



Colchester Archaeological Group

Registered Charity No. 1028434

ANNUAL BULLETIN VOL. 15 1972

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THE WELL AT BRAMFORD

by F.H. Erith, F.S.A.

The Tiptree Manure Company, of Tiptree in Essex, owns a chalk-pit in the parish of Bramford, Suffolk. One day in January 1971 Mr. David Rees, a Director of the Company, while on a routine visit to this pit, observed something very unusual in a sector of the north-west corner of the quarry. A two-foot wide vertical strip of the cliff-face consisted of chalky soil instead of the solid chalk, and in this strip fragments of pottery were visible. He therefore very kindly invited Mr. Tony Bonner and the Group to investigate. GRID REF: 112486.

At this part of the quarry the height of the cliff-face is fifteen feet, but the top is not the original ground level, as an additional 15 feet of chalk had been quarried away many years previously; and besides there was an overall top layer of gravel of five feet. This meant that the strip or rift here visible was exposed at a depth from 20 to 35 feet below the original ground level.

A close look at the infill of this rift showed it was in alternate layers of darker and lighter soil, each layer being from 4 to 8 inches thick.

EXCAVATION

The soil from the rift was removed in layers in the hope of getting a stratification, but when a sherd from the top pottery layer was found to fit with a piece from another layer four feet lower down, then all the pottery had to be grouped into a single assemblage, Layer 1. In this four-foot depth of soil and pottery was a large quantity of animal and bird bones, as well as a few oyster and other shells.

Immediately below there was a two-foot section of soil mixed with chalk rubble at the bottom of which was some more pottery, Layer 2. This was at the level of the present quarry floor.

When the soil from the rift had been cleared, it revealed a circular shaft three feet in diameter, on the far wall of which steps had been cut deeply into the chalk at regular intervals of 18 inches. The feature was then not a natural rift in the chalk, but a man-made hole, almost certainly an unlined well. The quarrying operations had just cut into it right down one side. Much of the pottery so far discovered consisted of sherds with sagging bases which showed that the hole or well had been filled-in in medieval times.

Having reached the level of the quarry floor, by excavation from the side, any further penetration into the well would have to be done from the top. This was achieved for three or four feet, the infill being almost pure chalk rubble which was quite dry, and contained no pottery. As the sides of the shaft were now complete all round we looked for and found a second series of steps cut into the well-side at the south, each step opposite to and level with the ones on the north side.

Space was rather restricted for excavation at any greater depth from the top. Consequently, an area of the quarry floor was cleared and deepened just outside the position of the well, after which the face of the chalk was cut away so that the rift was deepened. A further four feet of infill chalk rubble was consequently removed, at the bottom of which were a few sherds, Layer 3. From this point downwards all further excavation was done from the top.

THE WATER LEVEL

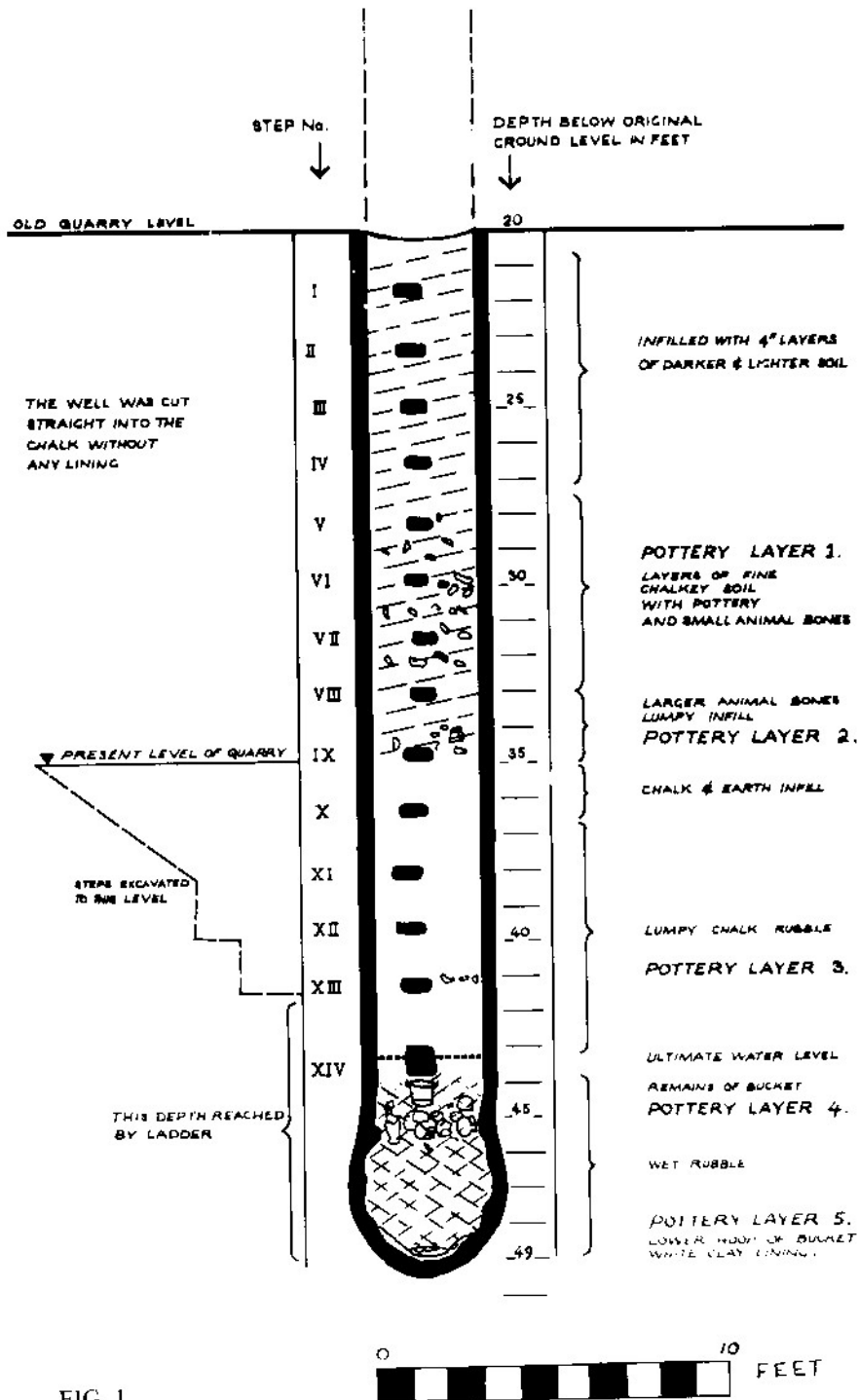
After removing a further two feet of chalk rubble the floor suddenly became moist, and curved strips of rusty iron and pieces of soggy wood appeared. Immediately below this it became very wet with chalky soil, and an enormous amount of large pieces of pottery were encountered, including one complete jug (No. 5), Layer 4. A piece of rusty iron, being two rings in the form of a figure-of-eight was at this level. (Fig. 6 (3)).

No further excavation was done until a pump had been installed, as water had been pouring in through fissures in the chalk. Excavation then took place alternatively with pumping out, and a further three feet of very wet chalky rubble was removed. Below this the saucer-shaped bottom of the well was encountered, together with a few sherds, Layer 5, one of which was part of the rim of a jug from Layer 4.

The lowest three or four inches of all consisted of puddled chalk clay in which was embedded a hoop of iron with a diameter of 12 inches, (Fig. 6 (2)).

The bottom of the well was thus 49 feet from the original ground surface, and 14 feet below the present quarry floor.

INTERPRETATION (Fig. 1)



From the type of pottery found at the bottom, it is assumed that the well was made some time in the thirteenth century. The first casualty appears to have been a wooden bucket, the lower iron hoop of which got stuck in the puddled chalk clay. With a diameter of one foot it was perhaps too heavy, as a second bucket with hoops of nine inches diameter took its place. The next casualty was Jug No. 4, the rim of which was found at the bottom with the larger hoop, but although it had part of its rim missing it could still be used.

The three feet of chalk rubble at the bottom suggests a big cave-in of chalk from the top. The consequence of this was that instead of there being five or six feet of clear water, there were only one or two feet of rather chalky water at the bottom. This would mean that every time the bucket was lowered the water would cloud, even if the top few inches were relatively clear. It seems that after this the only way to obtain clear water was to let down a jug with a cord attached to its handle.

The pottery from the bottom of the well (Layers 4 and 5) consisted entirely of jugs. Presumably they were vessels let down on a cord and which got broken in the process. Jug No. 5 which was complete and unbroken must have been lost owing to some mishap with its cord. Three jugs (Nos. 1, 2 and 7) were in fragments, but all the fragments were found in the well, and so must have broken so that the cord was pulled up with nothing attached. The same happened to jug No. 4, except that a piece of the rim had fallen off some time before the big cave-in. Jug No. 2 broke in such a way that only a small piece of the handle came up with the cord, as all the remainder was found at the bottom. The other jugs broke in such a way that the handles came up attached to rims and sides, leaving only the bases below.

It is assumed that nothing in the way of rubbish would ever have been thrown down a well intentionally. If a jug broke and the pieces fell in, then that could not be helped; but if a broken piece came up on the cord one would not throw it away by dropping it back into the well. It is an instinctive impulse never to foul a well more than absolutely necessary.

Some time about 1350 it seems that the site or dwelling which the well served was abandoned, and the well was at once deliberately filled in. The pottery of the infill is typologically similar to that used when the well was working. The infill fragments were also very large, and so must have been in use very shortly before being thrown down the well hole.

The alternate layers of darker and lighter soil in the infill suggest that the infilling was deliberate and all done at once, as if barrow loads from two different locations had been dumped alternately into the pit.

It is only possible to assert that the pottery from the infill must be later than the pottery at the bottom of the well; it would be misleading to infer that the pottery from Layer 1 was later than that from Layers 2 or 3.

DOCUMENTARY EVIDENCE (Fig. 2)

A search in the East Suffolk Records Office revealed two Estate maps covering the site. The first was commissioned by Nathaniel Acton of Bramford Hall in 177 L. The map was drawn by John Hardcastle, and shows the area as an arable field of 18 acres called "Cross Close Field". There is nothing on it in the way of dwellings, so the medieval dismantling of the site must have been complete.



The other map is a Terrier in book form of the parish of Bramford, dated 1827. On one page is the "Farm in the occupation of Mr. John Edwards" (Fig 2). At the top is the field called "Cross Close", in which is depicted an area of about three acres marked "Chalk Pit"; so it was probably started under Mr. Acton's orders. On this map and in this

chalk-pit area we have marked the "SITE OF WELL". The chalk-pit having been started around the position of the well precludes any chance of finding the house it served by archaeology.

Examination of the Court Rolls of Bramford Hall yielded a reference to "Cross House Close" which, as it is not at a cross roads, might be so named as being connected with a monastery. Unfortunately this cannot be tied up with the nearby Cell of the Abbey of Bec at Blakenham, as this must be at "College Farm" a mile to the north.

Failing any documentary evidence for the demolition of "Cross House", we fall back on the likely possibility, that the House was abandoned as a result of the Black Death of 1348-50, which was known to have been very severe in Ipswich, and fits in very satisfactorily with the pottery dating evidence.

THE POTTERY (Figs. 3-4-5)

The pottery is divided into two sections:

1. The Jugs which were found at the bottom of the well, and must have fallen in while the well was in use, Nos. 1 - 11 (Layers 4 and 5).
2. Domestic and Cooking vessels, including jugs, which were found in the infilled soil of the well-hole. These must be slightly later in date than those in Section 1, Nos. 12 - 24 (Layers 1 and 2)

Photographs of Jugs 1-7 were submitted to officials at the Department of Environment in London, who suggested the first half of the fourteenth century as their probable date.

FIG. 3

1. JUG with corrugated handle. Buff exterior, blackish interior.
2. JUG with flat base. Grey. Lower part of handle missing.
3. JUG of terracotta ware. Handle and lip missing. Thick incised double wavy lines round the girth; vertical stripes in cream slip, the same area covered with olive glaze.
4. JUG terracotta with grey core. Haphazard dusting with olive glaze. Rod handle with three grooves. Deeply sagging base.
5. JUG, complete and unbroken. Grey core, dark grey exterior.
6. JUG grey core, orange-buff coat. Lip, lower part of handle, and half the rim missing.

FIG 4.

7. The "Cucumber" JUG Red clay with thin grey core. Cream slip above the pedestal, and top inch of interior of rim. Square lip. Four-grooved handle with wavy strip of cream slip, and punctuated vertically with six holes. Body fluted with 8 gadroons, 4 glazed with olive glaze and pale spots, the other 4 with emerald glaze over cream slip, but not symetrically.
- 7A Section of above at girth, the black sectors indicating the areas of the darker, olive glaze, and the white sectors the emerald areas.
8. JUG base, bulging. Red-brown exterior, black interior, grey core.
9. JUG with most of body, but no handle or rim. Buff core, grey coat. Some knife-scraping on lower side.
10. JUG, body and base only. Grey core, red-buff coat. No thumbing on baseline.
11. Base of large vessel, probably a JUG, with two girth grooves. Rough. Pale grey core and coat.
12. JUG. Handle and rim missing, but body complete. Grey-black. Layer 1.
13. JUG, upper part only. Grey clay and exterior, pink interior. Layer 2.

FIG 5.

14. JUG. Rim and neck only, black. Incised with skewer stabs on handle. Layer 1.
15. Large sherd of globular JUG. Red exterior, black interior, grey core. Pink horizontal and vertical slip stripes. Rough olive glaze. (Another similar, but red interior). Both Layer 1.
16. PANCHEON or milk-pan. Grey, with blackish exterior, small lip. Layer 1.
17. PANCHEON, coarser type of above. Very slight lip, Layer 2.
18. COOKING POT, grey core, dark grey interior, black exterior. Many large sherds, but few fit. Two sherds each with over three inches of applied vertical strip.
19. COOKING POT, grey, with black coat. Very slight pouring lip.
20. COOKING POT, grey core, black coat. Ribbing on interior.
21. COOKING POT, light grey core and interior, black exterior. Ribbing on interior. (All the pottery had to be thoroughly scrubbed to get rid of the chalk, and then dried. Those that were cooking pots had then to be scrubbed a second time to remove the soot!)
22. Large vessel of very fine and thin ware. Cream-grey clay, pale grey surface Finger-marks round base visible on

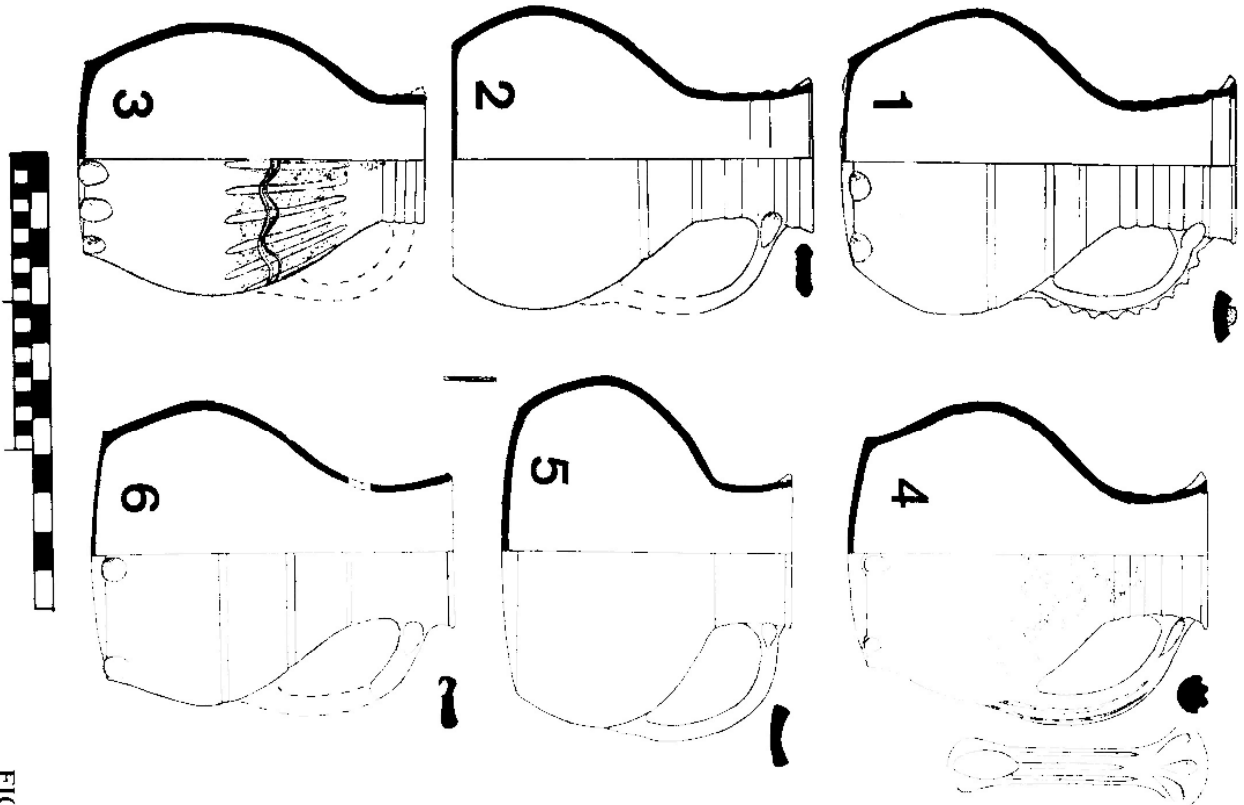


FIG. 3

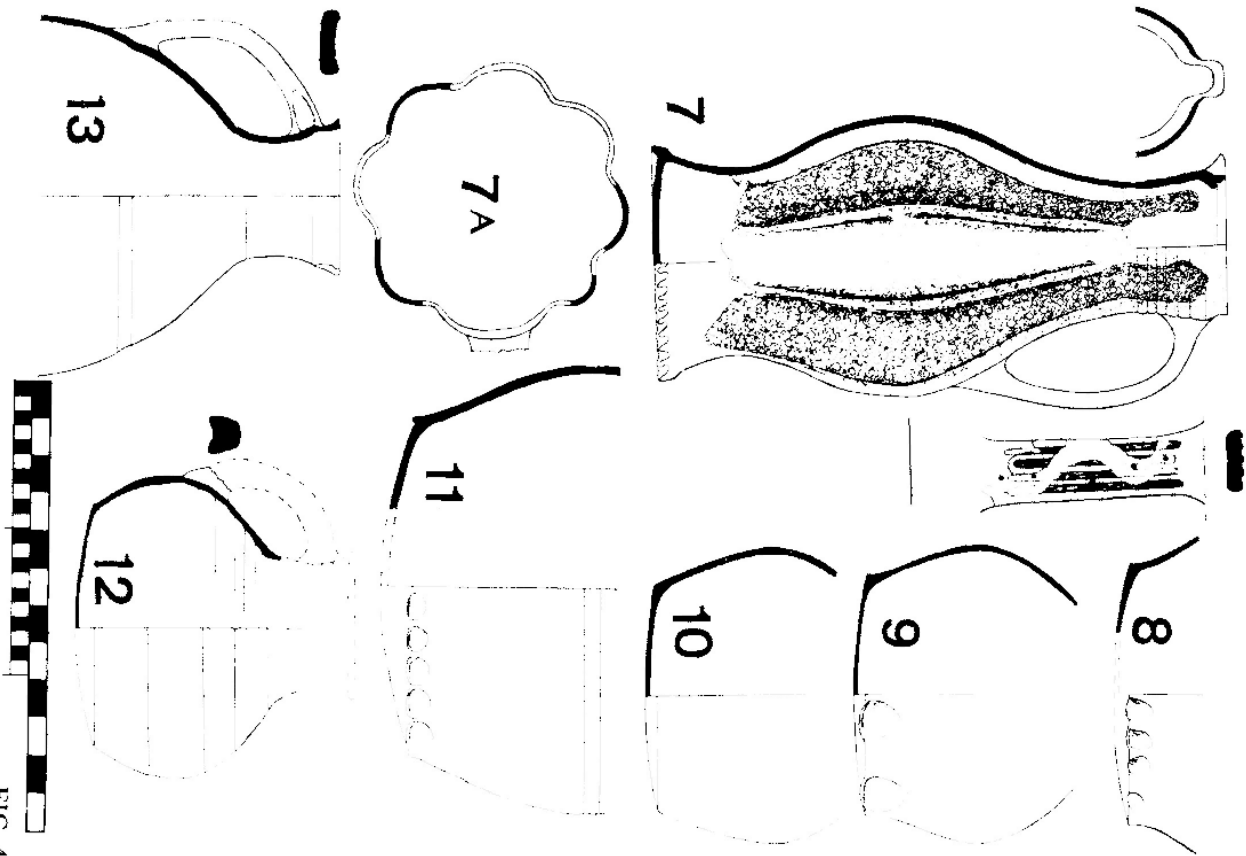


FIG. 4

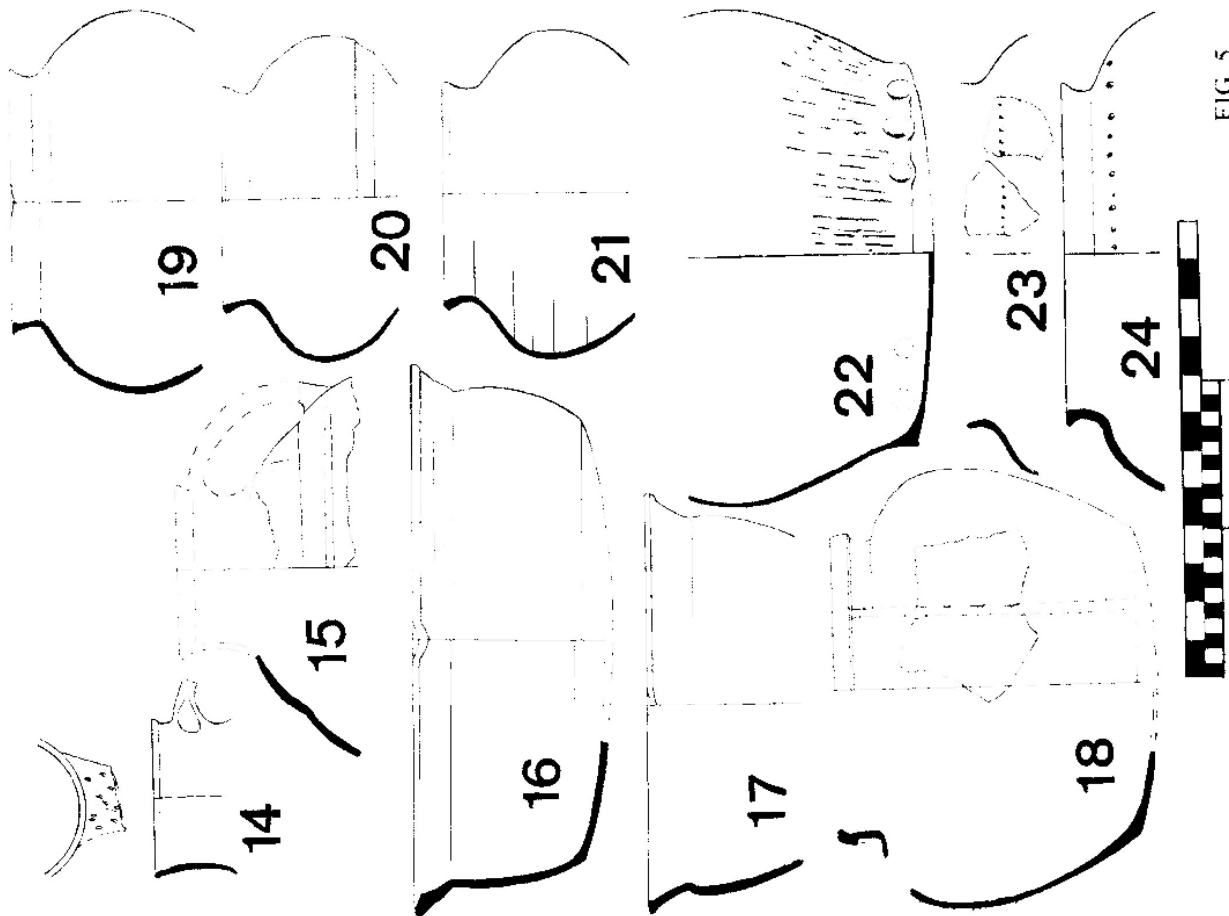


FIG. 5

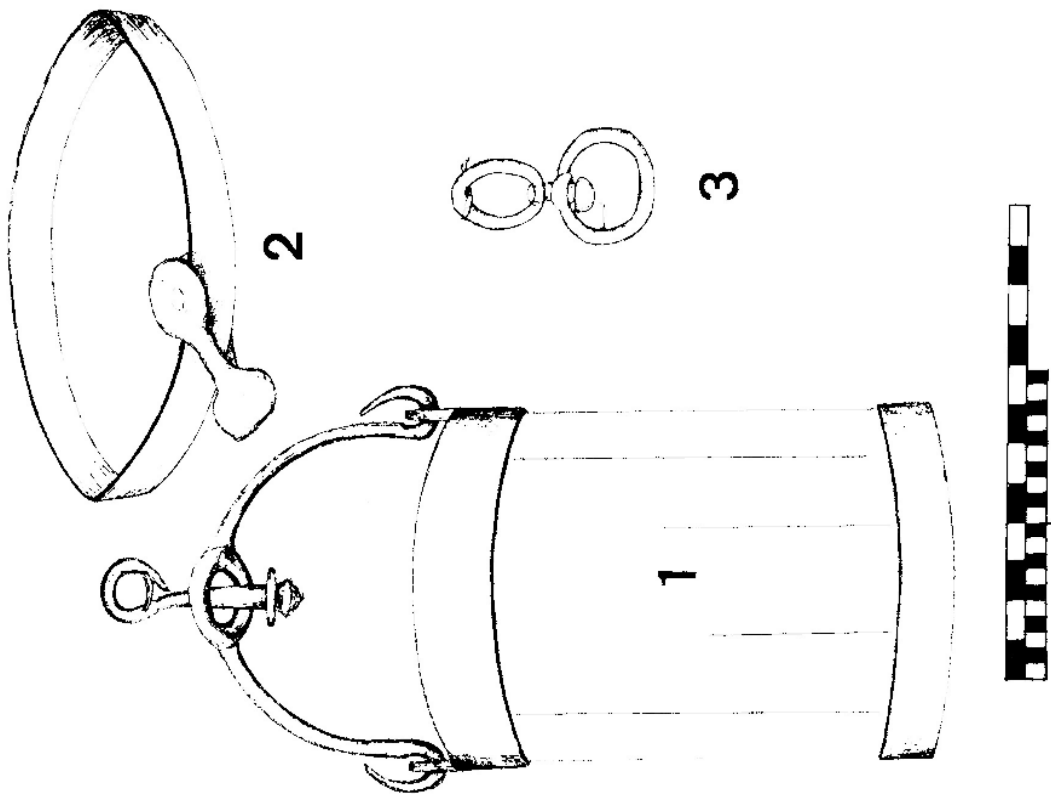


FIG. 6

interior. Slight vertical furrowing on lower part of exterior.

23. Two sherds with regular row of triangular dots stabbed on neck. Layer 1.

24. COOKING POT. Grey core and interior, black exterior. Row of dots stabbed irregularly on neck. Layer 2.

The pottery has been deposited in the IPSWICH MUSEUM.

IRON

The curved fragments forming the hoops of the top bucket were so corroded that they could not be illustrated. Diameter 9 inches. Height of upper hoop 13½ inches, the lower hoop 1½ inches. They were the same dimensions as those from a bucket found some years ago in a well at Brightlingsea, and now in the Colchester Museum. This well, lined with blocks of septaria, was discovered in a gravel-pit. It had a diameter of 4 feet and a depth of over 48 feet, and was thought to be medieval, although there was no pottery to date it. The top and bottom hoops were both 9 inches in diameter, and attached to the handle was a device to stop the bucket spinning, rather similar to the figure-of-eight iron from Bramford.

FIG. 6.

1. Brightlingsea bucket hoops and handle.
2. The larger hoop at the bottom of the well.
3. Iron figure-of-eight ringlets from Bramford well.

DIMENSIONS OF STEPS

The step openings in the Bramford well were 7 to 8 inches wide, and 4 to 5 inches high. They penetrated about 6 inches into the chalk, the lower plane being flat, and the upper sloping, so that they met at a point.

REPORT ON THE ANIMAL AND PLANT REMAINS FROM A 14th CENTURY WELL AT BRAMFORD, SUFFOLK

by J.J. Heath

The material having been buried in chalk was in general in excellent condition even though somewhat fragmentary. Species represented included:

Ox	
Sheep	Small bird (about the size of a Blackbird)
Dog	Banded Snail
Cat	Garden Snail
Hedgehog	Common Mussel
Small Rodent or Insectivore	Common Oyster

The Ox remains are fragments of skull and lower jaw. One piece shows the marks of the butchers axe. At least two animals are involved as there are two sections of lower left mandible with similar dentition.

Pig remains are confined to one metacarpus from a young animal less than two years old.

Bones from Sheep include a complete lower jaw and the left side from the upper jaw of the same animal, the teeth are a perfect fit. There are fragments of a humerus and an ulna and in short but complete metatarsal only 122 mm. long.

Some limb bones of an embryo ruminant, probably a sheep, have been preserved owing to the alkaline conditions of burial.

The front part of the left mandible of a Dog with the permanent canine unerupted indicates that the animal was under about 5 months of age at the time of its death. No other bones of dog were found.

Remains of two Cats, one fairly complete adult, the other a juvenile represented by a few bones including a lower jaw length 45 mm. which is shorter than any of the seven 17th Century cats recently excavated at Lion Walk by 4.5 mm. and 5 mm. shorter than the adult found with it. Some very immature bones represented by the shaft only appear to be possible kittens drowned at birth.

The Hedgehog (*Erinaceus europaea*) represented by a lower left mandible and a femur, was probably an

accidental casualty who fell into the well.

Three minute bones found by sifting a small quantity of soil from the well belong either to a rodent or insectivore.

Mice, Voles and Shrews often fall down holes and their bones are to be expected. All the bones are however too small to identify with certainty.

One complete furcula or wishbone of a bird the size of a Blackbird was found.

Only a sample of the Molluscs found were kept. Both the Garden Snail, (*Helix aspersa*) and the Banded Snail (*Helix nemoralis*) are widely distributed and common.

The two marine species, the Mussel (*Mytilus edulus*) and the Oyster (*Ostrea edulis*) are common food species. The oyster shells ranged in size from 45 mm. - 80 mm. and would have been about 3-4 years old when dredged.

Only three botanical specimens were found, a Blackthorn twig 150 mm. long with both ends cut, a seed of one of the larger grasses, and a piece of charcoal, too small for identification.

ACKNOWLEDGEMENTS

Of the members of the Group who assisted in this project, Ida McMaster did all the excavating in the very restricted space, sometimes standing in two feet of water. Tony Bonner and Bill McMaster provided photography, and A.E. Nicholls, David Chesterfield and others also assisted. Mr. Stephen Moorhouse of the Ministry of Environment in London was shown photographs of the 6 jugs, and commented on them. To all these I extend my thanks. I thank also, Mr. T.D.T. Clarke, F.S.A. Curator of the Colchester Museum for permission to draw the Brightlingsea bucket, and the Archivist of the East Suffolk Records Office for permission to reproduce the Map.

EXCAVATIONS IN THE KELVEDON - RIVENHALL AREA

1970-1

by

Kirsty Gomer and Warwick Rodwell

For more than a century antiquaries have argued about the location of the Roman settlement of CANONIUM. The name appears in the Peutinger Table and in the Antonine Itinerary, where it is given as being 9 Roman miles from Camulodunum and 12 Roman miles from Caesaromagus (Chelmsford). The mileages given imply that Canonium must lie directly on the main Roman road from London (via Chelmsford) to Colchester and would seem to indicate a siting under the Medieval and modern village of Kelvedon. The line of the Roman road is, broadly speaking, that of the old A.12, for which there is now a certain amount of archaeological evidence. In the past, various attempts have been made to place Canonium either to the north or to the south of Kelvedon, realigning the Roman road to suit. The evidence of topography, archaeology and the Itinerary refutes such suggestions, included amongst which is the well-known villa site at Rivenhall.

The discovery of the very extensive Rivenhall villa in 1846 led to the identification of this site as Canonium, an attribution which has survived in many text books down to the present day. The finding of the important Celtic bronze mirror also helped to focus attention on the site.

Excavations in Kelvedon itself over the past twenty years by two amateur archaeologists, Messrs. M.J. Campen and H.J.D. Bennett, have shown the existence of a very extensive, if not spectacular, Iron Age and Romano-British settlement extending for 3/4 mile along the southern side of the Roman road, on the brickearth and gravel slope leading down to the river Blackwater. There is now no real doubt that this is the site of Canonium and in fact when one considers the linguistic evidence it becomes all the more obvious. "Canonium" means the "place of reeds" - a natural-enough description for a settlement which, in antiquity, was surrounded on three sides by a reedy river and stream.

In view of the extensive housing development which is overtaking Kelvedon the Department of the Environment sponsored a trial excavation in 1968, directed by Miss B.R.K. Dunnett. This was followed by more extensive work in 1970 and 1971; in the latter year Braintree R.D.C. recognising the importance of the work, contributed handsomely.

Only a summary of the results to date can be given here, also taking into consideration earlier finds. Occupation on the river bank began in the Mesolithic period, as is shown by a scatter of microlithic flints in later

features. Similarly, the evidence for Neolithic and Bronze Age occupation rests on casual discoveries of flint implements and stone axes. However, when we come to the Iron Age, structural evidence abounds; pits, gullies, enclosure ditches and palisade trenches of substantial timber buildings. A very large and extremely valuable collection of stratified pre-Roman pottery has been recovered, which includes Gallo-Belgic imports and Arretine ware. Taken in conjunction with the Belgic coins, the evidence indicates a thriving Iron Age community which had achieved considerable size and economic prosperity by the middle of the first century A.D.

Changes took place with the coming of the Romans: a marching camp was constructed over what had once been part of the settlement and a series of large quarry-pits was excavated for brickearth. These must surely imply that extensive military timber buildings were being constructed in the area, for which many tons of daub were needed. Clearly these are not compatible with the evidence for the marching camp, which suggests that there are two distinct phases of military occupation. One phase may belong to a Boudiccan period re-occupation: there is a little evidence in support of this; but at the moment it can only be safely said that the military occupation, which covers several acres, is all of pre-Flavian date. We do not know to what extent native settlement was disrupted.

In the Flavian period there was great industrial activity on the site, particularly in the form of iron smelting and bronze working. By-and-large, the areas so far examined, on the southern and eastern sides of Kelvedon show little sign of occupation after the first century A.D., when it seems that the main settlement was along the south side of the main road. Much of this area is still covered by Medieval and later buildings, so that opportunities for excavation have been few. There is evidence for at least one substantial building with masonry foundations, and the site of a temple complex is also known. Mr. Campen recovered various finds which pointed to the existence of a temple, and recently Mr. Bennett excavated one such structure. It was a small circular temple constructed of timber and daub and was totally destroyed by fire in the late second century.

Thus in summary, one may reasonably suppose that Roman Canonium comprised a small road-side settlement which, by virtue of its convenient position on the Chelmsford-Colchester road, served as a resting place for travellers and perhaps as a station for the imperial post. If one attempts to translate it into Roman terms, mansio is perhaps too grand a description but mutatio is probably nearer the mark.

Much of the area of the Iron Age settlement later became a Romano-British cremation and inhumation cemetery, running through the second, third and probably fourth centuries. The very important fifth century Anglo-Saxon cemetery lay just across the river, at Feering. The Anglo-Saxon settlement has yet to be found.

Turning now to Rivenhall, a very different picture emerges. In 1971 a trunk sewer was laid right through the villa, which demanded an urgent rescue operation; and in the light of impending building operations in the churchyard, a trial excavation was subsequently undertaken there.

As at Kelvedon, the earliest prehistoric occupation is only represented by a scatter of flints, residual in later features; then, pottery of the Late Bronze Age/Early Iron Age begins what is probably an unbroken sequence of occupation for two millennia. The nature and extent of the Iron Age settlement has yet to be determined, but its affluence in the latter part of the period is attested by the remains of two bronze mirrors.

In the first century A.D., probably in the early Flavian period, two elaborate Roman buildings were erected: one lies under the church and the other to the east of the churchyard. On the former, very little detail is known, except that it was built on two levels, connected by a massive timber stairway. In part, its structural remains stand more than a metre high, and beneath it is sealed an early Roman ground surface, bearing traces of timber buildings. A small part of the north wing of the second Roman building was explored in 1950-2, and the west wing was cut through by the 1971 sewer. This wing comprised a late Roman aisled barn, overlying earlier timber buildings. It is clear from recent and past work on the site that the second Roman building was the main villa, which was altered and enlarged several times during its life. Ultimately, it probably took the form of three or four wings enclosing a central courtyard. At various stages in their history both the Roman buildings were elaborately decorated with fine mosaic floors and painted walls. Pieces of marble wall sheeting have also been found.

Whilst the Roman buildings may be elaborate and impressive, it is the early Anglo-Saxon occupation which really makes a significant contribution to British archaeology. The aisled barn which is believed to have been built in the fourth century was still standing and was actually occupied by early Saxon settlers in the first half of the fifth century (? as a ready-made aisled hall). A well, dug outside the building, contained pottery of Jutish type and part of a glass cone-beaker.

In the later Saxon period occupation moved to the north of the church, where it continued until the 14th century, when the site was deserted. It is amazing that the surviving earthworks had never been previously recorded.

In the course of restoration work a close study has been made of the church fabric and foundations. It has long been assumed that the church was entirely rebuilt by Lord Weston in 1839; but it is now quite clear that only the facade and turrets date to that period and that the walls themselves are substantially Medieval. It is not yet known when the first stone church was built, but it would appear to be Norman or earlier, and, interestingly is on the same alignment as the Roman building beneath.

In the early 14th century a major building programme was undertaken, which involved doubling the length of the chancel, adding buttresses and inserting new windows and the south doorway. In the 15th century a massive buttressed west tower was added, but did not stand for long before it collapsed (apparently due to sinkage of its foundations into, something soft beneath) The present tower was built in 1717, with additions in 1839.

In conclusion it may be said that Rivenhall offers one of the finest opportunities in south-east England for large scale archaeological study of settlement continuity from at least the beginning of the Iron Age to the close of the Medieval period.

ARDLEIGH RING 8

by F.H. Erith, F.S.A.

In the Bulletin for December 1963, Vol. VI No. 4, Page 42, there is a survey of RINGDITCHES in the ARDLEIGH region. Ring 8 was on land at Martells Hall farm; Grid ref. 054283. The diameter of the surrounding ditch was 66 feet.

This ring-ditch has now been taken by the Gravel-pit, but while the topsoil was being removed I was able to observe the circle in the subsoil. In the centre a hole about 4 feet square had been made in antiquity, but had been rifled in more modern times. Four black nondescript sherds of Bronze Age pottery was all that we found. The circular ditch was 2½ feet deep, and contained nothing other than silty soil.

Four yards outside the circle to the south-east, a Roman pot had been buried complete. It was common Form Cam. 268, and contained nothing but soil.

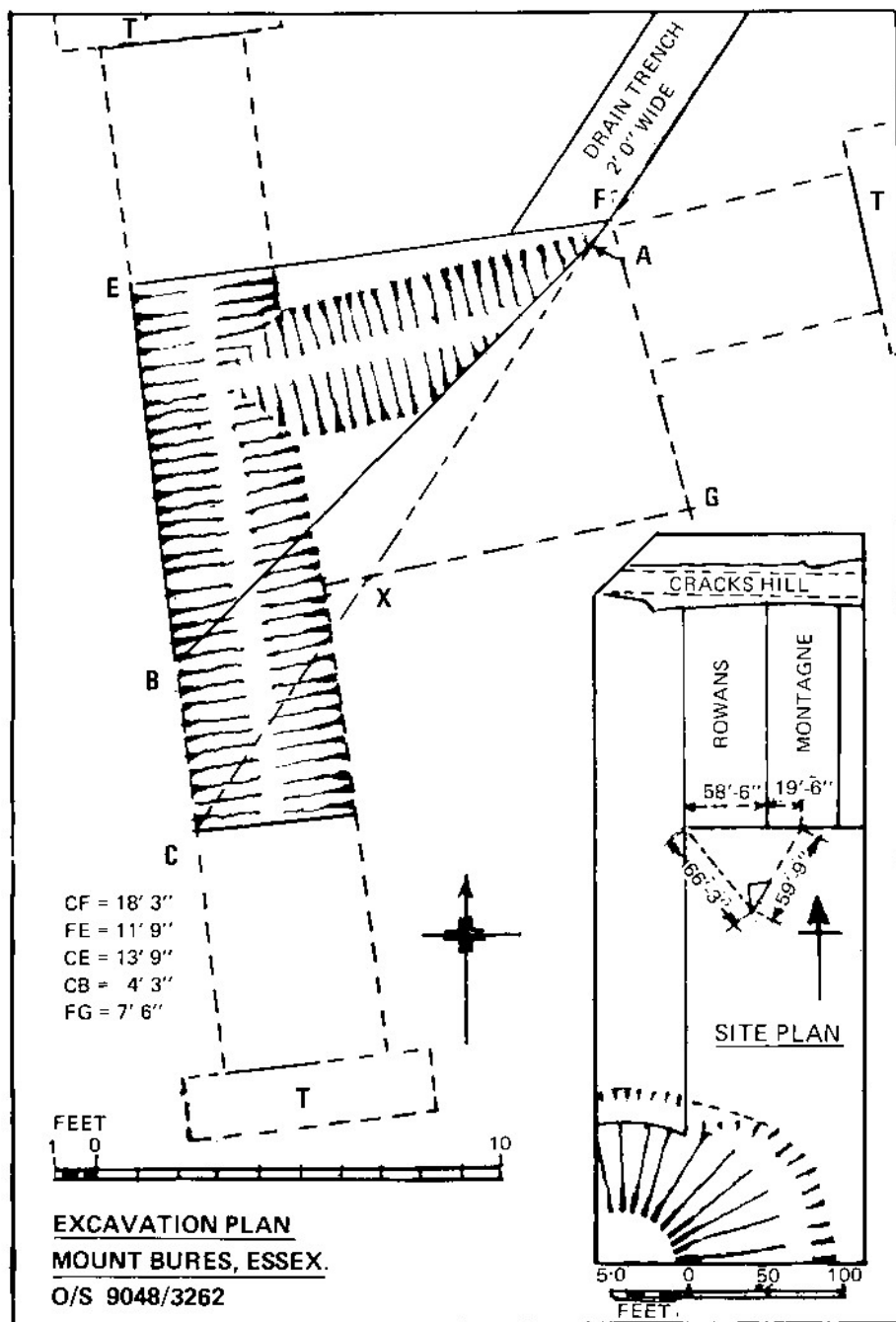
A RESCUE INVESTIGATION AT MOUNT BURES, AUTUMN 1970.

by Ida McMaster

Church Field, which adjoins the north-east side of the Mount, was the site of a soak-away project in which Mr. Tony Fox noticed the presence of pottery lying just below the topsoil (triangular area E B F on the plan). He arranged to suspend operations until some members of the Group could investigate more fully. We were thus able to record the presence of two ditches intersecting at right angles (section A B on plan) with another ditch or pit lying close to the angle so formed. (O/S. TL. 9048 3262). See plan below.

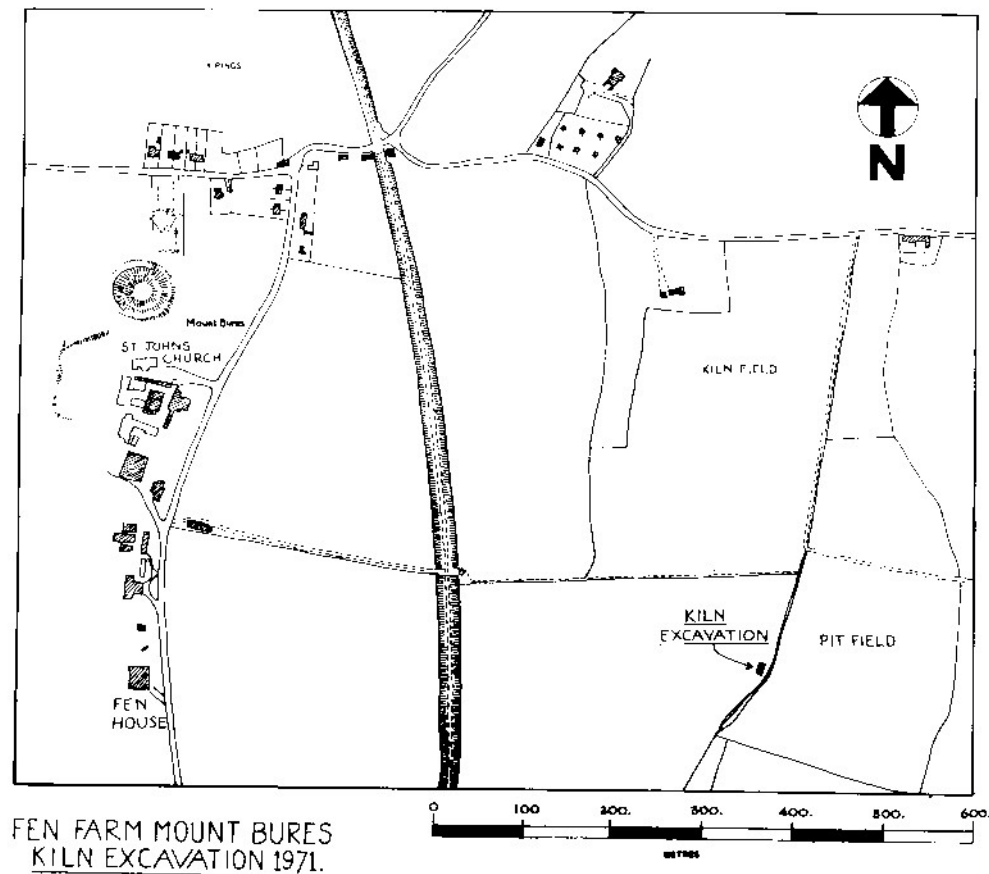
The soak-away wall was then cut back (A C on plan) to line up with the run of the existing 2 feet wide drain trench. The same features appeared in section. At points marked 'T' on the plan three narrow trial trenches were cut, and in each the ditches were seen to continue. Over the remaining area completed by triangle A G X (the final soak-away extent) some trace of occupation was apparent but the weather and time factors prevented further investigation. Clearly a situation existed here similar to that found west of the Mount in 1969 (C.A.G. Bulletin Vol. 12, No. 3). See plan below. However the domestic pottery was of a much more gritty fabric, having rims of earlier form and more simply everted than those found in the 1969 excavation. As before no glazed ware was present. Mr. John Cherry of the British Museum, to whom the pottery was submitted, considered it of fairly consistent type, and gives a date of late twelfth of early thirteenth century. I am grateful to him for his help and advice, and to Mr. E. May for the plans. Also to all members who participated.

During our 1971 aerial survey, Mr. Tony Fox also noted the presence of several crop mark rings O/S TL 9052/3275 situated less than 300 yards north of the Mount. See plan below. As the year was not good for clear interpretation in that field, any bearing they might have on the possible primary origin of the Mount itself will have to await further photographic or scientific evidence. However the following facts indicate a more authentic constructional stage for this supposed motte.



Roger of Poitou, holder of the manor of Mount Bures at Domesday was the younger son of the 1st Earl of Shrewsbury. I was interested to note that the 1st Earl was none other than that powerful warrior, Roger of Montgomery-Belleme who accompanied his great friend William the Conqueror at Hastings. It is plain from the bloodthirsty records

of the warlike Earl Roger and his fearsome sons, that they were the most likely people to have fortified and built the Mount. Particularly when one reads that their main pre-Conquest family castle stood at Bures sur Dives* near Caen in Normandy. The lack of latter refinements such as stone curtain walls or keep around our Mount, may place it in the 'secret weapon' category of the actual Conquest year. (Whilst the main army surged onwards, here was a rearguard point probably complete with wooden tower). And a foundation stone dated MLIX "as appeareth on the porch" according to a 1705 church return for Mount Bures, may well bear witness to the many recorded Norman atrocities, for no church appeared here under the Domesday Survey less than 30 years later. The stone was gone, or covered by Morant's time.



Bibliography:- Anglo-Saxon Chronicle, edited by D. Whitelock.
Dictionary of National Biography. V.C.H. Domesday section.
The Saxon and Norman Kings, by C. Brooke.
Notes supplied to the Bures Womens Institute by a resident of Bures sur Dives, Normandy.
Notitia Parochialis, in Lambeth Palace Library.

* Not to be confused with Bures on Bray near Sauqueville

A ROMANO-BRITISH TILE KILN AT MOUNT BURES, ESSEX.

by P.R. Holbert

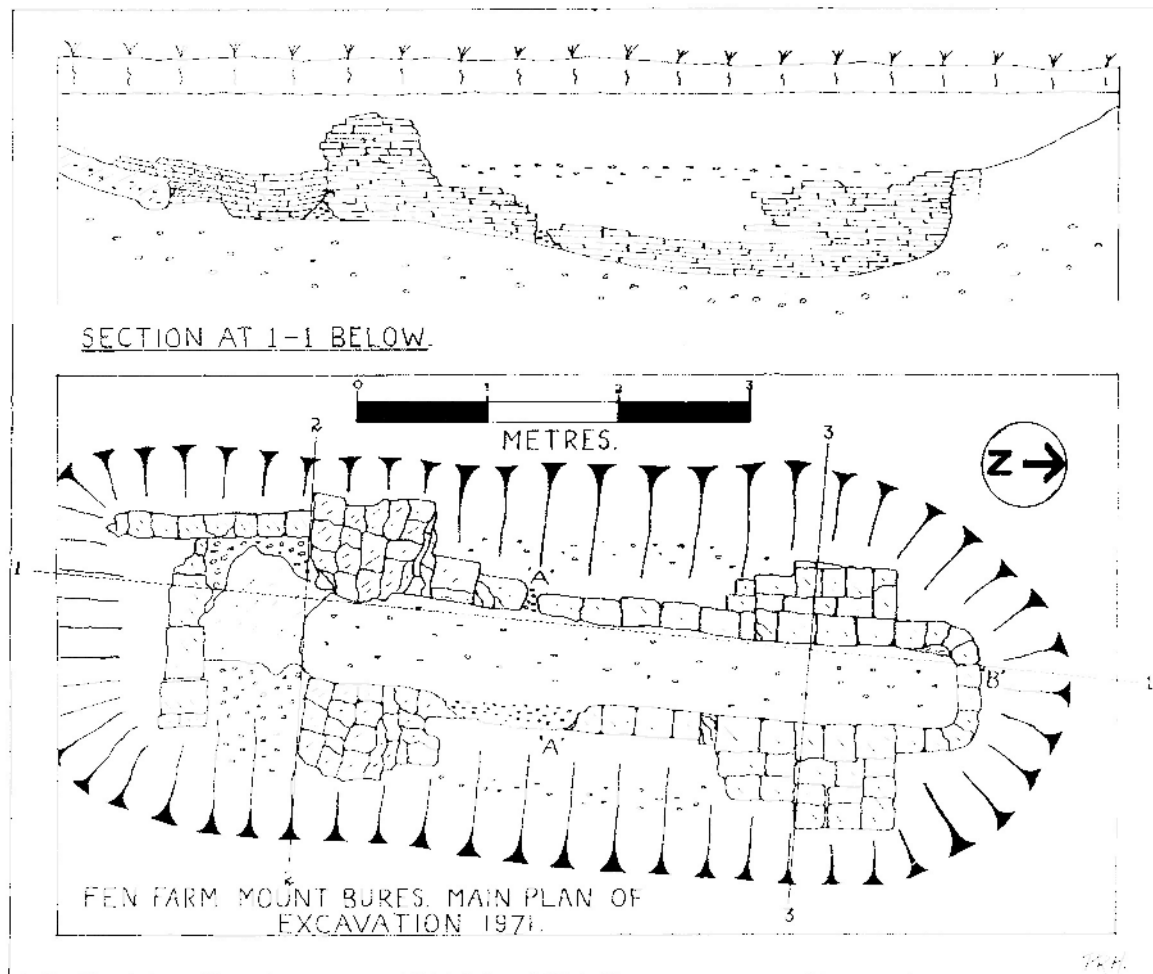
The location of this find is on land belonging to Fen Farm, Mount Bures, Map. ref. T.L. 912322. See map below.

The site is on the west bank of a small stream flowing approximately south to north with arable fields gently sloping down on either side. Roughly one half mile to the northwest is the well known local landmark, the Norman Motte.

Tile fragments show up regularly after ploughing and the presence of a tile kiln was suspected by Mr. M.R. Hull when he paid a visit to the site some years ago.

Early in the 1971 season, Dr. Tite of Essex University carried out a proton magnetometer survey of the site and pin-pointed an area of buried structure.

After excavation, this structure proved to be both puzzling and disappointing. Obviously a kiln of sorts, but so incomplete that its purpose can only be conjectured.



Summary

Remains of a probably 2nd century Romano-British tile kiln, either destroyed on abandonment, or robbed out for building material in antiquity.

Structural Remains

The structure, consisting of tiles, mainly of the flat roofing tegulae type laid with clay joints, was built into a 'V' shaped trench roughly 9 m. long and 3½m. wide and 1½m. deep, dug into the gravel bank of the stream.

A flat bottomed tile-lined flue 5 m. long and 2/3m. wide had been built into the bottom of the trench along most of its length.

At either end of the flue, built up the slope of the trench sides, were four "piers" of masonry of varying heights.

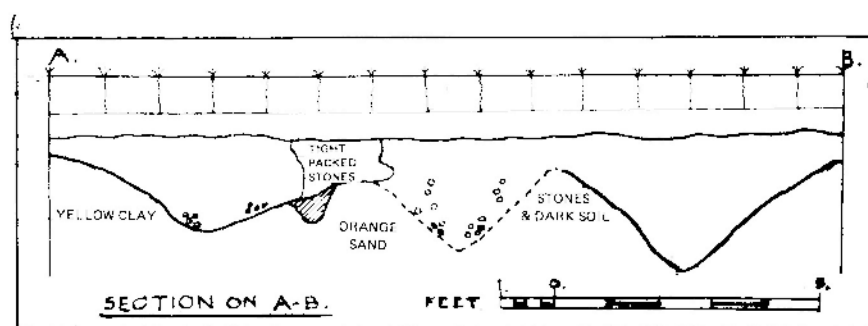
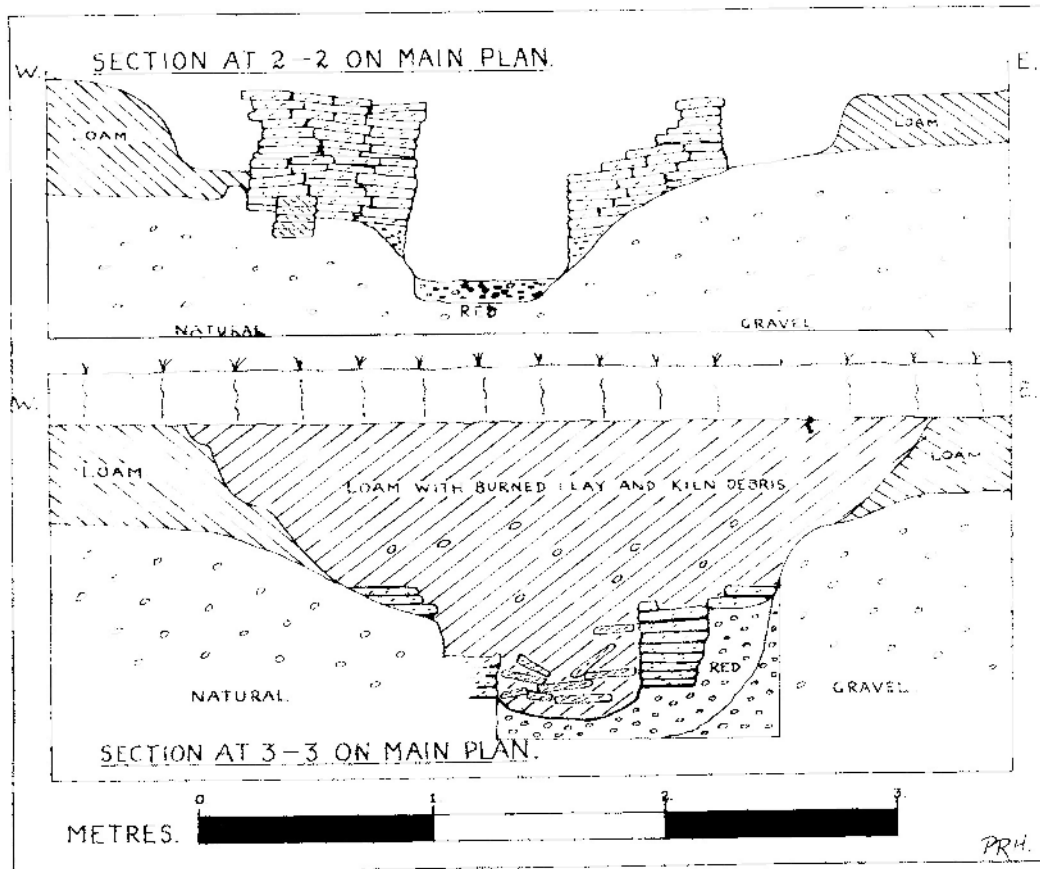
At the southern end of the trench was the stoke-hole pit with remains of a retaining wall built against the western, uphill side.

At the northern end of the trench the flue projected beyond the masonry "piers" to terminate in a rounded end.

The structure varied in quality of build, pointing to partial reconstruction or repair from time to time.

The flue (probably original) was neatly constructed of flat tiles and showed evidence of considerable use, the tiles being burned bluish-black in colour.

A peculiar break in the construction and slight change of line at point 'A' see Main Plan, may indicate an extension or addition in length, alternatively this could merely be the result of heat distortion. The piers in their lower courses were quite neatly laid but in the upper levels deteriorated into an untidy mess. It was evident that these piers had lost some measure of their original height and may have met over arches forming the end (front and rear) walls of the kiln.



ACKNOWLEDGEMENTS

Our grateful thanks are due to Mr. & Mrs. McMaster, who farm the land, for their help and co-operation, also to all the C.A.G. members who worked so hard on the excavation.

DISCUSSION OF THE EVIDENCE

The biggest single problem was trying to decide on such little evidence, the type and original form of the kiln. There was no indication of any internal structure such as lateral supports for a conventional oven floor, neither were

there remains anywhere on the site of floor material. This does not of course preclude the original presence of an oven floor, as the material may have been scattered at the time of the destruction, not being useful for any purpose. It is just possible from the general dimensions to conjecture a fairly orthodox, if primitive, example of the rectangular up-draught type of tile kiln. Perhaps a civilian attempt to copy a standard Roman Military type. (See C.A.G. Annual Bulletin Vol. 14 March 1971 for comparison).

One very puzzling feature was the projecting "apsidal" end to the flue at the north end, see 'B' main plan. Obviously, this was intended to provide a through draught. This would certainly be undesirable in an up-draught kiln, and would indicate a quite different principle.

It would appear a possibility that the firing material (brushwood) was packed into the length of the flue trench, the tiles being laid along either side and interleaved over this firing, the whole being then covered over with earth (a great quantity of which, burned bright red, was found over the site). The firing material would then be ignited at the "stokehole" end and would burn through along the length of the flue, the apsidal end perhaps being built up in the form of a chimney to provide a forced draught. The "piers" meeting over in the form of arches would serve as retaining walls to confine the whole. The author would personally favour this theory in preference to the up-draught principle.

The presence of a tile kiln in this isolated area leads one to suppose that in Roman times some sort of habitation must have been present fairly adjacent to the site, perhaps we should be looking for a farm or villa. To date aerial photography has failed to show any trace of this.

Tile and pottery fragments show up after ploughing over a wide area.

An ancient map of the district supplied by Mrs. McMaster shows the field to the east on the opposite side of the stream named as "Pit Field", this could indicate a survival of the pits made in the digging of clay for tile making.

PRODUCTS OF THE KILN

Examples of four different types of tile were found on the site, the flat flanged roofing tegulae, the rounded imbrex, the flat building brick type, and the box shaped flue tile.

It is not possible to state definitely that these were actual products of the kiln as they may have been originally part of the structure, perhaps rejected when this was "robbed out". Even so, it is almost certain that all these types would have been manufactured on the site.

POTTERY

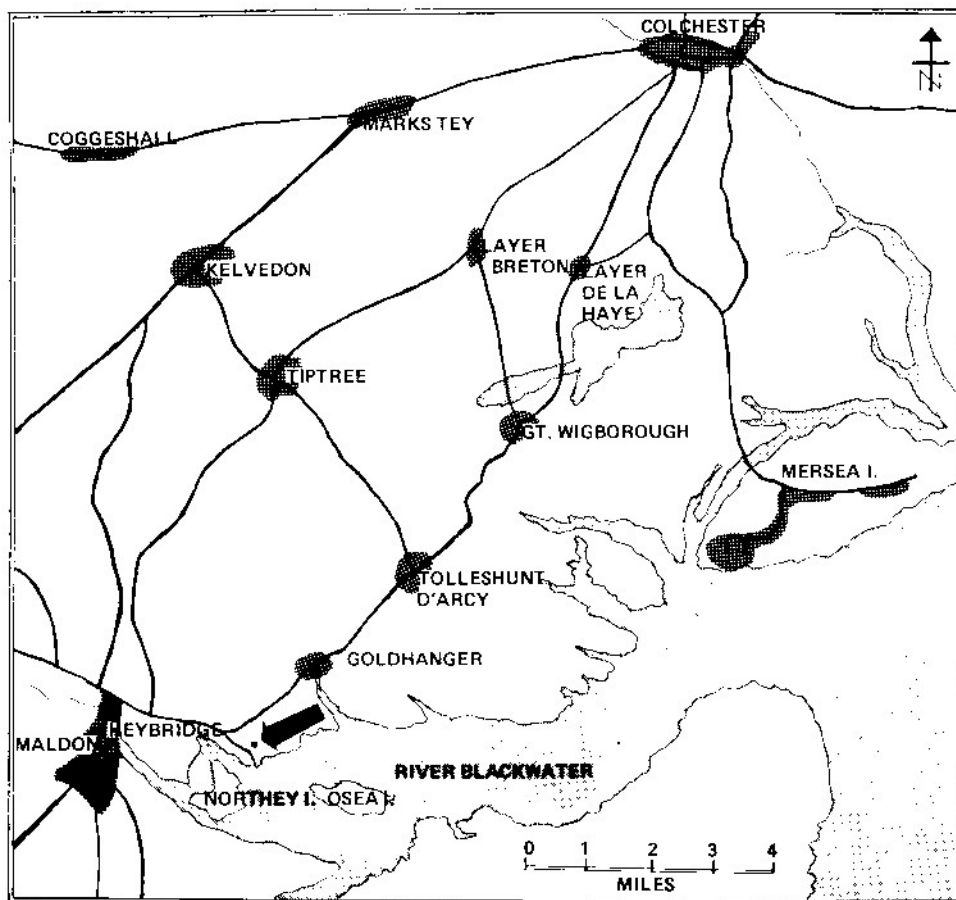
Fragments of two examples similar to Form 277 cooking pot (Hull, Roman Potters Kilns of Colchester) in coarse hard grey ware were sealed beneath ash levels in the stoke hole pit.

Fragments of three examples of a type similar in shape to Form 40., straight sided dish or platter (Hull, R.P.K. of Colchester) but red in colour, two examples coarse and gritty, the third being much smoother and finer ware. The latter were found in debris filling of the flue.

PRELIMINARY REPORT ON THE EXPLORATION OF THE RED HILL AT OSEA ROAD, MALDON, ESSEX **by Kay de Brisay**

The site occupies the whole of a small irregularly shaped field of nearly four acres lying just within the Maldon Borough boundary. It is situated on the east of the road leading from Goldhanger Road (B.1028) to the causeway across the River Blackwater to Osea Island (O.S. TL887075). The land is owned by Mrs. G. Burbidge of Wolvey Hall, near Hinckley, Warwickshire, but farmed by Mr. Ralph Speakman, Vaulty Manor Farm, Goldhanger, and Mr. Nevil Bamber J.P. of White House Farm, Tolleshunt D'Arcy, to all of whom we owe our grateful thanks for permission to excavate and for their kindness and co-operation throughout the dig. Many years have been spent surveying the Red Hills along this stretch of the Essex coast but this was the first opportunity to carry out an actual excavation.

MALDON AND THE RIVER BLACKWATER

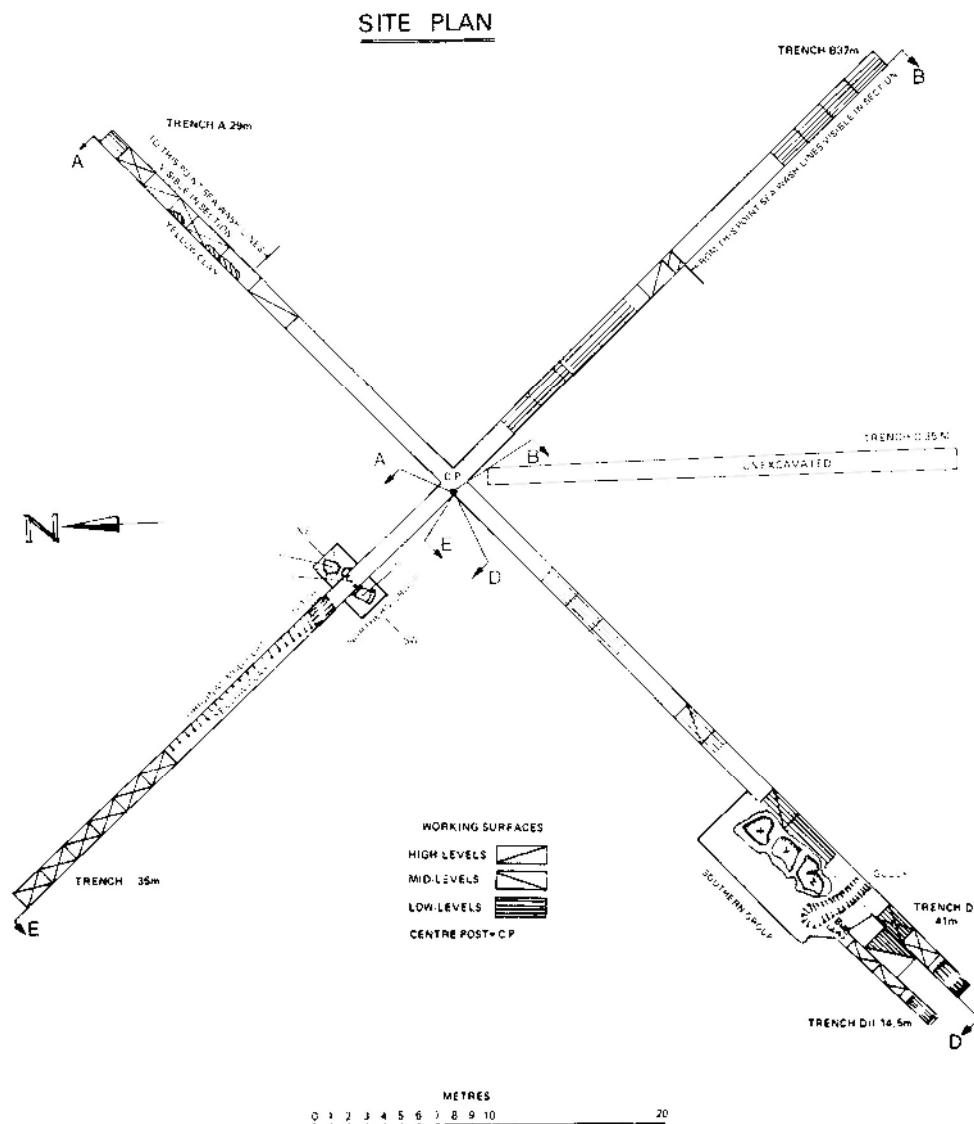


MARKING OUT (See Site Plan below)

The marking out of the site would not have been possible without the assistance of Mr. George Brenchley and Mr. Stewart Bell of the Aerial Research Unit of the Ministry of Agriculture, Fish and Food of Cambridge. From their admirable aerial photographs it was possible to delineate the strongest marks in the field and it was over these we decided to put down our exploratory trenches. With the aid of panchromatic and infra-red prints the old creek lines in the surrounding fields were clearly visible also, although the land had been reclaimed many years ago when the first sea-wall was built and, indeed, the irregular boundary ditches on the north and east sides of Red Hill Field would seem to follow ancient creek lines. The survey carried out later established that the centre point, where the two trenches AD and EB crossed is five metres above present ordnance datum. Taking the existing land linkage as one inch a century, the old level would have been about the same as the surface level today.

Our first step was to mark out a square, the sides of which measured 75 m. Where the diagonals crossed a post was inserted to mark an arbitrary centre point (see plan and sections below where it is indicated as "CP". A line of red earth was put down one foot inside the diagonals and to this the JCB driver lined his king-post. Using a three-foot

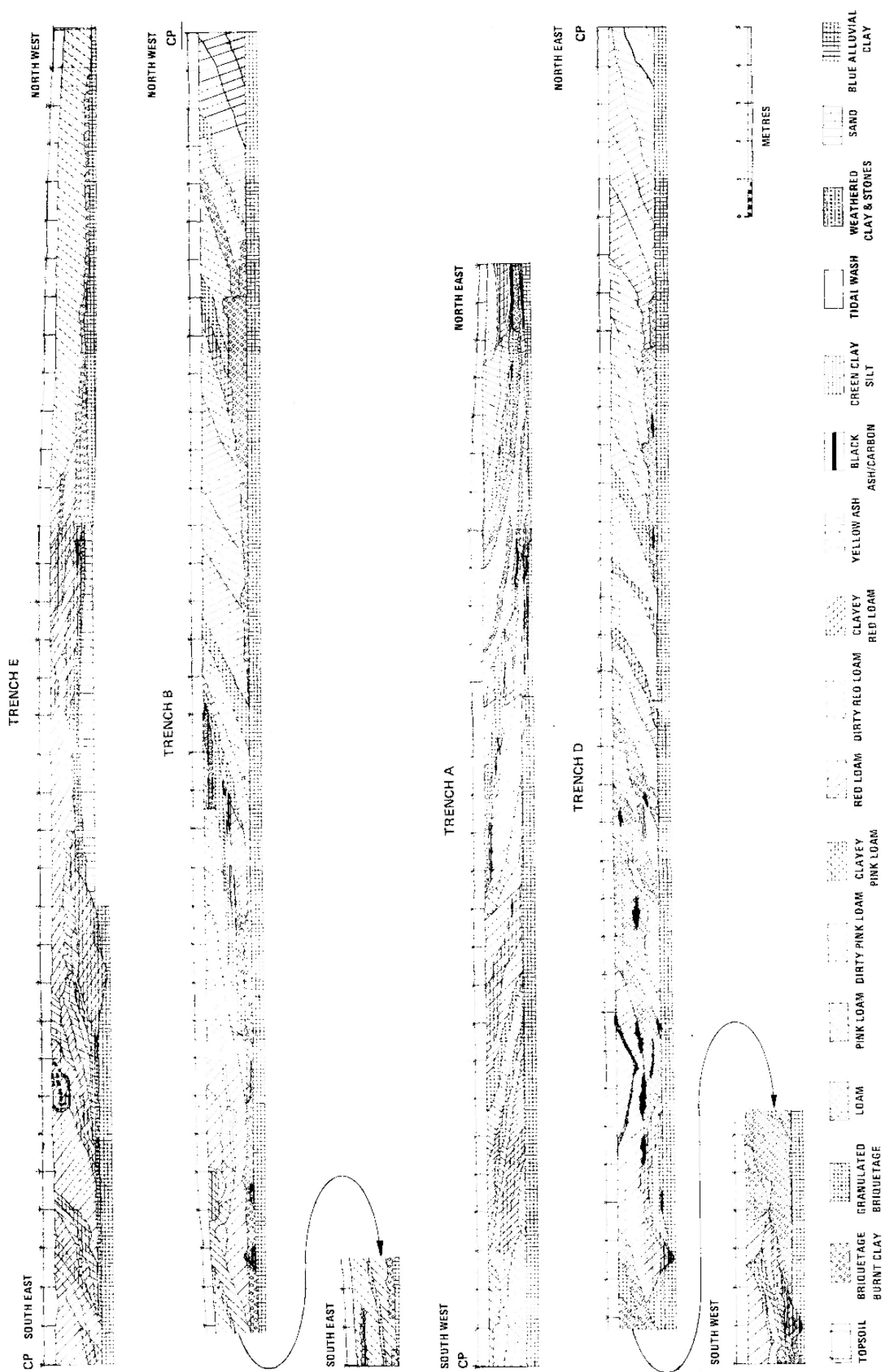
bucket with no teeth, starting from the centre and moving backwards and outwards, a clean clear-cut trench was achieved. Generally, the full depth of about one metre down to the grey-green alluvial clay was excavated, but in some places, where the briquetage was particularly dense, it was left at a higher level to be excavated later by hand. We were fortunate to have Mr. Kerrison as our driver who was accustomed to archaeological sites and took a keen interest in the operation. Four trenches were dug to follow the diagonals and one extra. Starting from the north, these are identified as A, B, C, D, E in clock-wise order. Thus A and D follow the same line as do B and E. The extra trench did not appear to contain anything of importance and, as time began to run out, was not excavated.



THE SECTIONS

The first feature to become strikingly apparent in the sections was the tip lines. Freshly cut, these showed up with startling clarity in varying shades of red, each sharply defined. It follows that some explanation is needed of the descriptive symbols. For want of a better word the red earth, which should be considered as industrial waste, has been called loam, red or pink, dirty if mixed with carbon or ash, clayey if mixed with clay. The term 'Briquetage' covers the burnt clay of the working surfaces, the coarse porous sherds of the salt drying vessels, the pedestals and the firebars, more minute differential is not possible on this scale. The other terms are self explanatory.

In all trenches it was noticeable that an area roughly surrounding the centre post consisted of waste only and that generally the briquetage appeared towards the outer extremities. This was particularly dense in Trench A where there were considerable signs of burning; the ash being not only black but white, yellow and mauve also. Another feature in this trench was a slight dip some two and one half metres in width with clay silt at the bottom, which may have some connection with a possible creek in the angle made with this trench and Trench E towards which the latter appeared to descend. The outer extremity of Trench A showed several sea wash lines and this was repeated to a greater extent in Trench B. Trench. D also had a great density of briquetage with the outline of a clay-lined trough in the



western wall; an active gully in the blue clay at the bottom of the trench some three metres beyond and, at the outer end, a decided dip in the clay which may be a ditch, but water did not drain out of it. The trough and the gully will be dealt with in detail below under the heading of The Southern Group. Trench E also showed sections of clay lined troughs in both walls and these are described more fully under The Northern Group. The other features of Trench E included another possible ditch which also held water; the contour of what may be an original salting consisting of dirty yellow clay mixed with stones, resting on sand sloping down to the north where there may be a creek lining up with the depression in Trench A, mentioned above; it is notable that the Northern Group is in close proximity. Two possible post-holes show where the salting meets the western lip of the ditch.

A feature which all trenches had in common was the appearance of a powdery white film over the surface as some of the tip lines dried out; this was particularly noticeable in those marked 'dirty pink',

THE WORKING FLOORS

Taking as a premise that the known furniture of a red hill consists of pedestals, firebars, briquetage sherds (from which large rough containers are made) and the red waste, it must be assumed that some industry took place on these sites resulting probably in the manufacture of salt. The briquetage sherds are always of red porous clay which appears to have been shaped with an admixture of organic material such as straw, sometimes with the ears still attached, hay, strong stemmed plants and small sticks. Many have a coating of some white material which has not yet been identified and some are covered with a shiny green glaze. There remains, therefore, the problem of where the actual salt drying took place.

Taking into account the extreme friability of the waste material and the effect on it of wind, rain and the sea, we did not expect to find any structure with solid foundations; the whole site resting as it did uneasily on the salt marsh; but some fairly settled surface must have existed for long enough to dry the salt sludge after its removal from the evaporation tanks. A careful examination of the trenches revealed some surfaces resembling floors, albeit rough and uneven, apparently made of lumps of wet clay. It would seem that the pedestals were positioned on these surfaces, the bases firmly wedged and the heads supporting the salt drying container; no doubt a number of pedestals would be required for each and the different length of stem would compensate for any unevenness in the floor. A comparatively gentle brushwood fire would be enough to dry the salt sludge sufficiently to crystallise it. Although the pedestals and containers would have been fired previously, the clay floors were burnt in situ. It was observed that the clay was burnt red to a depth of 3 - 6 cm. and, though the lower part might still be of unburnt material, some of the surfaces had become vitrified and had retained the imprint of the wood used as fuel. Some roughly circular smooth white patches were also observed which are more fully described in the section on Pedestals.

The substance of the red burnt clay was quite different from the porous clay of which the containers were made being solid throughout and those parts which had not been exposed to the most intense heat crumbled to red dust when left out to the action of sun and water. Several patches of black ash were found on these surfaces and some pottery sherds which, in some cases, were sealed under a thin layer of clay silt.

These working surfaces, if such they are, appeared at roughly three levels and are marked accordingly on the plan. It is hoped to obtain more information about them during the second year of excavation.

THE EVAPORATION TANKS

In describing the sections above we mentioned the outline of a clay trough in Trench E where it appeared on both sides, and in Trench D where another appeared on the western wall only.

Accordingly a rectangle 2m. x 1½m. was taken out on the south-west side of Trench E behind the place where the trough outline appeared. Traces of clay emerged immediately below plough level interspersed with a dirty red infill. Careful removal of this revealed a clay lined tank with an average diameter of 1m. 20 cm. and a depth of 15 cm; the clay was greenish grey in colour and stone free and had been carefully shaped to line the pit. Various lumps of clay at some of the edges seemed to suggest wall collapse at some time and the tank walls might well have been higher originally. The average thickness of the clay was 10-15 cm. To the north of this tank and partly underlying it at a lower level was the segment sliced through by the trench. This was cleared of infill as was the remaining segment on the north side of the trench. Further investigation on the north side of the trench revealed another pit similar to the first. Traces of one or two others were found adjoining but these were too close to the surface to determine shape or direction. These tanks are marked U, V, W - Northern Group on the plan.

Two days of rain occurred at this point and the efficacy of these clay lined pits to hold water became obvious. The rain also illustrated another interesting point. In all the trenches where the lowest clay level had been reached and in the ditches in Trench E and at the end of Trench D the water collected in pools and was very slow to clear; but at one

point in Trench D, 3m to the south of the clay trough outline, there was a small ditch in the clay from which the water had drained away rapidly and completely.

A JCB belonging to the Essex River Board happened to be working on the causeway to Osea Island and was unable to operate at high water. While waiting for the tide to subside, the driver very kindly agreed to dig a further small trench (D II on plan) and we were able to pick up the gully again. At the same time traces of clay similar to that of the pits in Trench E were found. Clearly this was a find of some importance and the whole area was carefully excavated from the surface. This resulted in a rectangle to the west of D I, across Trench D II and measuring 9.6 m. x 3.6 m.

The chief find here was the discovery of three clay lined tanks (marked X, Y, Z, Southern Group on plan) larger and deeper than the Northern Group in Trench E and of more solid construction. In close proximity to Tank Z the gully terminated in a circular basin which appeared to have been man-made. While the tanks were made of puddled clay, the gully was part of the basic blue clay; the sides sloping up and ending in an undercut lip which could have been due to the action of water. (See plan and section below)

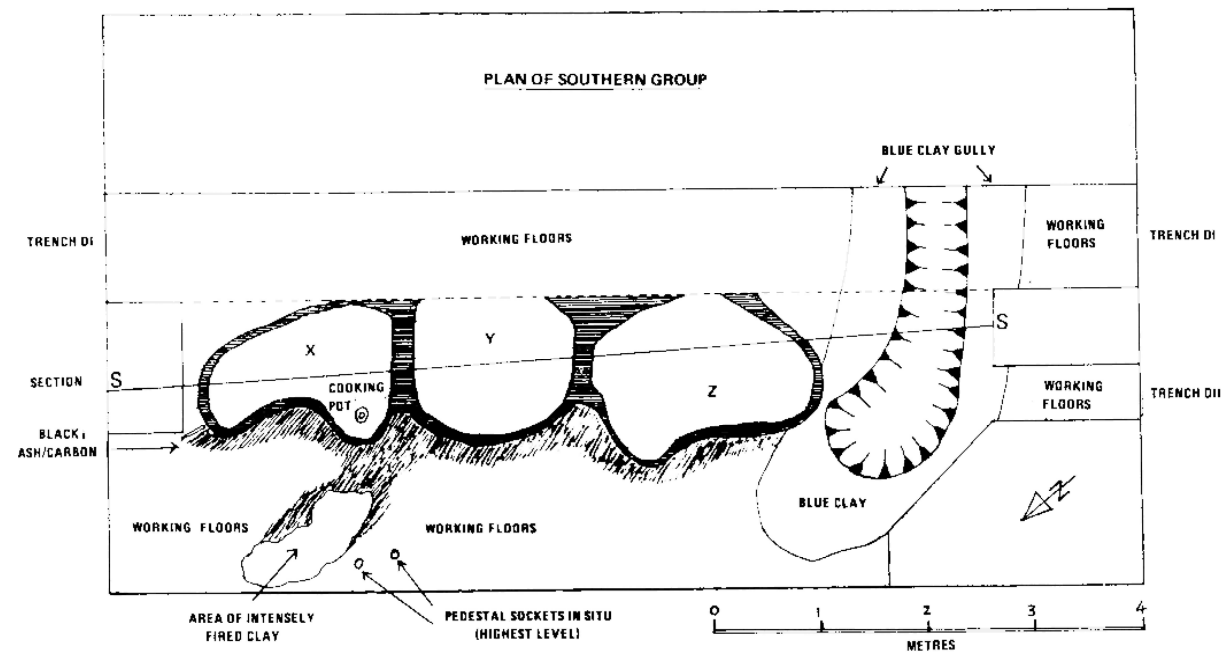
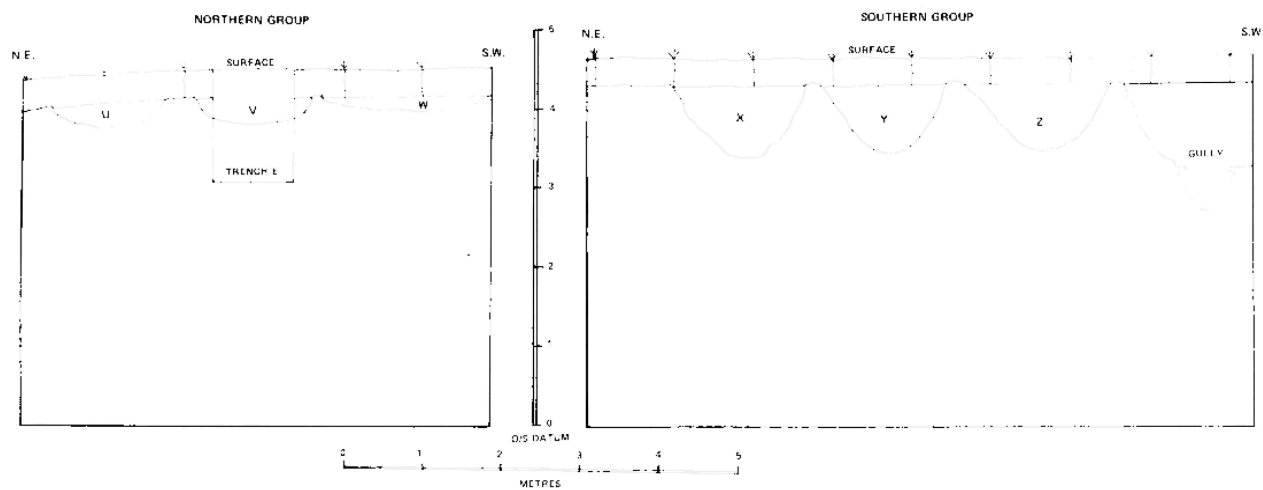
In Trench D, to the south east of the three tanks, X, Y, Z, were several layers of burnt clay interspersed with patches of black ash and carbon indicating a series of working floors, the lower levels of which appeared to extend under the tanks. We did not examine this further because it had been agreed that the tanks should not be destroyed but filled back carefully in order to preserve them. The blue clay into which the gully was cut appeared to underlie all these floors including the several layers found to the north west of the tanks. Some areas of the burnt clay of which these were constructed were considerably harder than the rest, indicating more intensive firing. This was particularly noticeable against the tanks on this side as if purposely fired to afford a strong buttress to the sides of the tanks. Strong indications of burning were also found here and it is possible that the clay surrounding the tanks was fired several times, or even continuously, in order to hasten evaporation by conducted heat; on the other hand it would be readily accessible to continue the process of drying the salt alongside the actual source of the salt sludge. There was one area of particularly hard burnt clay opposite Tank X where the clay had passed through the hard red stage to purplish white. While removing this, one large lump broke in two and a cut stake (as opposed to a whole rounded stick) was found inside. On the highest level above this point two pedestal sockets were found, one with the broken base of the pedestal in position.

While carrying out the excavation of the Southern Group Complex by the gradual removal of the infill, a feature became apparent over the extremity of the gully. This was a semi-circular sloping surface centred on the gully and covered with a layer of fine silvery sand which we took to be a beach surface just as the sea had left it; similar levels occurred beneath and these sea wash lines were also visible in the section. It should be remembered that the red waste is exceedingly volatile and would soon fill ditches, gullies and other cavities and this could have happened several times while the site was in use if, for some reason, work was suspended for a month or so.

There was an interesting change in the tip line pattern in this Southern box. Whereas those in Trench D sloped up to the north, those in the box sloped up to the west which seemed to show a large depression in this important working area centring on the gully; on the other hand the tip lines in the top soil of the Southern box, when drying out after rain, sloped in the opposite direction.

Besides the cooking pot found upside down in the bottom of Tank X, many Belgic sherds were found in the working floors in the Southern box, but only early Roman sherds were found in the gully. Part of a pedestal stem was found at the bottom of the gully at its junction with the west wall of Trench D.

TANK SECTIONS



SURVEY OF THE SITE

At this point it was decided to enlist trained assistance to determine O/S datum. Accordingly Mr. R.B. Denham, Senior Mathematics Master at the Gilbert School, Colchester, and three senior boys; Graham Cook, Neil Gilbranch and John Light; came out to the site on 8th November. Flying levels to the centre post from a spot level on the Goldhanger Road, marked 10' on the six inch O.S. map, sheet No. TL 80 NE. The co-ordinates of the spot level on this sheet are 083882. The lay out of the trenches was also checked. We are very grateful to Mr. Denham and his pupils for their help.

WORKING EQUIPMENT

THE PEDESTALS

On the first day the JCB excavated a pedestal complete except for one side of the boat shaped head (see p.42). In the past there was some idea that there were two kinds of pedestals:- mushroom-shaped and 'T' pieces; it was now resolved that the two shapes were, in fact, the two ends of the one object. This was the only one found complete and it was not possible to reconstruct any others from the other pieces found subsequently. But it can now be assumed that the pattern of the pedestal consisted of a mushroom shaped base, a stem and a boat-shaped head. This is born out by the fact that the ends found attached to stems were generally heads and that the bases being exposed to more intense heat and possibly adhering to the floor surface, were more often broken off as the working sites were dismantled or renewed. An assessment was made of the pedestal parts found and the result was as follows:- (omitting the complete one). There were fourteen mushroom bases with no stems, diameter 8 cm - 12 cm; sixteen heads with attached stems of lengths varying from 6 cm - 30 cm, the breadth of head from point to point varying from 6 cm - 10 cm; and sixteen stems the lengths of which varied from 8.5 cm - 22 cm.

THE PEDESTAL SOCKETS

Mention of these has been made above; circular marks of white hard fired clay appeared on some of the floors at more or less regular intervals; this was particularly noticeable in Trench D. In the Southern box, as marked on the plan, two such sockets were found. One was complete with a smooth, flat vitrified disc which exactly fitted the pedestal base found in it; the edges of the disc were raised and convoluted; the other was not quite so complete.

THE FIREBARS

No complete firebar was found and, for the purpose of assessment, we have sub-divided the fragments into points and middles; there were forty-five of the former and twenty-eight of the latter. Thickness varied from 2 cm - 3.5cm. and the height at the centre of the middle 4 cm. - 8 cm. In addition three triangular wedges were found, incomplete. We could find no evidence to suggest the use of these firebars.

THE SALT CONTAINERS

Although many sherds were found, it was not possible to make a true assessment of the salt containers because time did not permit the thorough sifting of the spoil heaps. However all that could be were collected and sorted and put into plastic bags measuring 80 cm. x 50 cm; of these there were fifteen bags containing body sherds and half a bag each of rims and bases.

An important aspect emerged from the study of these sherds. Some very large thick pieces were found consisting of the turn of the base and wall of a salt drying vessel, and, in some instances, one face showed clear signs of wattling or trellising; that is the application of sticks to the clay when wet, followed by the burning of the sticks in firing, leaving deep furrowing in the fired clay. One heavy rim sherd also showed this. A reasonable explanation could be that the sticks were used to strengthen the vessel when wet and to facilitate the subsequent removal to the place of firing. We are aware that this phenomenon used to be called 'luting' but this term is more properly applied to the use of plastic clay for sticking things together or the caulking of joints when it is applied by the fingers leaving finger grooves; it does not seem justified when found on part of a heavy briquetage vessel.

Swinerton¹ suggests the use of firebars as 'dividers' in the salt drying vessels to ensure uniformity of salt cake and we did find one body sherd which had an indentation which could have been made by the point of a fire bar; but none of the firebars we found show any signs of having been in contact with salt. Another sherd had a small broken piece attached to the internal surface by firing and one had a half section of a shaped hole with a diameter of about 1 cm.

It is difficult to visualise, however, the use of unfired containers, even in a leather hard state, to dry the salt sludge and, in the process, to be themselves fired; it is more likely that they were made on the site from local clay and purpose fired, also on the site, before being used in the final stage of salt production.

THE RED WASTE

As far as we can tell no satisfactory explanation has yet been forthcoming as to how the Red Hills of North Essex accumulated such a large amount of red earth or waste. In the case of Osea Road there was an average depth of nearly a metre in spite of ploughing and erosion and the gently mounded contour is visible today.

We are indebted to Mr. R.A.H. Farrar, M.A., F.S.A., of the Royal Commission on Ancient Monuments who gave a lecture to the Group on 6th December 1971 on Coarse Pottery during the course of which he mentioned "bonfire" firing where the material to be fired is stacked in an open space, mixed with and covered by fuel. Mr. M.R. Hull, M.A., F.S.A., who has acted in a consultative capacity throughout, remembers a similar instance during the excavation of Camulodunum and we are grateful to him for allowing us to quote him as follows:

"In 1938-9 the work on the Sheepen site was concerned with areas K and L. In one of the L trenches, about the middle of the field, we came upon an intensely black layer of ash and charcoal, ten to twelve inches thick. This was sufficiently intriguing to cause us to uncover it as an area. It was irregularly round in plan and not less than twelve feet in diameter. In the black material we found nothing, except that in the middle there stood a Belgic cooking-pot which was a fused and cracked waster. The site is marked L.2 on pl.cxi Camulodunum. The burnt deposit was south of "L.2" on the plan and on its west side stood remains of a turf wall

At a recent meeting of pottery enthusiasts at Essex University there was much talk of early kilns at Rushden which apparently began as clamps at ground level which must have been surrounded by a turf wall. There was no kiln proper. The ware was of Gallo-Belgic character. The Rushden kilns were small, not, I think, bigger than the average Roman kiln, but the earliest examples were above ground and no more was preserved than a small area of burning (burnt clay subsoil) with potsherds and fragments of firebars lying on it. No wall existed - at least there were no traces, but the bars could not have been used without something of the sort. So the general idea was that there must have been a turf wall around each.

Now my area was very large, and while one may doubt whether it is good to call the Rushden objects kilns, they are more of that character than what I had, which was the remains of a really enormous bonfire. If it had turf walls round it they must have enclosed a considerable area, and there were no firebars."

Hodges mentions bonfires in his section on kilns and also updraught kilns where firebars are used in a circular pit with a central support. Reference to both these methods are also made in the Oxford History of Technology³ but there might be problems on a site in the salt marshes. For instance there would probably be no turf available and if one dug a pit it would fill with water. It may be that the burnt clay areas we take as working surfaces were, in fact, the bases of bonfire firing sites; but if this was the case one would expect to find more firebars in association with them.

If some form of open firing was used on the site and that not only the salt-drying vessels but also the pedestals and firebars, and possibly domestic pottery also, were fired in this way then we may have an explanation for the red waste. Taking into consideration the basic material on which the firing was carried out and if turf was imported to make walls and possibly roofing then all this would add to the accumulation of red waste and if firebars were used this would account for their presence. We can only hope we will be able to obtain more information on this during our second year's investigation this summer.

¹ H.H. Swinnerton (1932) "The Prehistoric Pottery Sites of the Lincolnshire Coast", *Antiqu. J.* 12,239-253.

² Henry Hodges 'Artifacts' 36

³ Oxford History of Technology Vol. 1 391; Vol 11. 295

REPORT ON THE GEOLOGY & ORGANIC REMAINS

by J.J. Heath

GEOLOGY

The site was examined with a view to determining something of the geological history of the area. From the aerial photographs it was obvious that, the area had at some time been an area of creeks and salt marsh, though the state of development of these at the time of occupation of the site was not known.

An examination of the excavated trenches revealed thin silty layers occurring occasionally between the layers of red waste and that, generally, the bottoms of the trenches reached a clay substrate. With the aid of an auger a number of cores were taken from the floors of the trenches and along the north and east sides of the site. From the samples obtained it became clear that the deposition of the salt marsh continued during the occupation of the site there being thin layers of ash and occasional small pieces of charcoal in the areas of marsh deposit.

The general surface of the marsh deposits was fairly even in the north-east area of the site, with a sharp rise in land surface only towards the centre of Trench E. Here a line of close boreholes revealed a series of deposits similar to those found at the junction of salt marshes with sandy beach, with interleaved layers of sand clay and gravel indicating a raised area of marsh that would probably have been above normal high tide level at that time. (See site plan.)

FOOD REMAINS

These were very sparse, presumably most had been burnt. Of the few bones found (about twenty) nearly 50% had been burnt. The identifiable fragments represent the remains of at least one sheep and one bovine. The associated remains of some very immature animals were found in a pocket in the clay, these are possibly of some wild animals and not connected with the occupation of the site, though unfortunately an identification of them has not been possible yet owing to the lack of comparative material from suitable species. One mussel shell and four oyster shells were found, their use as food cannot be assumed without other evidence, as both species are common on many beaches in the area.

CHARCOAL & OTHER PLANT REMAINS

A quantity of charcoal was recovered, this will require detailed expert examination which has not been possible to arrange yet. The impressions of small stalks or grasses have been found but it has not been possible to identify these specifically.

REPORT ON THE SUGGESTED LABORATORY EXAMINATION OF THE OSEA ROAD RED HILL MATERIAL

by K.W. Richardson

INTRODUCTION

A number of specimens have been submitted for examination from the above locality, and include the following:

- Alluvial Clay;
- Primeval Beach
- Pedestal Head and Base
- Firebar
- Briquetage with Salt Glaze
- Briquetage showing wattling
- Red Earth from trench Field
- Top Soil
- Vitreous Clay

It is proposed that a number of laboratory tests be conducted upon these samples in an attempt to define more closely the manufacturing history of the processed material, to that already deduced from visual examination. For this purpose the samples include 'clay' types local to the dig, which it is suggested were the raw materials.

It is currently believed that the site represented a primitive marine salt extraction plant. Tentative calculations are proposed in an attempt to give a semi-quantitative assessment of this suggestion.

The following brief notes are, it is hoped, presented in a style acceptable to the experts, and understandable to the "uninitiated"!

RESUME OF WORK TO DATE

Little data is as yet available from laboratory work. However the first sample submitted for analysis was an 'Earth' removed from a trench section on the site. Although elemental analysis for Na and Cl was carried out in an attempt to determine association with concentrated brines, results were considered to be inconclusive due to proximity with the present day coast. Furthermore the sample was damp, which would have destroyed evidence of such an association since post carbonate marine evaporites are hygroscopic and chemically highly mobile.

The first sample was size sorted, and the -30 +60 mesh fraction examined microscopically. The sample contained the following:

1. Burnt vegetation fragments
2. 'Fired' granules
3. ? heat affected 'Chalk' lumps
4. Small lumps, apx. 0.1 inches dia. glassy in appearance, and of as yet indeterminate chemistry;
5. Quartz sand particles.

A number of the above would bear further investigation.

FIRING TESTS

Work has begun on two clay samples, one from a Primeval Beach, and the other from a Blue-Black clay found on the site. The technique involves rolling a small grab sample into a ball apx 0.75 inches dia. and firing in a pre-heated unpurged muffle furnace for a few hours.

To date firings at 500 and 600°C have been completed, producing a material not dissimilar by visual examination, to the Briquetage.

MATCHING CLAYS AND BRIQUETAGE

It is intended that firing tests should cover the range 500-900°C. When complete, a small sample will be taken from each of the Briquetage samples and crushed to a fine powder. Both fired clays and Briquetage will then be subjected to Differential Thermal Analysis (D.T.A.). Space prevents the explanation of this technique in full, but it essentially involves the comparison of the exo-endothermic reactions of the various clays in the samples when their structures are destroyed by controlled heating in the temperature range 20-1200°C. The data collected may not only assist in the identification of the source of the clay for the Briquetage, but may give an indication of the temperature at which the Briquetage was fired.

It is recommended that thermo-dilatatory studies be used to support D.T.A. data.

If time permits, certain chemical studies will be carried out on the inhomogenous segregations in the Briquetage.

PRODUCTION OF SALT (Sodium Chloride NaCl.)

The physico-chemical aspects of the evaporation of sea water are not well known as the whole system is a highly complex reaction of interrelating parameters.

From present data on sea water, a few figures are presented with a few calculations. Results should only be taken as a guide, since the theory is highly simplified, imposing high quantitative error.

Natural Sea Water contains apx.30 gms. NaCl. per 1000 mls at a chlorinity of 19000 mg/litre.

The solubility of NaCl in Fresh Water at 20°C is 360 gms. per 1000 mls. Therefore to initiate precipitation, the original Sea Water must be concentrated by a factor of apx. 12 to 14 times.

From the size of the salt pan given, i.e. Dia. 90 cms. depth 60 cms. the maximum volume is approx. 381,700 cm³. Taking the average figure of 30 gms. NaCl per 1000 mls. Sea Water complete evaporation would give a theoretical maximum yield of apx. 11.5 Kgms. (NaCl).

Considering the available data on the evaporation of Sea Water, a maxima of NaCl yield appears at a brine S.G. of 1.236 (original sea water S.G. 1.026) i.e. when the volume has been reduced by a factor of apx. 25 times. At this point apx. 21 gms. per 1000 mls. of sea water initial volume would have been precipitated, i.e. apx. 66% of the theoretical maximum yield, giving a probable practical yield of something like 21 x 381.7 approx. equal to 8 kgms. Salt (NaCl.) for one fill and almost complete evaporation of the basin.

RATE OF EVAPORATION

This is almost impossible to assess quantitatively, since climatic data is either unknown, or is imprecise. In any case evaporation of sea water from an open pan would not be linear even under constant climatic conditions since evaporation rate decreases with increasing salinity. Little data is as yet available for even mono-thermal conditions, although the author is engaged in research committed to quantifying such data.

Commercial data available for Solar evaporated salt in arid regions suggests that over one summer, with repeated topping up of an evaporating basin, a salt deposit of 4 to 6 inches may develop.

However the evaporation rate is controlled by the following factors:

1. Evaporation from large pans may be slower than small basins due to reduction of moisture carrying capacity of the wind from the windward end of the pan to the leeward end.
2. Sea water in shallow basins is raised to a higher temperature than in deeper basins due to bottom surface infra-red reflection effect.
3. Salt crusts may form on the surface of a pan thus reducing the evaporation rate.
4. Air temperature.
5. Humidity
6. Air flow rate over the liquid atmosphere interface.

A realistic approximation might be achieved if a basin of type and shape to those found on the site was left to evaporate over a summer season, although it must be borne in mind that due adjustment must be made for the difference of climate between now, and when the site was in use.

ORIGIN OF SALT IN SEA WATER

Sea water is a complex hydrous chemical system consisting essentially of the cations Na (Sodium); Mg (Magnesium); Ca (Calcium); K (Potassium); S (Sulphur); and the anions Cl (Chlorine) and Br (Bromine). A very large number of other elements are present in trace amounts.

The explanation of the chemical history of the salt in the sea is based upon argument and hypothesis. The arguments are long and involved, but essentially it is believed that the cations, i.e. Na, Ca, K, etc. are derived from the chemical weathering of the rocks over geological time. However scientists believe that this mechanism is not only incapable of explaining the quantities of the anions in sea water, but also the contents of H₂O (water) and CO₂ (Carbon Dioxide). Two schools of thought exist. The first considers that the water mass was derived from the condensation of a primeval atmosphere during the slow consolidation of the earth as a planet, and the second school considers that the water mass, and the associated anion content to be derived from volcanic outgassing of the mantle in the pre-core stage of the earth's history.

However it is estimated that the quantitative chemistry of the oceans remains fairly constant for most elements, which suggests that elements are being removed from the oceans at the same rate as their addition. The Bio-mass is perhaps one of the largest buffers of this chemical system.

It is emphasised here, for the benefit of the 'layman', that sea salt and rock salt are, chemically one and the same, i.e. Sodium Chloride (NaCl.) Sea salt is processed from the sea by solar, or other, evaporation techniques. If this process occurs naturally, such as in an almost completely landlocked ocean basin in an arid climate, evaporation will exceed the rate of supply, thus causing the deposition by precipitation of marine salts or evaporites. The NaCl component is known as Halite or Rock Salt.

There are in fact many salt phases in marine evaporites, although in contrast to the yield of NaCl, the quantities are small. Thus the bulk of natural evaporites is NaCl i.e. Stassfurt-Germany, and the Cheshire salt deposits. For many

years the NaCl beds of rock salt have been worked for salt by mining or by hot water dissolution through bore holes.

NOTE: The full result of Mr. Richardson's findings will be included in the final report by which time he will have had an opportunity to visit the site and to complete his experiments. Mr. Richardson is Senior Technician at the Chelsea College of Science & Technology, University of London and we are very grateful to him for his investigation of this important aspect of prehistoric salt workings.

THE POTTERY (See below)

1. COOKING-POT. Belgic. Hand-made. (incomplete). Diameter of rim 15½ cm. Diameter of base 10½ cm. Diameter at widest part 26½ cm. Height 27 cm. Colour dark grey surface with lighter paste. The rim and neck are burnished but not the base. The shoulder is slightly bulged flanked by an attempt at a cordon 2.25 cm. wide and above this is an uneven row of irregularly spaced stab marks. The whole pot is irregular in shape, the rim uneven and differing in thickness and shape and the body bulge is uncertain. The outer surface is extremely coarse, pock-marked with several small stones and showing marks as if trimmed by a knife. Found upside down and broken in the bottom of tank X in the Southern Group, this very individualistic pot does not exactly match any form in Camulodunum; but it seems to be an attempt at Cam. 231 though the shape is more like Cam. 272.

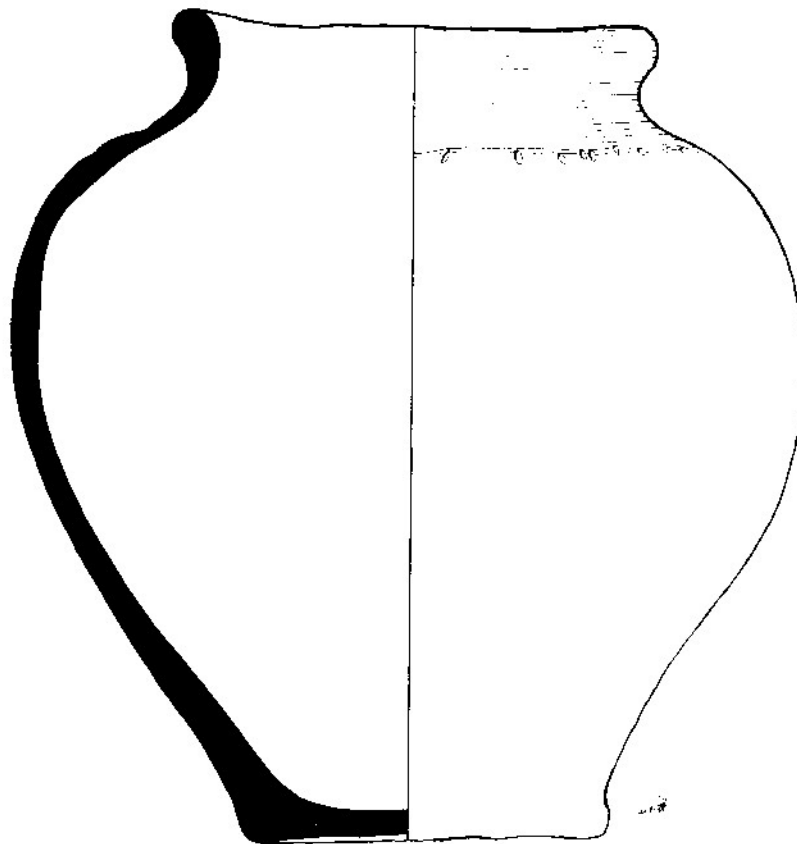
Our thanks to Mr. Hull whose drawing of the pot is shown on page 41.

2. BUTT BEAKER (Incomplete) Diameter of rim 10½ cm. Diameter at widest part 15½ cm. Barrel shaped at both ends. A grey Belgic copy of Cam. 212. Found in the working floors on the west side of the Southern Group.

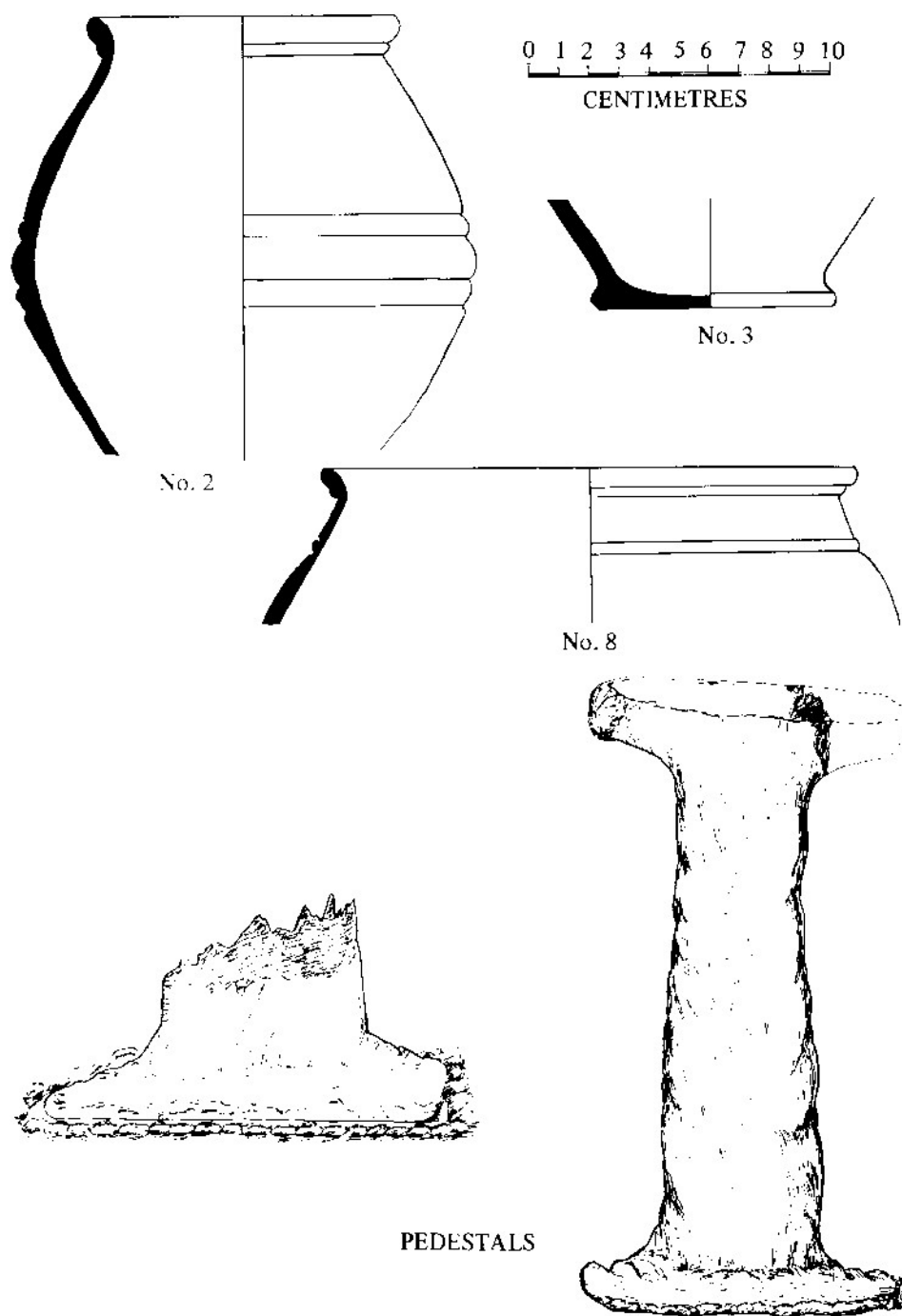
3. About three quarters of the base (diameter 3 cm) of a Belgic pot in black burnished ware with grooved foot rim. On the reverse side a deep groove runs round the outer edge. Found in working surfaces Southern Group.

4. Two joining body sherds of a large Belgic jar with a wide burnished band on one of them. Originally black, now oxidised pink. Found on working floor at north end of Trench D; sealed by thin layer of green clay silt.

5. Very rough heavy base sherd of Belgic ware. Found at the north end of Trench A at a depth of 70 cm.



No. 1



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6. Rim sherd of Belgic bead-rim vessel. Rough dark grey ware. Cam. 259. Not stratified.
7. Rim sherd of a Belgic bowl in very hard black burnished ware. Diameter 15½ cm. Probably Cam. 220b. Not stratified.
8. Rim sherd of Belgic Pedestal Urn in black burnished ware. Diameter 18 cm. Found in working floors of Southern Group.
9. Two rim sherds of a small bowl in hard dark grey ware with foot rims and groove round the edge of base. Diameter 5½ cm. Found in working floors of Southern Group.
10. Sherd of very rough Belgic base similar to No. 5 Found in working floors of Southern Group.
11. Three Belgic sherds which appear to belong to the same vessel. Probably a pedestal urn. Found in working

floors of Southern Group.

12. Rim sherd of Roman Spindle Amphora. Red clay with whitish wash. Cam. 181. Unstratified.

Also twenty-eight assorted body sherds, mostly unstratified and all unidentifiable.

CONCLUSIONS

It would be inappropriate to attempt any definitive conclusions after an exploratory investigation lasting only three months but we were fortunate enough to make certain finds which have helped to clarify the problem and to lead us into a position from which we can tackle our second year's work with more confidence.

Primarily the intention was to cross section the hill in order to study its construction. From this it would seem that the salt-working site was begun on a sand-bank or a fairly dry mud-flat in the salt marshes and that the red waste accumulated from these beginnings. The inward tipping of this waste may have been a method of consolidating a site which would have resembled a miniature peninsula.

It has also become possible more clearly to define the artifacts and their usage; mainly the pedestal with its mushroom base, stout stem and double pointed boat-shaped head and the separation of the porous briquetage sherds from the rest and to recognise it as parts of large salt drying vessels and the use of wattling or trellising to strengthen them.

But perhaps the most important find was the groups of clay lined evaporation tanks and particularly the Southern Group with little gully alongside feeding in the salt water.

Another aspect which emerged was the extreme fluidity of the site which must have been changing constantly with the erosion of wind and weather and ever present sea washing over all or part of the hill in the times of the Spring tides and storms.

The problem of firing methods remains to be clarified and also how the firebars were used.

Finally it can only be concluded that this must have been an important and successful site probably in operation for a considerable number of years and its position in the fringes of the river Blackwater could have resulted in a thriving coastal trade. We look forward to finding out more during our second year's exploration which is due to begin on 1st August 1972.

ACKNOWLEDGEMENTS

In addition to those mentioned above we should like to thank Dr. John Alexander, M.A., F.S.A., Mr. David Clarke, M.A., F.S.A., F.M.A. and Mr. Mark Davies, M.A. for their help and advice. The Essex Record Office and the Maldon Borough Council for their co-operation, Mr. Tony Bonner, who has produced a very comprehensive record of colour slides and the members of the Group and their friends, not forgetting the summer visitors, all of whom helped with digging, shovelling and sorting. As these number nearly forty it is not possible to mention them all by name.

This preliminary report does not include references to the important information we have received from the Centre de Documentation et de Recherche de la Maison du Sel. 57 Marsal, France, for which we are very grateful. It is to be hoped that additional material will be obtained during our second year at Osea Road, and this, together with further research into other sites in England and comparisons with some of those on the Continent will be published in the final report.

THE CHAPEL OF ST. PETER-ON-THE-WALL, BRADWELL

by H.M. Carter

Those members who share my interest in this building may remember that I have twice written about it in the C.A.G. Bulletin Vol VIII p.23/27, Vol. X p.8 and that it poses a curious problem.

St. Peter's is mentioned by Bede, and was built in the middle of the 7th Century. It was built on nearly not quite; the same plan as the slightly later Reculver, much of which survived into the 19th century. Reculver had a triple chancel arch of re-used Roman material, and it has long been assumed that Bradwell had the same. Re-constructions showing this have been published both by the architect in charge of the building and by Dr. Taylor in Anglo-Saxon Architecture, 1965. I enlarged on the assumption in this Bulletin, (VII 23 - 27), but subsequent measurements required me to eat my words, and I ate them in Vol. X. 8. We were then satisfied that there had been a double chancel arch divided by a single pier or column. This seemed an architectural absurdity, and is, I think, unique.

It has recently occurred to me that we may have here a relic of a double monastery, that is, for both monks and nuns, such as existed at the contemporary Whitby. This practice was encouraged by St. Columba, who founded the Celtic Church to which both foundations belonged. If so, the nave, which is rather wide in proportion to its length, would have been divided by a wall, screen, or curtain.

Such enquiries as I have made suggest that this suggestion can never be proved or disproved. The only early written references are in Bede, already well-known. There are no contemporary buildings which could provide parallels; Celtic churches were normally of wood. Excavation may one day bring footings to light, but this seems unlikely. So we are left with this hypothesis, which, nevertheless, appears the only way of accounting for the double chancel arch.

PROGRESS AT CHAPPEL

by J.G. Parish

The railway centre organised by the Stour Valley Railway Preservation Society at Chappel was open to the public on four weekends during the summer of 1971. Two of the four industrial locomotives were in steam for these occasions, and footplate rides were offered to the public on the quarter of a mile of track, which had been relaid in the former goods yard. The steam saddle-tank locomotive "Gunby" has been repainted in L.N.E.R. apple green and given a number 68067, which was formerly carried by a British Railways locomotive of the same type. However, contrary to the statement in the C.A.G. Bulletin, March, 1971, "Gunby" never ran on the L.N.E.R. but was delivered when new to the Buckminster Quarry of the Stanton Ironworks Ltd. Other exhibits include a Grafton mobile steam crane, built in 1914, and loaned by the Felixtowe Dock and Railway Ltd., and an early four-wheel petrol locomotive built in 1920 at the Simplex works, Bedford. The oldest exhibit is a small steam saddle tank engine built by Andrew Barclay Co. at Kilmarnock in 1905.

The 42-lever frame in the signal box has been restored with some difficulty owing to the scarcity of spare parts following the modernization of British Rail. The missing components of the frame were replaced from abandoned signal boxes as far afield as Firsby and Louth in Lincolnshire.

The intention of the Society is to purchase as much of the track of the branch line from Marks Tey to Sudbury as funds allow in order to run vintage steam trains when the British Rail train service ceases. As the cost of the purchase of the whole of the branch line is likely to be about £115,000, further public support is essential. The centre will be open on nine weekends in 1972.

WINTER MEETINGS 1971/72

The season's winter meetings of the Group at Colchester Museum commenced on Monday 18th October when Mr. Felix Erith, F.S.A., lectured on "A Mediaeval Well at Bramford, Suffolk", and showed slides of the site and the pottery found. Mr. Erith has contributed an article giving details of the operation in this issue of the Annual Bulletin.

On October 25th, Mr. Malcolm Todd of the University of Nottingham, spoke on "The Iron Age, Roman and Post Roman Settlement at Ancaster, Lincolnshire". Causennae or Ancaster, lying south of Lincoln on an ancient trackway and at the site of the gap through terrain that is known as the Lincoln Edge, was the place chosen by the Romans for an early fort - one of the Lower Trent fortifications such as Great Casterton which was established c.45 A.D. and, like Ancaster, reduced in size some time later. Mr. Todd described the enormous build up of sandy topsoil which their many trenches cut through, and which was of course due to the position chosen at the windy Gap in the

hills. Curiously the southern outline of the earlier fort was irregular, thus not forming quite the usual squared design. Part of this fort wall had been placed over an enormous hole from which earlier occupants of the site had quarried stone. The Romans had filled this when they built the wall and rampart somewhere between 250-280 A.D. Interesting investigations had been carried out on a mound thought to cover the north west tower bastion but this had turned out to be an 18th or 19th century rubbish dump. However, the tower foundations were found close by and, in addition, a medieval dove-cote, the latter having also a descending stone stairway which unfortunately could not be followed because of modern structures. Stamford ware and 12th-13th century pottery was excavated from it. A 17th century kiln which had both a square plus an added fan shaped outline to it, appeared to have been used for malting barley; burnt barley was found within. Inside the angle of the Roman wall which adjoined the corner tower was an enormous pitched footing of several courses of masonry which conformed in plan to the curve of the wall. This might possibly have supported a great water tower for the fort occupants. 320 inhumations lay in the large Roman cemetery to the west of the fort and an Anglo-Saxon burial ground lay to the south, thus carrying the period of occupation of the area through 450 A.D. to the early 6th century. Iron Age B and C pottery was also found on a settlement close by.

Mr. J.H. Boyes, of the Inland Waterways Association, gave a lecture on November 1st on "The Canals of England: their History and Development". The truly magic effect of locks and canals was shown to excellent advantage by Mr. Boyes who appears to have travelled on every English canal not to mention the many continental constructions also. The earliest recorded canal was Chinese and was operational circa 219 B.C. The oldest in Britain is, of course, the Roman Fosse Dyke. Small wonder that a 1027 A.D. description of flash locks and such like should give tongue to the fantasy that a swirling black dragon lived beneath the waters. In the 17th century a need arose to use the upper reaches of large rivers such as the Ouse, Severn etc. which were considered a part of the king's highway.

The earliest legislation regarding a canal was for the river Lea between the years 1420-30. The French Canal du Midi was the inspiration which drove the Duke of Bridgewater to establish canals to the coal pits and so to send coal by barge pretty well anywhere in Britain. During the late 17th and early 18th centuries the first large scale use was made of these artificial waterways which enjoyed great prosperity from then until the fateful day in 1825 when the Stockton - Darlington railway was built. Not until the early part of the 20th century did the canals finally die - the Lincolnshire Louth stretch being one of the last to be sold in 1924. Today there is a different picture - the canals are being reclaimed for pleasure. Many on the continent are being modernized and some huge barges can now be loaded with 600 cars! One lock at Argues can accommodate 1000 ton barges. It would take a long while but one could travel from London to Leeds and Liverpool, out at the Humber, on to the Trent and back to London all by inland waterways. Delightful aerial slides showed many river diversions made to by-pass mill wheels or weirs. Work study went into bridges and methods of changing tow paths from one bank to the other, particularly where the tow rope was concerned. Great lifts for the huge water tanks used to reach higher water level seemed amazingly graceful and artistic. "He made boats to sail where men ploughed" was indeed a fitting epitaph for one of the canal builders.

On November 8th Mr. G.H. Brenchley of the Ministry of Agriculture, Fisheries and Food, spoke on "Aerial Photography for Agriculture and the Discovery of Archaeological Sites." Aerial photography, which was undertaken primarily for the detection of disease in agricultural crops, resulted in much data on a variety of different subjects. Such work has been carried out in Canada, the United States, Soviet Russia and various tropical regions, especially with regard to forestry. For viewing agricultural disease a vertical take with the camera in the floor of the plane is an absolute necessity. Also a good photograph taken at the wrong time is not so useful as a poor film taken when conditions are right in the crop development. Much the same as the archaeological requirements in fact. Potato blight in the Fens was the reason for the first aerial survey undertaken by Mr. Brenchley's Department and great success was achieved from the pattern of disease produced. The fungus was spread by rain splash and from a central focus radiated outwards. Almost certainly the cause and seat of the trouble was the dumping of rotten potatoes from a clamp. The fleeting nature of subsequent crops made the diagnosis of disease a difficult matter to pursue. Docking disease in sugar beet appeared to be due to the drift quality of the soil and consequent poor rooting capabilities of the plant in subsoil cracked chalk. Rain could not be conserved in the deep drifts of glacial outflow which infiltrated into the polygon patterned chalk cracks, and thus the plants wilted. There appeared to be no risk of the disease in certain other soils. Man-made patterns of trouble could be seen - puddling of the soil by choosing wrong working conditions and times etc. Certain sprays also contributed to this. Even ducks could cause a spectacular firework type pattern of consequent crop failure by treading and fouling the soil in preceding years. Bronze Age ring ditches which had been filled in recent years with rubbishy soil, could show clear signs of disease. Dwarf bean disease in the river Blackwater territory, fortunately for our Group, was the means of revealing not only Red Hills, but also large areas of habitation and agriculture of probable prehistoric date. This lecture was highly instructive and also synonymous with our own aims. We are fortunate indeed to have formed this welcome link with the lecturer and his colleagues.

Mr. Kenneth Hudson, M.A., F.S.A., of the University of Bath, lectured on November 15th on "The Fashionable Stone: a History of the English Building Limestones". A great snobbery appears to exist in the use of building stone particularly with regard to the famous Portland and Bath quarry products. From the Wash down to Portland a great limestone belt follows its course. Along this some of the local stone - like the coral rag - though quarried necessarily

only in small blocks is extremely attractive on 14th century village buildings. If this rag is too small for your requirements - if you need stone for a grander type of building - you have to send further afield - to Portland, etc. and even abroad to Caen. One cathedral has recently bought its own quarry in France, just in order to obtain the necessary material for repair and renovation. Wren, whilst building St. Paul's, was forced, when money ran out, to face his pillars with a skin of stone. Unfortunately, enormous trouble resulted when the inner core of rubble settled and the Portland outer facing consequently cracked all over.

Mr. Hudson told of the great demand made for snob value stone during the 18th and 19th centuries and the resulting shortage in the famous Portland/Bath type commodity. Disastrous building examples, caused by sheer greed and status seeking often resulted, after a matter of years, in peeling of the whole face of a building. The library at Christchurch Oxford was just such a failure. Masons' marks and arrows could be seen on some of the re-used stone blocks from Old Sarum and these were placed so that the stone should run in the same way as it lay on the quarry bed. Omissions of this nature also produced dire consequences. Much information was given by slides taken inside the quarry - the art of tapping a stone to indicate by its ring whether there was a flaw in the great sawn block. How the stone itself was detached from the bed - a job once done by hand and now, of course, by 6 inch mechanical saw cuts - the latter way horribly wasteful. The upper beds, once bypassed to get at the valuable freestone below, were now coming into their own on account of their shiny hard appearance as modern facings for contemporary architecture. Hilarious descriptions of the extraordinary capers taking place during the building of Washington cathedral had us all in high humour and enjoyment.

On 22nd November Dr. John Alexander, M.A., F.S.A., lectured on "RESCUE - the Problems in Field Archaeology". It was postulated that there is, and has been for many years, a crisis in British archaeology. The task to be undertaken was threefold - (a) to define the crisis, (b) to show that the present methods of dealing with it are inadequate and (c) to decide what should be done. There was a sense of unease regarding the large number of archaeological sites not yet inspected. Recent dating techniques show that man was active in Britain 5,000 years ago and there are many more sites than originally supposed. This was evidenced when it was discovered that three sites had been interfered with during the construction of the new motor-way through the West Country to Bristol. The subsequent removal of topsoil in the zone revealed some 200 further sites. A committee had suggested there were 15,000 sites in England but new evidence indicates they are to be numbered in tens of thousands. As a result of an aerial survey carried out 10 years ago, the number of known burial sites in East Anglia was multiplied by four.

The speed at which the destruction of sites is proceeding is not generally appreciated. The offending activities include mechanical agriculture with its deep ploughing, the extraction of gravel, chalk and sand (all archaeological sites in gravel excavation areas, for instance, will be gone by the year 2,000) and the re-afforestation of marginal land with the resultant levelling for planting. All in all, it is estimated that there is an archaeological site for each square quarter mile of the area of the country and the fact that no co-ordinated rescue efforts exist on a large scale at national and local levels has produced the archaeological crisis of this generation. In spite of the fact that H.M. Chief Inspector of Ancient Monuments does what he can within the limits of the powers afforded him, there is no real legal protection for archaeological monuments and it is clear that changes in the law are necessary.

In regard to rescue excavations only £2,000 was made available in 1956. Two hundred excavations have been carried out a year and eight hundred known sites have gone by default each year. Compared with the meagre financial assistance given to British archaeology in this respect it is interesting to note that the Dutch authorities have authorised the annual expenditure of very large sums on one dig alone and the Germans have done the same for a dig at Hamburg. Our financial burden cannot be transferred to the national-local level with any chance of success. There would be no really central authority to push home points. The fact is that in this country there are not enough people interested in archaeology and not enough money.

What is being done? It has been agreed to set up and register as a charity a Trust for British Archaeology with the following aims:- (1) to make people aware of what is happening (e.g. the rate of the destruction of archaeological sites) and to foster a climate of opinion to make things happen by getting to people beyond the archaeological societies, (2) to take a direct hand, if enough money can be raised, and actively interfere in areas where destruction is going on by default. If this is not done we may never know the history of many old towns owing to the amount of building development in progress up and down the country. To produce archaeological evidence to the planners in advance so that sites can be excavated without interference to development. The aim, of course, would be to record rather than to preserve. It would be for the Trust to promote regional rescue and research squads to further this end. (3) to initiate a long term effort to obtain legislative changes for the protection of outstanding sites and portable pieces. It is necessary to promote a change in general thinking on the part of the public in regard to our archaeological heritage with the same success as has been achieved by the Naturalist Trusts in their own field. Nationwide co-ordination is necessary.

Dr. Alexander concluded his lecture with a number of slides illustrating points he had made regarding the destruction of sites. The lecture was about the politics of archaeology rather than its technical side. Nevertheless it was

of great interest to members and doubtless brought home to them the urgent need for something constructive to be done to further the interests of rescue archaeology.

Mr. Kenneth Warren, M.A., spoke on November 29th on "Some Aspects of Victorian Railways". This, one of our off-beat lectures, proved to be a delightfully reminiscent wander among old railway stations and tracks. Shoreditch Station in London was changed eventually to Bishopsgate because the former name became associated with the unsavoury presence there of thieves, pickpockets, prostitutes and the like. Few people now notice the Victorian gazebo or the war memorial tucked away on Liverpool Street Station. In 1910 a train left that station at 3 minutes past midnight, arriving two hours later on Sunday morning at Colchester and thence on to Clacton. It returned on the Monday morning and Mr. Warren was interested to know what the staff did in those circumstances - dumped in the apparent wilds for a day and night!

St. Pancras Station is perhaps the finest example of railway architecture - the best Gothic - and it was most interesting to note that its vast cellars were sized to a height and area of Burton beer barrel measurements. Happy priorities indeed! The walls were seven feet thick (a difficulty to subsequent central heating attempts) and, daringly, they had a ladies smoking room. The splendid carpet on the stairs is supposed to be the original. Blackfriars is the opposite - poverty stricken and creaking - but they have a fabulous collection of old metal advertisement plates, Virol, Iron Jelloids and Mazawattee Tea etc. On the entrance pillars are named the places allegedly served by this decrepit station - Florence, Rome, St. Petersburg, Bromley and Beckenham. The extraordinary atmospheric railway which greatly attracted Brunel and was rejected by Stevenson was ahead of its time in theory. Apparently rats found it quite satisfactory - by chewing the soap and cod liver oil soaked leather which formed a vital part of its mechanics. Also the leather froze in adverse weather. They spent a fortune on it and a century later electricity did just that job for them but in quite a different medium. The railways were none the less a great solid Victorian achievement with carriages at first carrying on the stage coach design and with sidings called stablings. The huge, never to be forgotten, beasts of steam were in fact horses to their drivers. What might our younger generation think now of Colonel Tomlin's station staff dressed perforce as butlers as befitting the concept of service to the public!

On 6th December Mr. R.A.H. Farrar, M.A., F.S.A., of the Royal Commission on Historical Monuments lectured on "Romano-British Coarse Pottery". He laid emphasis on the illustration of pottery for its own sake and not merely for the purpose of dating. Some drawings could be completely inadequate because they gave no clue to the fabric or structure and were therefore misrepresentations or faulty clues for future students. 'Feel' and familiarity with local pottery types is vital before any analysis is possible. Also a clean break in the sherd is best for judging the compositions of the clay. Chemical analysis, for instance, could now reveal the markets to which some of the wares were sent and, of course, the source in the case of special pottery. There could be little doubt that an important hand-made type of pottery was made in Roman Britain along with the normal wheel-made industries. It is extremely difficult to tell a well made hand vessel from a wheel-made product. Slips and glazes can cover the thrown marks. The regular appearance of some hand-made pottery, especially those with burnishing, could be very deceiving. Even a thumb print may reveal the wheel thrown pot, and finger marks might indicate the way in which the slips and glazes were applied. Examples were shown from the Holt workshops of the 20th Legion - brown and buff oxidized materials and the grey/black reduced oxygen ware from Dorset. One cream dish with a partly black base presented a mystery with its patchy oxidation. Lovely purplish lustre on the 4th century Nene Valley pottery was of great attraction as were the results of burnishing on some wares. This had the effect of producing a darker surface on the part burnished. There appeared to be evidence that much of the black 2nd century burnished ware found in the north was either from the Colchester area or sites in Dorset. And where indeed were the Iron Age pottery kilns? Why are they not found? Mr. Farrar thought perhaps these vessels were fired in the open by vast wind funnel bonfires.

On December 13th, Mr. Norman Cook, B.A., F.S.A., F.M.A., Director, Museum of London, lectured on "Roman London, The Beginning and the Ending". He traced the growth of Roman London from the Conquest and showed how it grew up at the point where it was possible to bridge the Thames. Evidence had been obtained from the post Second World War excavations which preceded the rebuilding of devastated areas in the City. These excavations included that of Bucklersbury House which uncovered the Temple of Mithras. Slides were shown of the Cripplegate Fort and parts of the City Walls. On the site of the old native capital at Camulodunum the Romans began to lay out a new provincial capital but the Colonia was sacked by Boudicca who followed up by giving the same treatment to London. In due course, however, London replaced Colchester in importance. Its position on a great waterway culminating in the Pool of London permitted it to grow in stature, especially commercially, and roads were built radiating from it. The walls of London were rebuilt many times, and added to, and it was the site of a splendid Governor's palace. Excavations have revealed a layer of burning from the time of Boudicca. By the time the Romans withdrew from the country London was firmly established as the most important city in Britain.

The first lecture of the New Year was given by Dr. Graham Webster, M.A., F.S.A., A.M.A., who spoke on "The Roman City of Viroconium in the Light of Recent Work". 180 acres of open agricultural land with one farmhouse and a Post Office is all that lies between Dr. Webster's complete excavation of the Roman Legionary fortress and

township of Viroconium Cornorviorum (Wroxeter) which is a mere six inches beneath the topsoil. Apart from the fact that he needs, according to calculations, 5,000 years to complete this, he is perfectly happy. Except that he would like the later extensive Baths complex, which overlies the barrack blocks of the fortress, to have been in almost any other position. (Any offers for acquisition and removal welcomed). The military site gave way c. 90 A.D. to the civilian city, but why such a rich out-of-the-way town developed, after the 1st century, on the fringes of the western empire border, is a mystery. In the vicinity are several fortlets and also the great Iron Age hill site - the Wrekin. Foremost amongst the troops who were stationed at Wroxeter were the 14th and 20th Legions. They seemed to spend their time shunting back and forth much as our present day forces appear to do. The buildings are in places remarkably preserved to a height of several feet and the occupation levels go down to a depth of 10 feet in places. A fine aerial photograph by Dr. St. Joseph showed clearly the buildings and street of the later periods overlying the parallel pair of ditches belonging to the first fortress. Apparently the military importance of Chester led to the culmination of Wroxeter's usefulness and although swimming baths and the Forum were commenced at the latter, somewhere around 129 A.D., the town beginnings faltered for some reason. It seemed from a Hadrianic inscription that perhaps the civilian authorities were given a rocket by that emperor because splendid buildings eventually appeared by the second half of the 2nd century. However, the baths were abandoned and used as a later rubbish dump in the mid 4th century. Indeed the whole town, due to cracking foundations and sandy subsoil was abandoned either late in the 3rd or early 4th century. A 6th century tombstone of an Irishman named Cunoris may testify to the presence of Saxon mercenary deployment in the area. Sadly they are proposing to place a television aerial on top of the Wrekin. One could think of better monuments perhaps.

Mr. Roger Goodburn, B.Sc. lectured on 17th January on "The Winterton Roman Villa, Lincolnshire". At the north end of the Jurassic Way, close to the river Humber and within easy reach of Ermine Street lie three Roman villas, the most extensively excavated being at Winterton which had had twelve seasons of investigation. A considerable layout has been uncovered, including three circular stone built structures for which there appeared to be no explanation or parallel. The smallest was probably of Iron Age habitation tradition, only 9 feet across; another, probably of Iron Age habitation influence or tradition had an enlargement of its basic sandy floor, the second-thought taking the shape of a larger stone walled circle on a higher level of earth but enclosing the first sunken floor. The remaining feature was semi-circular. Curiously, at first the villa faced the upward slope of the land to the east, later another entrance was built which reversed the outlook to face west. A wall buttress was seen to be constructed against the slope of the land at one point - another strange procedure. Over 10 acres of ground on the lower level to the west was covered by long 14 feet wide, 6 feet deep parallel ditches - again no clues to their usage. The earliest period of the villa - the circular stone features - appeared to date from c. 130 A.D. whilst its hey-day might be placed at 250-350 A.D. Amongst the finds were corn drying ovens, seven infant burials, an open fireplace in the corner of one room and several really excellent mosaic floors. One depicting Orpheus, another Ceres and others showing lollipop type trees, with leopards, wolves and the horn of plenty carried probably by the Goddess Fortuna. One of these floors, which had been partially excavated in 1820, had the extra adornment of a Victorian chamber pot thoughtfully placed by the earlier diggers! Altogether the site and terrain of the villa appeared almost identical to that of the recently discovered local Lidgate villa near Bury St. Edmunds, Suffolk.

The evening of 24th January was taken up by talks by three Group Members. (1) A report on a Hadleigh Bronze Age Excavation was read by Mr. Nick Brannan. It proved to be a most interesting exercise undertaken in August 1971 under the direction of Mr. M. Corbishley. A double ditched barrow was investigated (in selected places) by block methods. A Saxon intrusion was noted, also the presence of Iron Age sherds. Unfortunately the central burial appeared to have been robbed but a very nice mid-Bronze Age pot has been reconstructed from the small sparse remains of an intrusive burial found in the ditch. This pot, like so many others had suffered plough damage. We are grateful to Mr. Brannan and Mr. Corbishley for including this Suffolk dig in our programme and we wish them success in their next season's investigation on the same site. (2) Slides were shown of the Lidgate, Suffolk, Roman villa and Mr. Felix Erith described the destruction by gravel digging of his Ardleigh Ring 8. (Reported further in this Bulletin). (3) Mr. Peter Holbert described the Mount Bures Roman Kiln excavation (reported fully on pages 19/22). A most interesting and helpful discussion followed which was quite obviously enjoyed by the audience. Slides were shown of this rather mysterious structure which had also been the cause of much discussion amongst Mr. Holbert and his fellow diggers during the course of the excavation.

On 31st January Mr. W.J. Rodwell spoke on "Aspects of Roman Essex, some Recent Excavations and Research". The lecture was high powered and packed with interest and amongst our most enjoyable this season. Mr. Rodwell's fluent delivery took us easily through an enormous number of sites and excavations. The 1st century fortlets such as those at Orsett, Mucking, West Tilbury, Hadleigh, etc., were of special interest in plotting possible lines of campaign in those early Conquest years. Also the latest thoughts on the Antonine itinerary in relation to recent excavations were helping to elucidate those unrelated mileages which have always perplexed scholars. It seems that there may have been upper and lower roads from London to East Anglia which crossed at a couple of places en route. Taking this into account the comparative mileages are more accurate.

Many finds were described - the exciting Alpha Omega Christian monogram stamped on a tile found at

Wickford, the Celtic sacred bird and the cock outlined on pottery. Also little hooded figures, special emblems painted on the neck of a pot. A quite beautiful pipe clay figurine of Venus and another of the head of a lion. A surprising number of temples existed in Essex having circular, square and octagonal outlines in plan and many more are being discovered as building development takes place all over the County.

A curious fact has emerged from Kentish and Essex excavations of recent date and this appears to point to a large number of Antonine period fires between 180-200 A.D., Intensive or massive fires took place at Wickford, Billericay, Mucking, Canvey, Chelmsford, Kelvedon and Rivenhall to name a few, and perhaps the 197 A.D. continental upsets may have been an associated reason, also the building of Reculver and Othona forts. It seems likely that many more fortlet outlines, some less than 2 acres in extent, are likely to be discovered as crop marks in the coming years of aerial survey.

Mr. D.F. Allen, C.B., F.B., Secretary of the British Academy, lectured on "British Potin Coins" on 7th February. Gaulish and British Potin coins made from a mixture of copper and tin - pewter to all intents and purposes - are the subject of a book by Mr. Allen in which he has amassed a wonderful classification sequence. Back in 1936 he stated that these coins, more of a token nature, had never been dated. Those from Gaul seem to have the earliest origin but the British examples appear to be separate parallel developments and may date back further into the 1st century B.C. than was supposed.

The background design on some of the coins, of C. 60-70 date, had produced an interesting discovery. Traces of what appeared to be graining had, in fact, proved to be the criss-cross reed imprint from papyrus which had been used in conjunction with the clay moulds. The coins were seen to have been made in strips of about six (the chopped off tangs were easily visible). Apparently papyrus was of the exact thickness as the resultant metal layer of the two faces of the coin when sliced through and separated. Having set the papyrus background, each coin motif was then separately hand drawn on the clay mould and Mr. Allen found he could draw similar designs in only 5 seconds. Sometimes the two coin faces would slip a little and the edges could then be seen to be overlapping slightly. Along the nearest trade route from Gaul - probably in Kent - should eventually be discovered a discarded heap of these once-only used moulds. A compass indentation point was often visible centrally on the coins, also many wild beast portrayals, although bulls and horses only, tended to appear on the British coin sequence. Various hoards, some numbering several hundred, had been found, with several lying along obvious invasion routes. Mr. Allen's book has filled a great gap in this most important subject, and gratitude for his work was expressed recently by Professor Christopher Hawkes.

On February 14th we welcomed back an old friend, Miss Rosalind Dunnet, B.A., (or Mrs. R. Niblett as she is now), and were delighted to hear her report on "The Recent Excavations at Sheepen". Incidentally, and for the record, the usual venue of our meetings, Colchester Castle Museum, was closed owing to the restrictions on the use of electricity which had been imposed as a result of the coal strike. Instead we were comfortably housed in Ardleigh village hall which does not rely on electric heating.

Only five months warning had been given for these important Sheepen investigations which really needed at least five seasons' digging instead of the one allowed by the contractors. If Sheepen was the ancient British oppidum of Camulodunum it appeared, according to Miss Dunnett's findings, to have been sparsely inhabited. Over the whole 13 odd acres excavated only three vague Belgic huts were postulated. An area of the Dyke was opened and shown to have been filled in after the Conquest because later huts were built over it. On one side of the Roman road which crossed the site were found 200 rubbish pits, originally the quarryings for their road gravel. The pits had quickly filled with domestic and industrial rubbish. Not far away was a timber workshop and it soon became obvious that a large portion of the area had been given over to metal working -- with many finds of slag scrap and crucibles.

Here must have been a post Conquest labour camp with people imported specially for the purpose of producing military equipment. A hated target for Boudicca's vengeance and burning as was proved by the evidence. Metal military rosette studs and shield cheek pieces were found, also a 20lb. brass ingot which was originally longer, having been broken. This bore an unknown official stamp upon its surface. An early Roman grubenhaus type hut was found sunk 1 metre into the ground and still with the remains of uprights and horizontal planking. The whole, well preserved due to the hard baked action of fire on the clay floor and walling. Here was found a bronze stamp for impressing on to clay moulds, and this was the same as that of the Chichester military design. An interesting, unexplained, burnt barrel shaped outline was seen sunk below its surroundings. Parallel to the apparent "aqueduct" which crossed the site was an east-west military type ditch which inexplicably stopped suddenly. Very deep pits, a dozen all told, having clear seam markings, were thought by Professor Hawkes to be possible ritual pits. These have been long associated with the period and may serve to show the religious significance of Sheepen especially when taken in conjunction with the nearby temple site. To use Miss Dunnett's expression - the 1970 work had put flesh on the bones of the excavations of the 1930's.

Will readers please note there are four more lectures to be given and reported for the Winter Meetings 1971/72 season. They will be dealt with in the Bulletin for 1973. Owing to the prevalence of power cuts it is necessary to get this issue to press at this stage.

GROUP NOTICES

The following social activities have been arranged:

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| MONDAY, 8 th MAY | Evening outing to Purton Green Farm at Stanfield, near Sudbury; a 13th century aisled hall, recently restored. Meet at the Sheepen Road Car Park at 6.20 p.m. for departure at 6.30 p.m. |
| SATURDAY, 10 th JUNE | All day excursion to Norfolk. For details see enclosed leaflet. Please book early. |
| MONDAY, 3 rd JULY | Evening outing to Little Maplestead and the Hedinghams. Meet at the Sheepen Road Car Park at 6.20 p.m. for departure at 6.30 p.m.
Lifts will be arranged for those without cars for both evening outings. |
| MONDAY, 17 th JULY | Cheese and Wine Party at Fen House, Mount Bures, by kind invitation of Mr. & Mrs. McMaster. Tickets: 50p at the door to include one glass of wine. |
| MONDAY, 18 th SEPTEMBER | Holiday Slides Show at Vincas Farm, Ardleigh, at 8.00 p.m. by kind invitation of Mr. & Mrs. Erith. Coffee & biscuits will be served in the interval and tickets will be 25p at the door. |

RELATIONS & FRIENDS OF MEMBERS ARE WELCOME AT ALL THESE ACTIVITIES

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| MONDAY, 9 th OCTOBER | Annual General Meeting and the beginning of our winter season of weekly Monday meetings. |
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BULLETIN INDEX - A second index has recently been compiled to cover volumes IX to XIII. This can be obtained from the Librarian, Price 25p. Copies of the index for the first eight volumes are still available, Price 15p. The Librarian's address is R.W. Palmer Esq., 41 Gladwin Road, Colchester.

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