two less but, sometimes ambitiously, several more. Earlier issues had fewer pages.

A Compilation Volume I 1973-1981 was issued in 1988 following the hard work of Michael Hammett in extracting the non-transient material from *BBS Information* issues 1 to 25. An *Index to Numbers 1-60* was prepared by Patricia Ryan in 1996.

As the society holds its twenty-fifth Annual General Meeting, with over three hundred members, it can feel justly proud of over one thousand pages of *BBS Information* and some sixty successful meetings.

Extended notice of the early history of the society appears *BBS Inf.*, 59, June 1993, 3-13, and in a forthcoming article in *Clay Technology*, to be published in 1998.

DAVID H. KENNETT
Editor, *BBS Information*
12 March 1998

OBITUARY: NICHOLAS J. MOORE, 1945-1997

Fellow members of the British Brick Society will be saddened to learn of the death of Nicholas Moore. Nicholas, more generally known as Nick, died on 30 November 1997, aged 52, after a lengthy illness which he bore with courage and fortitude, continuing his researches and writing to the end.

Nick Moore was born on 23 March 1945 and educated at Oundle School. He was an Exhibitioner at Sidney Sussex College, Cambridge from 1964 to 1967 and obtained the degree of MA with honours. He subsequently obtained the degree of MPhil from the University of East Anglia in 1969, for a thesis on *Brick Building in Medieval England*. He was one of the earliest members of the British Brick Society and served as its President – the office now fulfilled by the Chairman – in the later 1970s and was also for a period the editor of *BBS Information*. After relinquishing these posts, Nick continued as an enthusiastic and valued member of the Society. One of his last writings was a paper on 'St Martin's Church, Canterbury: a Contribution to the Dating of its Masonry', in *BBS Information*, 71, *Brick Churches Issue*, June 1997.

From 1969 until 1984 Nick worked as an Investigator for the Royal Commission on Historical Monuments (England), based at its Salisbury office. In 1993 the Commission published two of its large-scale, authoritative volumes, on Salisbury Cathedral and on Houses in the Salisbury Cathedral Close. The nature of these publications is such that the Commissioners are given more prominence than those who do the bulk of the work: prefatorial acknowledgement of his contribution does not sufficiently disclose that the Salisbury Close volume was in large part Nick's work. From 1984 until his death he was in private practice advising clients on the architectural history of their buildings. Amongst other projects, this included a survey of National Trust vernacular architecture properties in the Severn region. One result of his work for the National Trust was his paper on 'The Supply of Bricks to Coughton Court, Warwickshire, in 1663-66', in *BBS Information*, 69, October 1996. One of Nick's most valuable contributions was his essay on 'Brick' in J. Blair and N. Ramsey, ed., *English Medieval Industries: Craftsmen, Techniques, Products* (London and Rio Grande, 1991); this remains the best short account of its subject in print. He also took part in the symposium on Mathematical Tiles organised by Maurice Exwood at Ewell in 1981 and wrote a piece on 'Mathematical Tiles in Salisbury and South Wiltshire' for the small publication which resulted from that occasion. Nick also published several other pieces, including contributions on brick nogging, diaper work, and brickwork in the British Isles before 1600 to the recently published multi-volume Macmillan *Dictionary of Art* (London and New York, 1996). At the time of his death he was engaged on a book on the history and development of brick architecture in England. There is every chance that this will be completed by Dr John Goodall and in due course published. One dearly hopes so.

Nick had many other interests, including timber growing and 17th-century tokens. He served on the Fabric Advisory Committee of Hereford Cathedral, was a vice-president of the Ross Civic Society, and was a member of the Monmouth Choral Society. He was a keen supporter of numerous charities. For members of the British Brick Society, of course, it will be for his great contribution to our subject that Nick will be long remembered. He enjoyed the Society and valued the friendships and connexions which resulted from it. Those who corresponded with him or had the privilege of discussing bricks and brickwork with him will remember his enthusiasm, his profound knowledge, and his often incisive criticism when one was assuming more than the available evidence would bear.

He is survived by Dinah, whom he married in 1977, and by two sons, Francis, 18, and William, 16. Our sympathy, of course, goes out to them all. Dinah Moore informs me that the family 'miss him very much'. So too will members of the British Brick Society, which Nick served so well during a life which was both full and fruitful and yet much briefer than one would have hoped. *Requiescat in pace.*

TERENCE PAUL SMITH
Chairman, British Brick Society

GAULT: A GEOLOGIST'S CAUTIONARY TALE OF WORDS AS A BARRIER TO UNDERSTANDING

Ron Firman

For at least four centuries the word 'gault' and its variants (galt, galte, and golt) have been commonly used in Eastern England, in agricultural and engineering contexts, to describe stiff, water retentive clays, not necessarily calcareous or suitable for brickmaking, which were difficult to plough or excavate.¹ Exactly when the term was applied to calcareous clays used to produce pale-coloured porous bricks, is uncertain. None of the examples quoted in *The Oxford English Dictionary* or the *English Dialect Dictionary* mentions brick; though the latter, published 1900, does include brick clay amongst its definitions of the word 'gault'. The earliest documentary record, known to this author, associating gault with brickmaking appears on William Smith's pioneer geological maps of 1815 and 1819,² on which a mappable sequence of strata, lying above the Lower Greensand, is labelled 'Golt Brick Earth'.³ By introducing this stratigraphical term, which later became known to geologists simply as 'the Gault' (note the upper case 'G'), 'Strata Smith', the founder of modern historical geology, created endless confusion amongst subsequent brick historians and geologists.

This confusion has arisen mainly because some writers restrict the term 'gault brick' to bricks made from 'the Gault' as defined by geologists, whereas others, perhaps following long-established usage, apply the term to a wide range of pale-coloured bricks irrespective of the geological age or origin of the source materials.⁴ The former implicitly assume that 'gault bricks' were named after 'the Gault' and thus recognise the significance of 'Red gaults' as well as 'White gaults' and apply these terms to bricks made in Kent and Hampshire as well as Bedfordshire, Cambridgeshire and Norfolk. The latter, more laissez-faire practice, does not acknowledge the existence of 'Red gault' bricks, ignores physical properties other than colour and tends, though not exclusively, to restrict the term to the Fens and East Anglia (i.e. to regions where the dialect terms 'galt', 'golt' and 'galte' had long been used in agricultural and engineering contexts). Between these two are a number of inconsistent and mutually exclusive usages which ignore both the geology and physical properties of bricks and yet others for which there appears no precedent or scientific justification.⁵

Such inconsistencies would not matter were it not for the fact that subsequent researchers are likely to be misled *either*, as at Ely, into thinking that the Gault is, or was, much more widely distributed than is shown on geological maps⁶ *or*, alternatively, that the bricks were made on the Gault outcrop and transported, sometimes many miles, to the building site. Either way the continued ambiguous, ill-defined use of the terms 'gault brick' and 'gault clay' obscures the very varied and real differences between the materials used to produce pale-coloured bricks and thus, as the following examples illustrate, can become a deterrent to further research and a barrier to understanding.

PRE-REFORMATION EXAMPLES

1. DRAYTON LODGE, NORFOLK

Jane Wight is one of the many authors who use the term 'gault bricks' both for those in buildings near to the Gault outcrop and for those a long way away.⁷ By no means all pale-

coloured pre-1550 bricks, described by Wight, are stated to be gault bricks and the rationale for so designating some and not others is not explained. Of the five examples cited three (Drayton Lodge, Norfolk;⁸ Little Wenham and Hengrave Hall, Suffolk) are so far away from the outcrop of the Gault that they cannot have been made from clays dug from that geological formation though, to judge from their porosity, all three were made from materials rich in calcium carbonate (*i.e.* most probably chalk in these localities). They thus seem to conform to Wight's definition of 'gault brick' as having been "produced from clay with relatively high proportion of chalk". However, chemical analysis reveals that Drayton Lodge bricks were not made from clay but, most probably, from a mixture of equal quantities of lean (*i.e.* quartz-rich) loessic brickearth and chalk in which the clay mineral content is unlikely to have exceeded twenty per cent and may have been considerably less. The chemistry is theoretically comparable with that of a Kentish London Stock brick with five or six times the usual amount of chalk.⁹ The resulting very soft, underfired bricks probably represent an early (c.1437) attempt to produce white bricks from local, unsuitable periglacial deposits of soliflucted chalk and loess on the valley sides thereabouts. Though these apparently unique bricks are worthy of further study in their own right, in the present context they serve as a reminder that it is unwise to claim such bricks as 'gault bricks' before their chemistry, and hence their probable original source mineralogy, has been established.

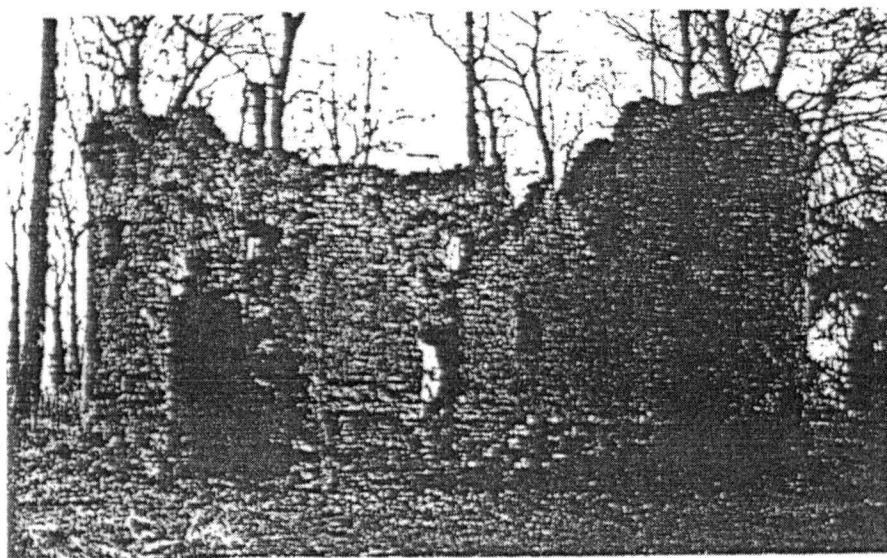


Fig. 1 Drayton Lodge, near Norwich, Norfolk, probably a hunting lodge built for Sir John Fastolf in the 1430s.

2. HENGRAVE HALL, SUFFOLK

The same cautionary remarks apply to the two Suffolk examples of 'gaults' given by Wight, both of which like Drayton Lodge are situated several miles east of the outcrop of the Gault. Hengrave Hall (c.1523-38), 20 miles east of the Gault outcrop, is known to have utilised sediment dug locally for brickmaking as well as bricks from Bury St Edmunds Abbey kilns, from Ickworth and elsewhere.¹⁰ Neither the precise localities nor the lithology of the sediment used is known, though Wight implies that it was comparable to that used for the

manufacture of 'Woolpit Whites' from the late seventeenth century onwards. Hengrave Hall bricks are, however, coarser grained and more heterogeneous than the 'Woolpit Whites', though these differences may in part be due to better selection, mixing and grinding in later periods, than to any fundamental differences in the sediments used. Whatever their source, it seems that they were dug from a part of Suffolk where land was often described as 'galty' long before geologists used the word Gault to define a specific sequence of strata in the Lower Cretaceous. It seems possible, therefore, that in describing the Hengrave bricks as gaults, Wight was following a long-standing practice which arose from the clays for brickmaking being dug from wet, boggy areas known locally as 'galty places'.¹¹

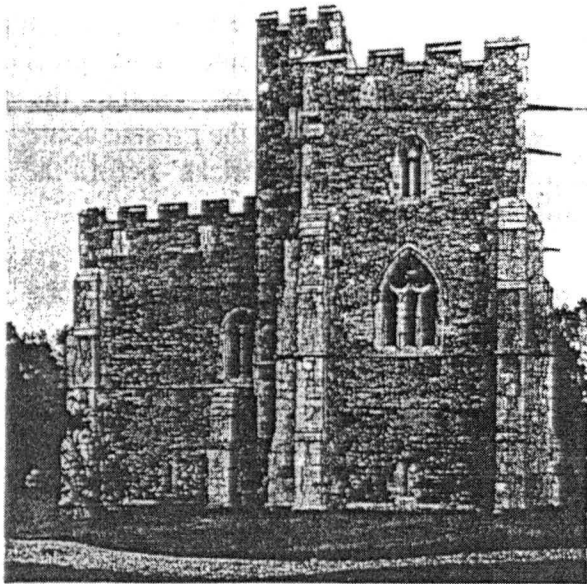


Fig. 2 Little Wenham Hall, near Hadleigh, Suffolk, probably built c.1270-80 for Sir John de Vallibus and Petronilla of Narford.

3. LITTLE WENHAM HALL, SUFFOLK

Whether this is also true of the etymology of the source of the bricks at Little Wenham is uncertain, there being no documentary evidence of 'galty places' locally or of nearby calcareous clays used for brickmaking. The site is too far (c. 40 miles) from the outcrop of the Gault for that to have been the source. The silts of either Little Conard or Marks Tey are far more likely sources, though these are both about 12 miles west and south-west respectively of Little Wenham. The possibility of nearer sources of 'white' burning brick clays, likely to have produced such fine grained, uniformly textured bricks, must await detailed geological investigation, including shallow boreholes, in the vicinity of Little Wenham. Nor, despite Wight's assertion that it is "overwhelmingly probable that these yellow bricks were made of local comparatively chalky clay (gault)",¹² should the possibility that these were imports from Flanders be entirely discounted, in view of the documentary evidence of imports into London in 1278 and 1283.¹³

4. ALLINGTON CASTLE, KENT

Similarly, it is possible that the so-called gault bricks utilised at Allington Castle, Kent, were imported. A licence to crenellate was given in 1281, about the same time that the bricks, almost certainly imported from Flanders, were being used to complete the Beauchamp Tower at the Tower of London.¹⁴ Apart from the possibility of being imports, the Allington bricks, of all the so-called gault bricks described by Wight, do, at first sight, seem the most likely to have been manufactured from the Gault (*sensu stricto*). A glance at the British Geological Survey's Maidstone memoir¹⁵ suggests a quite different, arguably more plausible, explanation. Although it is true that Allington Castle is less than one mile from the outcrop of the Gault, and that landslips may have exposed parts of the Gault suitable for brickmaking, there are nearer sources of 'white' burning clays likely to have been discovered when quarrying the Kentish Ragstone of which most of the castle is built. According to the BGS Maidstone memoir, "brickearth was formerly dug extensively from gulls in the Hythe Beds north of Maidstone and at Allington".¹⁶ Such 'gulls' (i.e. linear widened fissures tapering downwards and usually filled from above by hill wash, wind blown dust, etc.) are a very common feature of glacial and periglacial terrains. In the Maidstone district they are particularly prevalent and can be up to 50 feet wide - an ample size and lithology to account for the pale yellow bricks in Allington Castle. Similar bricks, strangely not designated as gault by Wight, occur in the fourteenth-century Hornes Place Chapel and in the fifteenth-century Dent-de-Lion gatehouse, near Margate, also in Kent. Both are much further from the Hythe Beds, with their interbedded Kentish Ragstone, but the possibility that they too may have been made from calcareous head brickearths needs, like that concerning the Allington bricks, to be investigated.

5. JESUS COLLEGE GATEHOUSE, CAMBRIDGE

But what of Wight's fifth example, namely the 'white' diaper work near the top of Jesus College gatehouse, Cambridge, cited by Sir Nikolaus Pevsner as being the earliest example (c. 1500) of the conscious use of 'white' brick in Cambridge?¹⁷ Jesus College is built on Gault, albeit probably covered with much sand and gravel; there were small brickworks in the Gault west and south-west of the college and much larger ones near Cambridge Castle, Alexandra Gardens, and in and around Barnwell to the north-west and north-east respectively of Jesus College.¹⁸ Moreover, in the nineteenth and twentieth centuries, if not earlier, Cambridge was largely built of the products of these brickpits. So what possible objections can there be to postulating that the pale Jesus College gatehouse bricks are from the Gault formation? If there were no alternative sources, no objections could be raised, other than the general one that it seems unwise to ascribe a source solely on the basis of colour - texture and lithology being impossible to determine without scaffolding or at least very powerful binoculars! But there were alternative sources both locally and from further afield. For example, stretching north from Cambridge to Histon and Impington are extensive deposits, assigned to the Ipswichian interglacial, of gravel, sand and interbedded loams. In at least one place, near Histon, these loams were dug for brickmaking¹⁹ and it is probable that the brickearth dug for Talbot Pepys in Arbury Meadows in 1622²⁰ was also from this source. Unfortunately, the colour of the bricks produced from these loams is apparently unrecorded, though judging from geologists' descriptions of "greyish white clay-with-race" and other records of Chalk pebbles in loams,²¹ it seems likely that white bricks could have been made. Such superficial, unconsolidated deposits would have been easier to dig and mix than

would the older over-consolidated Gault, though more heterogeneous bricks would have been produced. A detailed examination of the pale bricks at Jesus, perhaps in the more accessible, slightly later, west wing, is necessary before definitely designating these as bricks made from the Gault.

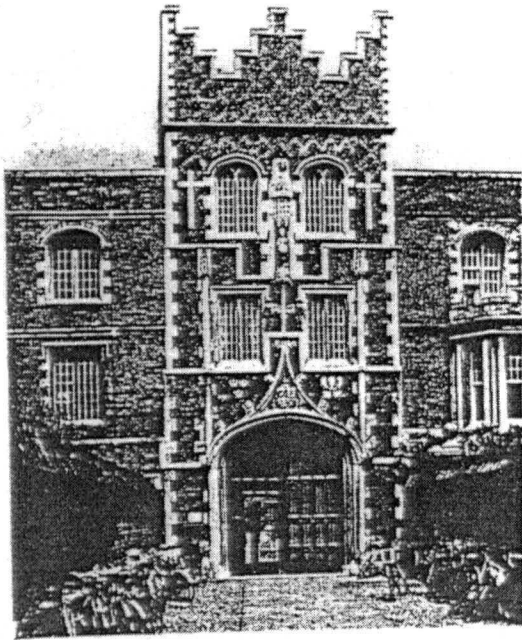


Fig. 3 Jesus College, Cambridge, gatehouse, built c.1500 for John Alcock, Bishop of Ely, founder of the college.

LATER EXAMPLES, MOSTLY POST-1700

1. CAMBRIDGE AND ELY

Although the early history of the exploitation of the Gault (*sensu stricto*) in and around Cambridge is uncertain, it was undoubtedly the source of most of the white brick buildings which characterise late-eighteenth-, nineteenth-, and twentieth-century Cambridge. Given the apparent similarity of Ely brickwork from the early eighteenth century onwards, it is not surprising that several people have assumed that Ely's pale-coloured bricks were also made from the Gault, despite the lack of geological evidence supporting this opinion. Over one hundred years ago, Roberts examined the strata in the brickpits in and around Ely, at that time either still working or recently abandoned, and correctly identified the 'solid' formations as Kimmeridge Clay of Upper Jurassic Age.²² This has more recently been confirmed by Gallois who, with the aid of boreholes, has produced a bed by bed description of the Kimmeridge Clay formation and demonstrated that the more calcareous beds, notably Beds KC 18, 30 and 44, were favoured for brickmaking. He commented that these clays gave rise to yellow or brown bricks²³ - a statement which may be contrasted with that in the *Victoria County History of Cambridgeshire*²⁴ which claims that there are only two sorts of brick clays in Cambridgeshire, namely Kimmeridge Clay from which red bricks were produced and

the Gault used for white bricks! Such statements, of which this is only one of many, help to perpetuate two common misunderstandings about geology and brickmaking: firstly that *all* parts of a named formation, whether it is the Oxford, Kimmeridge or London Clay, or indeed the Gault, if renowned for its brick clays, are suitable for making bricks, and secondly that *all* bricks made from that particular geological formation will have the same, or closely similar, colours and physical properties. Certainly it is true that, today, when mechanisation allows the near horizontally bedded Peterborough Member of the Oxford Clay to be stripped vertically from quarry faces about 20 metres high and subsequently mechanically so thoroughly mixed that all traces of the original variability is removed, remarkably uniform bricks are made. However, when the clay was dug by hand, bed by bed or in 'lifts' c. 2 metres high, and mixed in horse-powered pug-mills, bricks more closely reflected the lithology of the bed or 'lift' from which they were dug, and a range of colours, textures and fabrics was produced from a named geological formation depending on which beds were processed into the bricks. Thus the Kimmeridge Clay in Cambridgeshire was capable of producing almost black bricks from interbedded oil shales; brick red bricks from darker mudstones; reddish brown bricks from medium grey mudstones; and a range of yellow, buff and cream bricks from the more calcareous palest mudstones. The latter became so popular from the early 1700s onwards that in the Ely district they were produced from the Kimmeridge Clay almost to the exclusion of the darker red bricks made earlier from the same geological formation. Thus whereas Georgian and Victorian Cambridge was built largely of bricks made from the Gault, Ely, though of similar appearance, was built during the same periods largely of Kimmeridge Clay bricks and tiles, perhaps occasionally supplemented with genuine Gault products from Burwell, about 8 miles south-east of Ely. Thus until criteria by which 'Gault whites' may be unequivocally distinguished from 'Kimmeridge Clay whites' have been established, problems will abound in attributing bricks to specific geological sources, in the absence of documentary evidence.

2. EASTERN AND SOUTHERN MARGINS OF THE FENS

Cambridge, Ely and villages close to the Gault outcrop are by no means the only places bordering or in the Fens characterised by substantial numbers of buildings built of pale, so-called 'white' bricks. In fact, my impression, subject to detailed research, is that most nineteenth-century buildings and many eighteenth-century houses within the area bounded by Cambridge, Ely, March, Thorney, Peterborough, and Ramsey are built of 'white' bricks. This is so even in and around major centres of the fletton brick industry, such as Eye and Whittlesey. The obvious facile explanation is that these were imports from the well-established, productive brickworks in the Cambridge Gault. Such an explanation assumes that 'the Gault' was the only likely source of white bricks in the Fens. As at Ely, geological evidence shows this to be a false premise and strongly suggests that brickmakers sought and found white burning clays not only within the Kimmeridge Clay near Ely but also in the Amphill and Oxford Clays further west. Unfortunately, most early-nineteenth-century brickpits have been filled in, flooded or obliterated by the vast development of the fletton brick industry and, even where old pits survive, there is rarely evidence of when they were worked or what type of brick was produced.²⁵ Nevertheless, detailed geological observation supplemented, where necessary, by boreholes, has established the lithologies initially exploited for brickmaking at most known sites. This has overwhelmingly shown that it was the lightest coloured, most calcareous mudstones which, as in the Kimmeridge Clay near Ely, were selected. Though the type of brick initially produced has not usually been recorded, the

lithologies imply they were more likely to have been 'white' bricks. Thus at both Fortrey's Hall, Mepal, and Manea it was the most calcareous parts of the Ampthill Clay which were exploited for brickmaking.²⁶ Further west, at Warboys, the geological evidence indicates that the most calcareous of the beds underlying the Ampthill Clay Formation (known as the West Walton Beds, formerly Elsworth Rock Series) were amongst the strata worked at the brick pit. Similar calcareous mudstones were extracted from the brickpits, in the Middle Oxford Clay, west of Whittlesey and at Eye Green, the latter probably being the source of the white bricks described by Beeby Thompson in 1906.²⁷ Similar consideration of the stratigraphy of large brick pits closer to Peterborough, and thus in the Lower Oxford Clay, suggests that the brickmakers began by exploiting the calcareous mudstones, often containing more than 15 per cent CaCO_3 ,²⁸ which occur at the top of the sequence. Deepening the pits led to the discovery of less calcareous, bituminous mudstones which were cheaper to fire, and gave rise to redder bricks. The well-known history of the "clay that burns" which formed the basis of the Fletton industry should not blind us to the fact that a well-established brick industry, producing very different sorts of bricks, existed long before the late-nineteenth-century development of flettons. Much research remains to be done before a definitive history of this 'pre-Fletton' industry can be written, but both geology and architecture combine to suggest that the dominant products were pale bricks, superficially resembling those made from the Gault. These pale bricks, some of which may have competed with the London Stocks, continued to be produced at least until 1938.²⁹

In summary, therefore, pale bricks, some of which are known locally as gaults,³⁰ characterise much of nineteenth-century and earlier brickwork of the eastern margins and southern Fens. Though some may have been purchased from brickworks exploiting the Gault (*sensu stricto*) the majority, west of the Gault outcrop, seem likely to have come from a variety of local sources including calcareous mudstones in the Kimmeridge Clay (cf. Ely and Downham Market); the Ampthill Clay; the West Walton Beds; the Middle Oxford Clay; and the Upper Part of the Lower Oxford Clay.

3. NORFOLK AND SUFFOLK

Apart from the recently updated volume in the Buildings of England series I am assured that there seem to be no previous examples of post-reformation white bricks in Norfolk being described as 'gaults'.³¹ This is perhaps just as well, since in Norfolk there is the added confusion arising from the fact that the Gault (*sensu stricto*) is unsuitable for making white bricks: red and multi-coloured bricks being, hereabouts, the typical Gault product!

In contrast, Suffolk Whites have been described as Gault bricks at least since the turn of the century. Both C.F. Mitchell (1903) and Henry Adams (1906),³² after accurately stating that Gault bricks were made from clay which lies between the Lower and Upper Greensand, then proceeded to classify Suffolk Whites as Gault bricks despite the fact, shown clearly on contemporary geological maps, that the brickyards were 30 to 40 miles east of the nearest outcrops of Gault and Greensand. Possibly not being geologists, they may have imagined that Suffolk brickmakers were exploiting glacially transported masses of Gault clay.³³ If so they may well have been influenced by brickmakers from Suffolk who claimed that their bricks were as good as, if not better than, genuine Gault bricks. From here it would have been but a small step for such apparently authoritative writers as both C.F. Mitchell³⁴ and Prof. Henry Adams³⁵ to describe Suffolk Whites as Gault bricks. Such speculations are unproven and it is not known if Suffolk brickmakers did in fact promote their bricks as products comparable to Gaults. Nevertheless, it is worth noting that it would have been in their best

interests to do so because manufacturers of genuine Gault bricks were their main competitors in the London market and, moreover, had brickworks much closer to London (e.g. at Arlesey, near Hitchin, and Burnham, near Rochester). Alternatively, Mitchell and Adams may simply have been adopting the local nomenclature of an area where the word 'galt' had been used to describe sticky, stiff clays at least since 1678.³⁶

CONCLUSIONS

Given the continued failure of many writers to distinguish between 'gault clay' and 'the Gault' and the widespread and indiscriminate use of the term 'Gault' as a descriptor for pale-coloured bricks, irrespective of their origin or physical characteristics, the case for abandoning the word 'gault' in brick literature seems overwhelming. Unfortunately this recommendation is as likely to succeed as that of Bonnell and Butterworth who, almost fifty years ago, wrote that:

the Gault is not everywhere calcareous and in some places gives red or multicoloured bricks, consequently it might be advisable to refer to 'white Gault bricks' to describe those made from the calcareous clays of the Gault formation. Similar bricks made from clays of different geological age should be described by other names. Thus the white pressed bricks made near Peterborough might be called 'white Flettons'. Conversely there appears to be room for the terms 'red Gault' and 'multicoloured Gault' [bricks].³⁷

That such wise counsel was ignored should come as no surprise, given the imprecise way in which terms such as 'hard', 'strong', and 'durable', which Bonnell and Butterworth also sought to define are unthinkingly misused and likewise have become a barrier to understanding; but of this, more on a future occasion!³⁸

Notes and References

1. On O.S. maps the word is currently used for place names such as Gault Hole, near Mepal, Cambs., - a borrow pit where Amphill Clay (not the Gault) was dug by 'gaulters' for embankments and for engineering structures such as Gault drain, near Chatteris, Cambs., also dug in the Amphill Clay. In modern agricultural literature the practice of 'gaulting' whereby clay is spread over light sandy soil, is often described: the clay so used is usually *not* from the geological formation known as the Gault!
2. First shown on William Smith's pioneer map of England and Wales (1815) and in more detail on subsequent county maps produced by him (e.g. Norfolk, 1819).
3. An unfortunate designation because by no means all the strata in this formation are suitable for making bricks and, moreover, the useable sediments are best described as *brick clays* rather than *brickearths*.
4. E.g. J.A. Wight, *Brick Building in England from the Middle Ages to 1550*, London: John Baker, 1972.
5. Wight, 1972, 419; the glossary, offers a second meaning for the word 'gault' as follows:- "blue, mauve, grey or black bricks, often used for *diaper* decoration. Colour derived from phosphates". As far as I know there is no precedent for this usage of the word 'gault'. In her text Jane Wight does not use it in this sense and no other author has described dark bricks as gaults before or since. Nor is there any scientific justification for her claim that the colour is derived from phosphates. Possibly confusion has arisen because, particularly in Cambridgeshire, part of the Gault formation has been extensively worked for phosphates. The clays associated with these phosphate deposits tend to be darker and richer in iron and, therefore, if used for brick manufacture produce darker bricks.

6. R. Lucas, 'Ely bricks and roof-tiles and their distribution in Norfolk and elsewhere in the sixteenth to eighteenth centuries', *Proc. Cambridge Antiq. Soc.*, 82, 1995, 157-162.
7. Of the five examples she quotes, only two, Allington Castle and Jesus College, are on or very close to the Gault outcrop.
- [8. H. Harrod, 'The Ruined Lodge at Drayton', *Norfolk Arch.*, 2, 1849, 363-368; H.D. Barnes, 'Drayton Lodge', *Norfolk Arch.*, 29, 1946, 228-237; T.P. Smith and D.H. Kennett, 'Drayton Lodge: a Fifteenth-Century Hunting Lodge near Norwich', in preparation. DHK]
9. London Stock bricks typically contain 68 to 75% silica and 8 to 11% alumina derived from the brickearth and 7 to 9% lime, mostly from the washed chalk added during manufacture. The Drayton Lodge brick contains silica and alumina in approximately the same ratio, but only half the quantity of each (34.9% SiO₂ and 4.44% Al₂O₃). In contrast the lime content (28.5% CaO) is almost four times that of the average London Stock brick and moreover consists largely of calcium carbonate (estimated CaCO₃ = 48%), presumably as chalk which, unlike that in London Stocks, did not calcine during firing.
(Data from colourmetric analysis of Drayton Lodge brick, Dept. of Geology, Nottingham University, and published analyses of London Stock bricks by Bonnell and Butterworth, see note 30 for reference).
10. Wight, 1972, 364.
11. Sir John Cullum, *History of Hawstead and Hardwick*, 1790, refers to 'galty lands' in parishes adjacent to Ickworth (i.e. one of the reported sources of Hengrave bricks).
12. Wight, 1972, 371.
13. Exch. K.R. Accts. 467, 7(4) & (6) and 467 (10) as quoted by L.F. Salzman, *Building in England down to 1540*, Oxford: the Clarendon Press, 1952, 140.
14. D.F. Renn, 'Early Brickwork in the Tower of London', *BBS Inf.*, 29, 1983, 7.
15. B.C. Worssam, 'Geology of the country around Maidstone', *Memoir Geol. Survey G.B.*, Sheet 288, 1963, 106-7 and 137.
16. Worssam, 1963, 137.
17. N. Pevsner, *The Buildings of England: Cambridgeshire*, Harmondsworth: Penguin Books, 1954, 74. Note that in the 2nd edition (1974), Alec Clifton-Taylor, on page 290, states that these bricks are made from the Gault.
18. B.C. Worssam and J.H. Taylor, 'Geology of the country around Cambridge', *Memoir Geol. Survey G.B.*, Sheet 188, 1969, 35-37.
19. Worssam and Taylor, 1969, 111-112.
20. A.P.M. Wright in *V.C.H. Cambridgeshire IX*, 1989, 25.
21. Worssam and Taylor, 1969, 111.
22. T. Roberts, *The Jurassic Rocks of the Neighbourhood of Cambridge*, Cambridge: Cambridge University Press, 1892, being the Sedgwick Prize Essay for 1886.
23. R.W. Gallois, 'Geology of the country around Ely', *Memoir Br. Geol. Survey*, Sheet 173, 1988, 89.
24. Frances M. Page in *V.C.H. Cambridgeshire*, III, 1948, 367.
25. There is, however, a small collection of 'white' bricks on display at Ramsey Rural Museum which helps to identify some of the manufacturers. These include W.N. Bundy, Whittlesey; Hicks Gardener & Co., Fletton; and L.B.C., Warboys.

26. R.W. Gallois and Beris M. Cox, 'The stratigraphy of the Middle and Upper Oxfordian sediments of Fenland', *Proc. Geologists' Association*, 88, 1977, 207-228.
27. Beeby Thompson in *V.C.H. Cambs.*, II, 1906, 303.
28. J.H. Callomon, in P.C. Sylvester-Bradley and T.D. Ford, (eds.), *The Geology of the East Midlands*, Leicester: Leicester University Press, 1967, 267.
29. B.L. Hurst, *BBS Inf.*, 70, 1997, 19, illustrates and describes a yellow brick with PHORPRES LBC impressed in its frog. This brick was taken from a recently demolished building in Cork Street, London, dated on its front elevation 1910. Assuming that this was one of the white Flettons described by Bonnell and Butterworth (note 30 below), they were still being made in 1938 when they collected their samples.
30. G.G.R. Bonnell and B. Butterworth, *Clay Building Bricks of the United Kingdom*, London: HMSO, National Brick Advisory Council paper 5, 1950, 38 and 50.
31. Dr Robin Lucas, pers.comm., 1997; N. Pevsner, revised W. Wilson, *The Buildings of England: Norfolk I: North-East Norfolk and Norwich*, 2nd edition, Harmondsworth: Penguin Books, 1997.
32. C.F. Mitchell, *Building Construction*, London: Batsford, 1903, 91 and 92; Prof. Henry Adams, *Building Construction*, London: Cassell & Co. Ltd., 1906, 29. I am grateful to Mr B.L. Hurst for drawing my attention to these two references.
33. Such an hypothesis would have been quickly rejected if the appropriate Geological Survey memoirs had been available.
34. Full biographical details about this author have not been discovered. In the frontispiece of his book Charles F. Mitchell is described as "Lecturer in Building Construction to the Regent Street Polytechnic; Headmaster of the Polytechnical School". Though his academic qualifications are not given, his text was evidently intended to be authoritative; it was "compiled to assist Students preparing for the May Examinations of the Board of Education, the Royal Institute of British Architects, War Office, the Surveyors Institution, City & Guilds, Civil Service and other examinations". By 1903 more than 23,000 copies had been sold. [Apparently Charles F. Mitchell did not qualify for *Who's Who*; he is not in *Who Was Who Cumulative Index 1897-1980* nor in any of volumes II to V of *Who Was Who* covering 1916-1950. DHK]
35. Information in Adams' book is less fulsome about the author, the citation simply being "Prof. Henry Adams, M.Inst.C.E., etc., Examiner to the Board of Education, the Society of Architects, the Institute of Sanitary Engineers". [Prof Henry Adams (1846-1935) was Professor of Engineering, City of London College, for 35 years (1877-1912). Earlier, he was Outdoor Manager for Sir William Armstrong & Co. (1865-77) where he invented Adams' vortex blowpipe for locomotives. He was president of the Society of Engineers in 1900 and sometime their superintending examiner; president of the Institution of Structural Engineers (1914-16) and their gold medallist (1923) when he was made an honorary member; president of the Institution of Sanitary Engineers (1908); and president of the Institute of Arbitrators (1917-18). He served on the Engineering Committee of the London Court of Arbitrators. Educated at King's College, London, and City of London College; his academic distinctions included first class honours (two 1st places) from the Science and Art Department. He was MInstCE, MIMechE, FSI, FRIBA, FRSanl. He was Chief Examiner (Engineering) to the Board of Education (1905-11) and chairman of the board of examiners for both the Society of Architects and the Institution of Sanitary Engineers. Source: *Who Was Who Volume III, 1929-1940*. DHK]
36. Joseph Wright, (ed.), *The English Dialect Dictionary*, London and Oxford: Oxford University Press, 1900, Vol. II, D-G, 576.
37. Bonnell and Butterworth, 1950, 38. The material was collected in 1938.
38. Paper received 25 October 1997.

BEACON OF THE FUTURE: An Early London Board School by Basil Champneys

Terence Paul Smith

"Look at those big, isolated clumps of buildings rising above the slates, like brick islands in a lead-coloured sea."

"The board-schools."

"Light-houses, my boy! Beacons of the future! Capsules with hundreds of bright little seeds in each, out of which will spring the wiser, better England of the future".'

When Arthur Conan Doyle put this encomium into the mouth of Sherlock Holmes, in 1894, the board schools, and the educational ideas which they expressed in bricks and mortar, were still new. In later generations they would often be viewed less sympathetically: 'lofty, gaunt, three-decker buildings [writes one commentator], forbidding and prison-like in appearance and surrounded by tall spiked railings'.² In order to understand this discrepancy, and to see the board schools in proper perspective, it is worth recalling the insistence by the late M. Dorothy George that we curb our 'bad habit of reading history backwards and looking at the past only from the standpoint of the present...',³ for such an approach may well lead us into missing what were positive advances at the time. This is true of the board schools and especially of the *London* board schools, whose architecture - principled and well thought out - represented a new approach to school building.

The schools were a direct result of W.E. Forster's Education Act of 1870, which, for the first time, made education, albeit at an elementary level only, compulsory for all children in the land. Local authorities were charged with the responsibility of providing that education, either by setting up school boards or, if appropriate, by other means - except in London itself, where the problem of providing sufficient school places was so vast that a school board was made mandatory. There was sometimes local resentment, and debate could at times be acrimonious.⁴ In London, however, under the guidance of a group of liberal (and predominantly Liberal) men with genuine commitment to the enterprise, the (imposed) board school idea was pursued with enthusiasm. Architecturally, the impetus came from the London Board's architect, Edward R. Robson (1835-1917), first appointed in 1871. Robson looked closely at school building abroad and concerned himself not only with buildings but also with furniture and fittings: to this end, he travelled extensively, visiting America, Austria, Belgium, France, Germany, the Netherlands, and Switzerland. An architect by training, Robson made himself expert in all aspects of current educational theory. In 1874, he published *School Architecture*, in which he put forward his ideas and ideals and illustrated a great many buildings of the sort which he admired.⁵ He designed many schools himself, but he also called on the services of other architects, including the young Basil Champneys (1842-1935).

Champneys was chosen to design the board school in Harwood Road, Fulham, SW6, the building being erected in 1873 at the

south-east (King's Road) end of Harwood Road. The material used was red brick. Enthusiasm for the design led Robson into a most convoluted sentence in its praise, phrases and clauses tripping over one another in their race to the final main clause: 'Apart from the opinion, which may be termed that of fashion, because of its temporary nature, but which runs for the moment headlong after the favourite style, even when carried out in the most tasteless and unmeaning manner, this building must be regarded as possessing decided architectural character.'⁶ What this amounts to (I think!) is that the building was in the new 'Queen Anne' style rather than in Gothic.

The style had been developed by William Eden Nesfield, Richard Norman Shaw, and others during the third quarter of the 19th century. It is oddly named, for it has little to do with English architecture of the early 18th century, except in its use of brick and its basically baroque approach. Robson himself characterised Champneys' use of it in the Harwood Road school as 'a quaint and able adaptation of old English brick architecture',⁷ which strangely misses the strikingly *foreign* aspect of the style. Mark Girouard has more accurately described it as 'a kind of architectural cocktail, with a little genuine Queen Anne in it, a little Dutch, a little Flemish, a touch of Robert Adam and a dash of François Ier'.⁸ It was this style that Robson eventually came to favour for the London board schools, although some, designed by him or by others, were in a Gothic style, for example T.R. Smith's Jonson Street school, Stepney (1873), and Robson's own Mansfield Place school, Kentish Town (1874). (Robson continued in private practice, whilst working for the London School Board as well as later, and some of his non-board schools show a further approach: the former Dunstable Grammar School, Bedfordshire of 1887-94, for example, is in a free Tudor style.)

The 'Queen Anne' style, with its careful use of brick, had been developed initially as a *domestic* style, typically for the homes of the well-to-do. It could hardly be used for the quite large board school buildings without some modification. Indeed, the adaptation of it to school use resulted in a distinctive, *sui generis* version which H.S. Goodhart-Rendell suggested 'could better be called the "Board school" style'.⁹

It is likely that the adoption - and adaptation - of the 'Queen Anne' style for the London board schools was prompted by Champneys' use of it at Harwood Road. Robson's earliest work, and that of some of his collaborators, was, as already noted, still in a Gothic style, and Robson's book of 1874 is far from unambiguous in its rejection of Gothic in favour of 'Queen Anne'. Some credit should probably also go to Robson's partner in private practice from 1870 to 1875, John James Stevenson (1831-1908). In 1880, Stevenson claimed: '[f]or a few of these [early London board schools] I am responsible.'¹⁰ Much later, Robson's son Philip (also an architect) gave a curious description of his father busily applying his eraser to his partner's work: Robson père 'was occupied often in the afternoon rubbing out what John [Stevenson] had done in the morning.'¹¹ It is a bizarre picture, uncorroborated by independent evidence from a non-partisan source, and is best treated with caution. Stevenson, after all, had been a leader in developing the *domestic* 'Queen Anne' style with his own house, the Red House, Bayswater (1870, now demolished), and continued to work in the mode, sometimes in association with Norman Shaw. His responsibility for some of the

early schools is *prima facie* plausible; indeed, Elaine Harwood and Andrew Saint believe that they can discern 'the influence and maybe even the hand of ... Stevenson' in the surviving board school at Bowling Green Lane, Clerkenwell (1874).¹² On chronological grounds, however, Champneys must surely take the credit for introducing the style at his Harwood Road school in 1873.

Champneys himself is best remembered, of course, for his use of the 'Queen Anne' style, which he brought to perfection in his buildings for Newnham College, Cambridge (1875 onwards). Here he had a large, spacious site and generous funding, and was thus able to produce a building with the finest of brick detailing. He too was able to work in other styles - early Gothic at St Luke's church, Kentish Town (1868-70) or late Gothic at the John Rylands Library, Manchester University (1890-99). But 'Queen Anne', or a version of it combined with a free Tudor, was his preferred style for school buildings, as at Bedford High School for Girls (1878-82), the Museum Schools building at Harrow School (1884-6), and the King Edward VII Grammar School, King's Lynn (1903). His early essay in the style at the Harwood Road board school is therefore of some interest, and it is a great pity that the building has now been demolished. Fortunately, Robson's book includes a drawing (by H.W.Brewer; reproduced here as fig.1) and plans of the original design (fig.2; Robson, it should be noted, accidentally transposes the first-floor and the second-floor plans; this has been corrected in my fig.2; moreover, as Robson himself noted, the building was erected as a mirror image of the original plan; this needs to be borne in mind when comparing the two figures).

In its planning Champneys' school followed the usual London board school arrangement in being of three storeys, for such

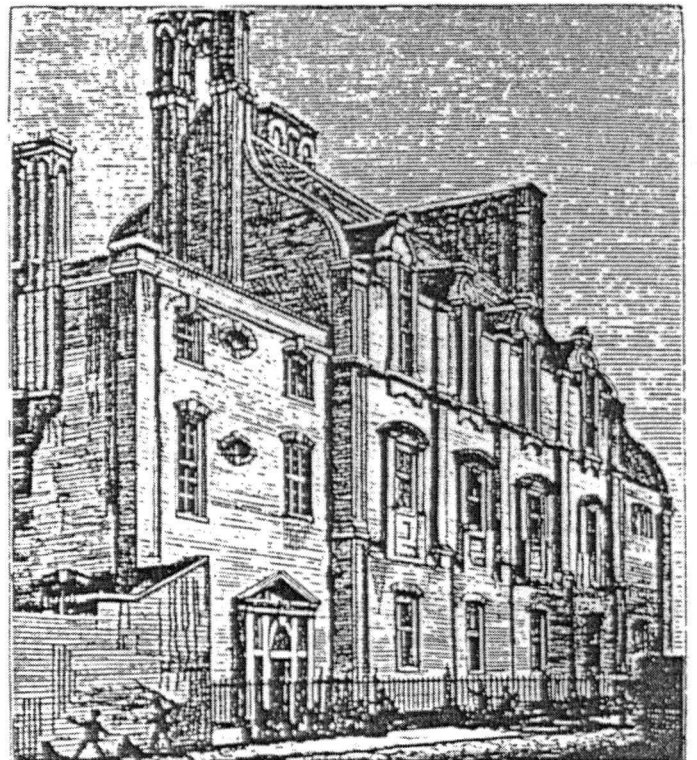


Fig.1:
Harwood Road Board School,
Fulham (1873) by Basil Champneys;
woodcut from E.R.Robson's *School
Architecture* (1874), fig.202

schools were in effect three schools in one: mixed infants on the ground floor, older girls on the first floor, and older boys on the second floor. In an already overcrowded London, of course, building-sites were at a premium and it would scarcely have been feasible to design a lower but more spread-out scheme, as Champneys was able to do, for example, at Bedford, at King's Lynn, and, above all, at Newnham College. At Harwood Road, Champneys had to build on a site of only half an acre. The site cost £1,600 and 'the contract for the building, excluding furniture, was taken at 5,7161. [sc. £5,716]'; there was accommodation for 289 infants, 219 girls, and 219 boys.¹³

The ground floor contained a committee or mistress' room, a

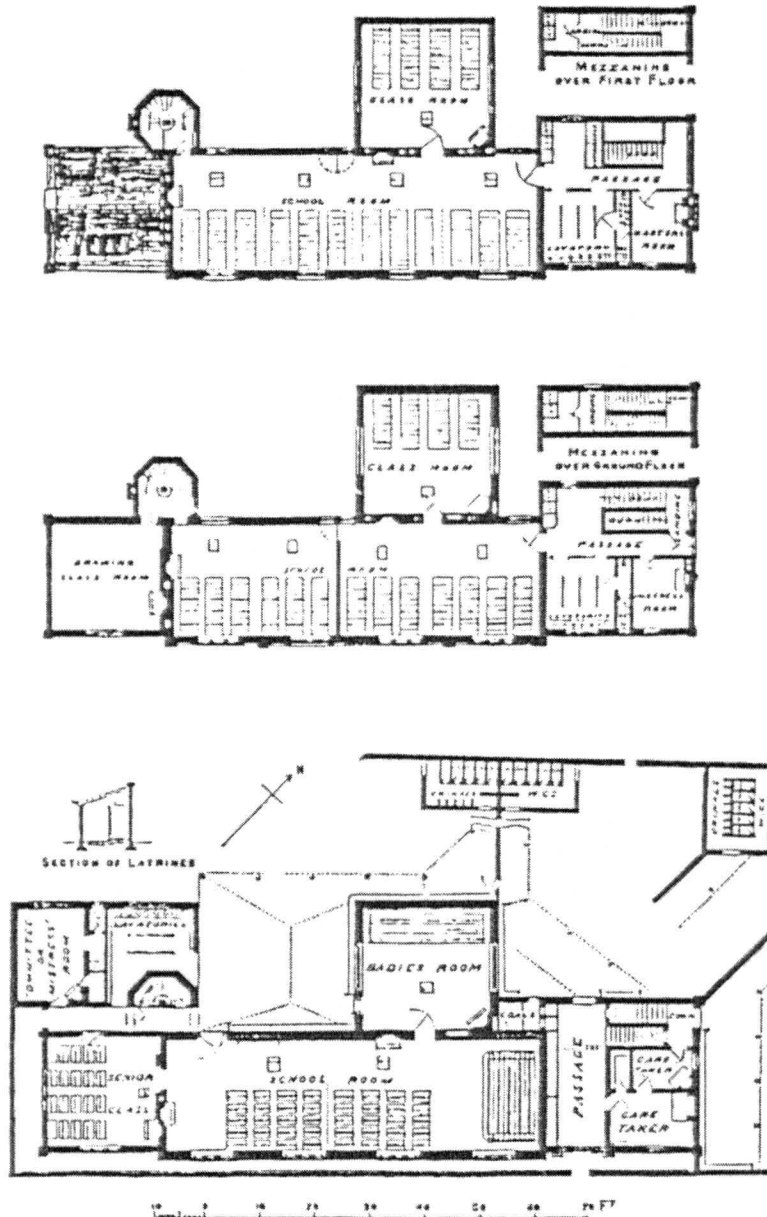


Fig.2: Harwood Road Board School, plans: *top*: second floor (boys); *middle*: first floor (girls); *bottom*: ground floor (infants); woodcuts from E.R. Robson's *School Architecture* (1874), figs. 203, 204, and 205; these plans show the school as *originally designed*; it was actually built as a mirror image of these plans, and is thus shown in the woodcut in fig.1.

caretaker's room, 'lavatories' (sc. washroom, also including cloakroom), and teaching space. The latter consisted of a large shared schoolroom, a separate 'babies room' and a separate 'senior classroom'. There were playgrounds, partly covered for shelter in inclement weather, and separate outside latrines for the infants, girls, and boys. The first floor had a mistress' room, washroom/cloakroom, schoolroom (divided into two), and a classroom, as well as a 'drawing class room' which was shared between the girls on this floor and the boys on the second floor. The second floor had a master's room, washroom/cloakroom, schoolroom (undivided), and a classroom. There were staircases at each end of the building, one of them in a projecting turret, for ease of access and 'flow'. A lift was provided, presumably for raising coal for the fireplaces on the several floors.

By later standards, the arrangements are inadequate, with many children of different standards having to be taught in the same large schoolroom. It is important to remember, however, that the teaching system of the time hardly allowed for anything else. Separate classrooms on the Prussian pattern were desirable but not practical when most of the 'staff' were only pupil-teachers (that is, older children) who required the constant supervision of the master or mistress. Smith's Jonson Street school was, in fact, designed with separate classrooms, but such schemes proved unworkable simply through the lack of qualified adult staff. That Champneys' school should have *some* separate classrooms was, indeed, an advance on what had gone before in the planning of schools other than those for the middle and upper classes.

In being thus tailored to the system of teaching then in use, the school was *functional*, an aspect of school design which Robson stressed. The word, of course, has acquired associations (often regarded as undesirable in this post-Modern age) through being hijacked by Le Corbusier and others of the 'Modern Movement' and employed to mean 'lacking in ornament'. This, however, has not always been its signification, and it is worth remembering that Pugin regarded his Gothic churches as 'functional' and Louis Sullivan, arguably America's greatest architect, also looked on his buildings as 'functional', despite their use of ornament. Ornament, after all, humanises a building and just how far its absence can create clinical efficiency but at the same time coldness, even heartlessness, is well seen in the (much praised at the time) Hunstanton Secondary School, Norfolk by Peter and Alison Smithson (1950-53).¹⁴ Champneys was always too considerate for such a doctrinaire approach and his building at Harwood Road was intended, quite properly, to be welcoming to its necessarily captive occupants.

The decorative features - the shaped gables, pilasters, tall chimney-stacks with arched panels, and the treatment of the first- and second-floor windows (the latter continuing as gabled dormers) - are all part of the 'Queen Anne' style. At one end of the main block two tall chimney-shafts are joined at the top by an arch, thus providing a convenient hanging for the school bell. All these details are carried out in shaped bricks.

The advantages of the style, in fact, were iconic rather than practical. Robson emphasised the need for natural light from adequate windows¹⁵ and there was also a need for lofty interiors with plenty of air, since, it has to be said, many of the children, through no fault of their own, were both dirty and smelly! In these respects, however, the new style had no real

advantages. Unless they were in an early lancet style, Gothic schools did not need to have small windows, and many did not have them: the grammar school built by Sir Arthur Blomfield at Dartford, Kent in 1866, for example, had a quite generous provision of glass even before the window-sills were subsequently lowered.¹⁶ Indeed, if large windows and lofty rooms had been the prime concern, the most suitable approach would have been not 'Queen Anne' but Elizabethan - 'Hardwick Hall, more glass than wall,' we remember.

Iconically, on the other hand, the 'Queen Anne' style had a distinct advantage: because it had, as we have noted, no genuine historical precedent, being an amalgam of various elements, it was free of any doctrinal associations - the Gothic of the Anglican 'National' schools or the classical of the largely non-conformist 'British' schools. Religious instruction was provided, although parents (quite properly) had the right to withdraw their own children; but, in accordance with the Cowper-Temple clause in the 1870 Act, such teaching had to be non-denominational (though Christian) in character. The essentially domestic 'Queen Anne' style was itself *non-denominational* in character; and that, indeed, seems to have been the principal reason for its adoption.

Where Champneys' building differed from the more normal scheme of the early London board schools was in its use of red brick, always Champneys' most favoured material. Most of the early board schools were of yellow London Stocks, with red brick used only for trim around doorway and window openings and for quoins. Doubtless this was largely a matter of economics, for, despite increasing competition from Fletton bricks in the late 19th century,¹⁷ London Stocks were, at the time, the cheapest bricks available. They were also good quality, serviceable products. Robson noted Champneys' use of red brick at the Harwood Road school, commenting that '[c]lose proximity to a large open green, known as Eel Brook Common, gives the red colour of the brickwork an enhanced value to the eye of the artist'.¹⁸ Ironically, the green still exists, a welcome oasis in built-up Fulham, but the school which it set off to such effect has gone!

Had it been allowed to survive, it would have been a worthy monument, not only to its architect, but to the vision which it represented. After more than a century, we may perhaps be a little less sure about Conan Doyle's faith in a 'wiser, better England of the future'. The vision, however, remains.

Notes and References

1. A. Conan Doyle, 'The Naval Treaty', in *Memoirs of Sherlock Holmes*, London, 1894; I have used *The Penguin Complete Sherlock Holmes*, Harmondsworth, 1981, pp.456-7.
2. G. Berry, *Discovering Schools*, Tring, 1970, p.28.
3. M. Dorothy George, *England in Transition*, revised edn Harmondsworth, 1953, p.29 (original publication 1931); earlier still she had made the same point in *London Life in the Eighteenth Century*, London, 1925, pbk edn Harmondsworth, 1966, pp.26, 69.
4. For a particular example of such acrimony: J.G. Dony, *A History of Education in Luton*, Luton, 1970, pp.20-24; for the general context of such

- disputes: G.Sutherland, *Elementary Education in the Nineteenth Century*, Historical Association pamphlet, general series, no.76, London, 1971, pp.27-45.
5. E.R.Robson, *School Architecture*, London, 1874, re-issued in facsimile with an introduction by Malcolm Seaborne, Leicester, 1972; for English board schools generally: M.Seaborne and R.Lowe, *The English School: its Architecture and Organization*, vol.II, 1870-1970, London, Henley, and Boston, 1977, pp.3-39; for London in particular: F.Kelsall, 'The Board Schools: School Building 1870-1914', in R.Ringshall, ed., *The Urban School: Buildings for Education in London 1870-1980*, London, 1983, pp.13-28.
 6. Robson, 1874, pp.296-7.
 7. Robson, 1874, p.296.
 8. M.Girouard, 'The Queen Anne Style of Architecture', *Listener*, 85, 22 April 1971, 504.
 9. H.S.Goodhart-Rendell, *English Architecture since the Regency*, London, 1953, p.163.
 10. J.J.Stevenson, *House Architecture*, vol.I, London, 1880, pp.348-9.
 11. P.A.Robson, 'Memoir of E.R.Robson', *Journal of the RIBA*, February 1917, 92-6.
 12. E.Harwood and A.Saint, *Exploring England's Heritage: London*, London, 1991, p.164; there is an illustration of Stevenson's Red House, Bayswater in R.Dixon and S.Muthesius, *Victorian Architecture*, London, 1978, p.29, fig.10.
 13. Robson, 1874, p.299.
 14. Even the late Sir Nikolaus Pevsner, an enthusiast for the Modern Movement, thought that the detailing of the Hunstanton school was 'perhaps a little austere for the children': N.Pevsner, *The Buildings of England: North-West and South Norfolk*, Harmondsworth, 1962, p.215.
 15. Robson, 1874, p.178.
 16. T.P.Smith, 'Sir Arthur Blomfield and the Building of Dartford Grammar School in the 19th Century', *Dartford Hist. and Antiq. Soc. News-Letter*, 18, 1981, pp.8-24; pre-1870 Gothic schools are shown in M.Seaborne, *The English School: its Architecture and Organization 1370-1870*, London, 1971, plates 182sqg; for post-1870 examples: Seaborne and Lowe, 1977, plates 1sqg.
 17. R.Hillier, *Clay that Burns: a History of the Fletton Brick Industry*, London, 1981, pp.17-18, 36.
 18. Robson, 1874, p.296.

BRITISH BRICK SOCIETY IN 1998 AND 1999

Five visits and meetings in 1998 have been arranged. The remaining meetings are:

Annual General Meeting

Saturday 13 June 1998

Visits including St John's College, Cambridge, and other colleges built in brick: Jesus', Magdalene, and Sidney Sussex.

July Meeting

Saturday 25 July 1998

Morning visit to New Hall, Boreham, near Chelmsford, Essex.

Autumn Meeting

Saturday 26 September 1998

Dorset Brickwork.

A walk round Old Town, Poole, with an afternoon visit to sand-lime brickworks.

Full details of the first two meetings were in the mailing with Annual General Meeting papers; details for the Autumn Meeting are in this mailing.

Preliminary details for 1999 are:

Spring Meeting

High Wycombe

Northern Spring Meeting

Yorkshire with visit to brickworks

Annual General Meeting

Saturday 12 June 1999

Gainsborough, with visit to Gainsborough Old Hall.

It is hope to arrange an Autumn Meeting at Kew Palace.

Future meetings in preparation include visits to Wolverhampton, Derby, Warwick, Stratford-upon-Avon, Oxford, and Wigan. Wigan is the probable venue of the Northern Spring Meeting in 2000.

The British Brick Society is always looking for new ideas for future meetings. Suggestions please to Michael Hammett, David Kennett or Terence Smith.