

CONTENTS

First Words

PAGE 2

Letters and News

PAGE 3

A Roman fort near Faversham, Kent

PAUL WILKINSON PAGE 8

Fishbourne – New thoughts on society

ERNEST BLACK PAGE 10

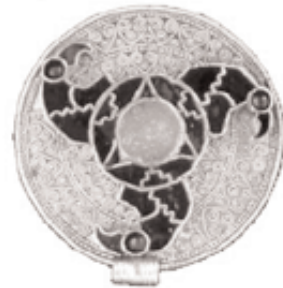
The Roman girl in the lead coffin

JENNY HALL PAGE 13

Field Survey

PAGE 14

Members Only



Above. Gold artifacts from Kingsfield.



Above. Roman walls at Deerton Street Roman villa.

NEXT ISSUE

The August “dig” at the Deerton Street Roman villa site, Paul Wilkinson.
Kingsfield, Faversham – new insights on the Dark Age cemetery.
Place-names in the landscape – Margaret Gelling’s new book.
Field survey: Part Two, Kent Archaeological Field School.
The Roman villas of Sussex, David Rudling.
Full listing of new courses at the Kent Archaeological Field School.

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Front cover picture is of a mosaic from Thugga, dating from the 3rd century AD and now in the Bardo Museum, Tunis. It depicts Dionysus and Old Silene fighting the pirates of the Tyrranean Sea. (Sonia Halliday).

FIRST WORDS

Welcome to the first issue of “Practical Archaeology” – the magazine of the Kent Archaeological Field School (KAFS). We have over the last eighteen months organised some thirty-five Saturday and Sunday day schools in practical archaeology, and the response has been staggering. Our one-thousandth student passed through our doors on September 18th. With so much interest we decided to launch a magazine to promote our attempts to make archaeology as accessible as possible.

The KAFS runs a relaxed, friendly, informative, affordable programme of archaeological subjects taught by the very best practitioners in their field. Our students have come from all over Britain to participate in our courses. Over two hundred are now members of the KAFS club, subscribing to “Practical Archaeology”. The magazine carries archaeological news, practical guides, reports of field work by members, and articles of interest from leading figures in European archaeology. It is primarily a news magazine. It will not have long and detailed excavation reports, but it will have comment and discussion on archaeological sites and discoveries. The power of television – Time Team, Meet the Ancestors etc. – has led to a huge upsurge of interest in archaeology from the public. The KAFS has witnessed this interest and this magazine is for everyone inspired by the possibilities of archaeology. After all, in a lot of cases it is our ancestors who lived in the Roman villas we excavate, and there is nothing more important than to discover how our ancestors lived.

This year’s KAFS programme has been exciting and varied, as those of you who have attended will know. One of the highlights this year was Margaret Gelling’s weekend on place-names in Kent. That weekend in May, we travelled from site to site, in glorious spring weather, down

lanes and byways full of spring flowers to farms and settlements where the place-names showed how continuous is the line of settlement in these favoured places. For instance, Shelvin is derived from the Old English word for muddy ground and Bapchild from Baca’s Spring. We saw how the clues to the meanings still lay in the landscape to be revealed to us by Margaret.

Other courses were just as exciting: in July we had three tutors to take us through the maze of lithic artifact identification. Terry Hardaker taught us how to knap flints, and the class explored a relatively unknown Palaeolithic, Mesolithic and Neolithic site at Newnham. Tutors Chris Butler and Julie Scott-Jackson were amazed when Mesolithic flakes were spotted in rutted tracks in the field, and they were even more astounded to see apple boxes full of Neolithic and Palaeolithic artifacts that had been found by the farmer.

In July, Charles Turner and Alan Clapham took us through the evidence left by weeds and seeds. Grape seeds were found in marsh earth samples from behind the KAFS, indicating that vines may have been grown on the large Roman site there.

Also in July, David Miles, Chief Archaeologist for English Heritage, gave an exciting and illuminating lecture on archaeology and science. Later that day, Malcolm Davies explained the intricacies of geophysical survey, and students had the opportunity to re-locate the buried Roman Watling Street in a grassy field near Syndale.

A later training weekend (members only) at Syndale revealed the rampart and ditch of an unknown Roman fort, a find of international importance. Our week-long training dig in the heat of August was a tremendous success, and we will have more digs soon. All in all, exciting times, so join us next year!

Dr. Paul Wilkinson
Editor and Director, KAFS



LETTERS

From Simon Hall

A friend of mine in the United States e-mailed me the following story. I thought it might appeal...

The story behind the letter below is that there is this fellow in Newport, RI named Scott Williams who digs things out of his backyard and sends the stuff he finds to the Smithsonian Institute, labelling them with scientific names, insisting that they are actual archaeological finds. This guy really exists and does this in his spare time! Anyway here's the actual response from the Smithsonian Institution. Bear this in mind next time you think you are challenged in your duty to respond to a difficult situation in writing.

Dear Mr Williams,

Thank you for your latest submission to the Institute, labelled "93211-D, layer seven, next to the clothesline post...Hominid skull." We have given this specimen a careful and detailed examination, and regret to inform you that we disagree with your theory that it represents conclusive proof of the presence of Early Man in Charleston County two million years ago.

Rather, it appears that what you have found is the head of a Barbie doll, of the variety that one of our staff, who has small children, believes to be "Malibu Barbie."

It is evident that you have given a great deal of thought to the analysis of this specimen, and you may be quite certain that those of us who are familiar with your prior work in the field were loathe to come to contradiction with your findings. However, we do feel that there are a number of physical attributes of the specimen which might have tipped you off to its modern origin:

1. The material is molded plastic. Ancient hominid remains are typically fossilised bone.
2. The cranial capacity of the specimen is approximately 9 cubic centimetres, well below the threshold of even the earliest identified proto-hominids.
3. The dentition pattern evident on the skull is more consistent with the common domesticated dog than it is with the ravenous man-eating

Pliocene clams you speculate roamed the wetlands during that time.

This latter finding is certainly one of the most intriguing hypotheses you have submitted in your history with this institution, but the evidence seems to weigh rather heavily against it.

It is with feelings tinged with melancholy that we must deny your request to have the specimen carbon-dated. This is partially due to the heavy load our lab must bear in its normal operation, and partly due to carbon-dating's notorious inaccuracy in fossils of recent geologic record.

To the best of our knowledge, no Barbie dolls were produced prior to AD1956, and carbon-dating is likely to produce inaccurate results.

Speaking personally, I, for one, fought tenaciously for the acceptance of your proposed taxonomy, but was ultimately voted down because the species name you selected was hyphenated, and didn't really sound like it might be Latin.

However, we gladly accept your generous donation of this fascinating specimen to the museum. While it is undoubtedly not a hominid fossil, it is, nonetheless, yet another riveting example of the great body of work you seem to accumulate here so effortlessly.

You should know that our Director has reserved a special shelf in his own office for the display of the specimens you have previously submitted to the Institution, and the entire staff speculates daily on what you will happen upon next in your digs at the site you have discovered in your Newport back yard. We eagerly anticipate your trip to our nation's capital that you proposed in your last letter, and several of us are pressing the Director to pay for it. We are particularly interested in hearing you expand on your theories surrounding the trans-positating filiation of ferrous ions in a structural matrix that makes the excellent juvenile *Tyrannosaurus Rex* femur you recently discovered take on the deceptive appearance of a rusty 9-mm Sears Craftsman automotive crescent wrench.

Yours in Science,
Harvey Rowe
Chief Curator-Antiquities.

NEWS

Updating heritage Register

English Heritage is updating and revising its *Register of Parks and Gardens of Special Historic Interest in England*, which will become a comprehensive record of England's historic landscapes. The new *Register* is hoped to be finished by 2001.

There are 1200 sites listed in the existing *Register* and these include the magnificent landscape at Chatsworth, Derbyshire and small manor house gardens such as Gravetye Manor in West Sussex. Also included are public parks, cemeteries, gardens of famous gardeners and plant collectors.

The *Register* features several gardens surrounding homes belonging to the Royal Family, such as Buckingham Palace, together with the many parks and gardens of historic interest in English Heritage's care. The update will provide an opportunity to assess historic sites that have not yet been recorded, and to add them to the *Register*. Further details about the *Register* are available from Ms. F. Duterloo, at English Heritage (Gardens and Landscape Team), Portland House, Stag Place, London SW1E 5EE.



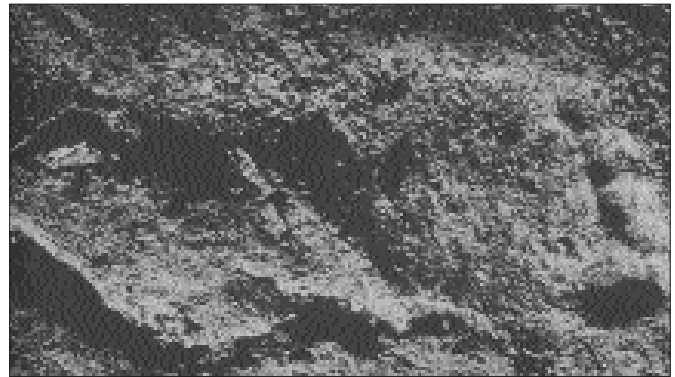
Orchardleigh Park in Somerset is typical of a long-established estate having fallen on hard times. The land surrounding the main house has been re-landscaped as a golf course but the estate church (above) is in

a fine state of preservation. Various planning applications have been submitted in recent years but as yet no decision has been taken. This estate is a good example of how the Register can record sites.

Europe's oldest footprints unearthed in France

Over a hundred footprints believed to belong to a Cro-Magnon boy aged between eight and ten years old have been found in the damp clay of a maze of caves in the Ardeche region of France.

Five years ago the caves were explored and found to contain some of the most beautiful cave paintings in Europe. The 447 paintings, drawings and etchings portray bison, mammoths, deer,



One of the hundred footprints found in the cave system at from the Cro-Magnon period Ardeche in France.

rhinoceros and wild cats. The paintings are considered extremely significant, certainly as important as those at Lescaux in south-western France. The earliest images were painted some 30,000 years ago, making them the oldest cave paintings yet found in Europe. The footprints are also the oldest found in Europe. Archaeologists say the 20cm long prints appear to be those of a small boy exploring part of the cave system not usually occupied by humans. His footprints are overlaid by those of bears and wolves which passed the same way, before and after he did.

There are indications the boy was carrying a torch and stopped from time to time to tap it against the cave walls and roof to shake off the spent charcoal. Traces of this charcoal have been dated by radio-carbon dating methods to the Cro-Magnon period, some 25,000 to 26,000 years ago.

Michel Garcia, an archaeologist of pre-history at the Centre National de la Recherche Scientifique who has surveyed the caves, says the connection between the boy's footprints and the torch marks

NEWS

could not be scientifically proved, but are very likely. "The soil in that part of the cave system was undisturbed, the boy was walking with great care into a hostile environment heading towards what we call the 'skull room', a cave where we have found a large number of bears' skulls".

Michel Garcia said that the caves would never be opened to the general public because the remains are too fragile.

"Sea" Henge in Norfolk to be saved

English Heritage have now approved plans to rescue "Sea" Henge, the timber structure found at Holme Next the Sea, Norfolk.

The discovery of the timber circle, seven metres in diameter, was made by a local nature warden who reported it to the Norfolk County Council Archaeological Unit, who in turn called in English Heritage. It seems the timber structure had been seen from time to time over the last twelve years, but only recently has the central timber bole been exposed to view. It is a most unusual and important archaeological discovery and the first priority is to safeguard it from further erosion by the sea and fringe groups of "Druids". The Henge will be lost if it is left where it is because of the

continuous erosion along this stretch of coast.

Archaeologists are now recording and removing the timbers which have been dated by Carbon-14 to about 4000 years ago.

Dating by dendrochronology was inconclusive. John Birchall, spokesman for the Norfolk Archaeological Unit, said: "The timbers are of split oak and there is about a metre of well-preserved timbers below the sand which have good tool marks on them". The removed timbers will be going to Flag Fen, near Peterborough, for examination and conservation. The timbers will be on public display while the scientific work is in progress. When this work is complete, the timbers will be returned to Norfolk, by which time all interested parties will have decided on their care and future home.

Wrecked treasure ship of King Charles I found?

The wreck of the "Blessing of Burntisland" may have been found in 120ft of water in the River Forth in Scotland. The ship, which was the royal baggage ferry, sank during a storm on July 10th 1633 with the loss of 35 servants and crew; only two people survived. A contemporary account indicated that carts loaded on to the ship at Burntisland in Fife held royal treasure then worth £100,000. Among the items lost was a priceless 280-piece silver dinner service commissioned by Henry VIII.

The discovery of the shipwreck, which has been made the subject of a preservation order by the Scottish Secretary, was confirmed recently.

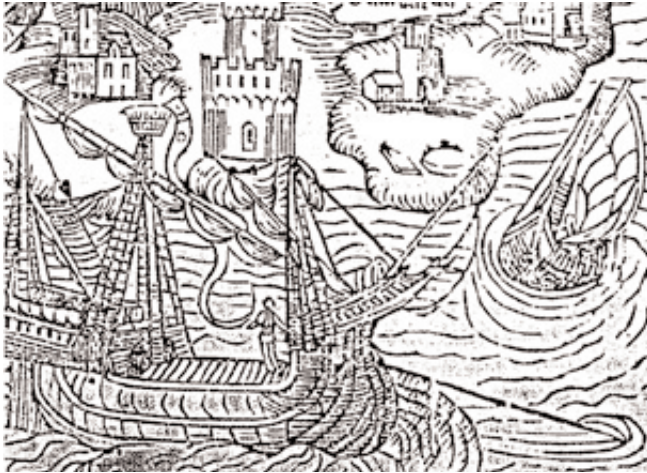
Members of the project, who include Howard Murray, chief conservator on the "Mary Rose" project, suspect Charles I's treasure was carefully packed and could have been preserved under tons of silt. According to the team's research, on the night before the storm the king and 3000 of his entourage stayed at Falkland Palace in Fife, close to his birthplace of Dunfermline. The next day he witnessed the loss of the "Blessing of Burntisland" from the deck of his own ship, and was so upset



Split oak posts arranged in a circle at Holm Next the Sea in

Norfolk. The posts have now been removed for conservation.

NEWS



The "Blessing of Burntisland" (above, from a contemporary print) sank on 10 July 1633 in the River Forth. It is possible,

if the cargo was well packed, that most artifacts will have survived but will need to be conserved by specialists.

with the loss of his treasure he cut short his tour and returned to London by horseback.

A group of English witches were later blamed for the disaster and executed.

Prehistoric Moon map discovered in Ireland

A map of the moon (below right, shown in black) has recently been found carved in stone at one of Ireland's most important Neolithic sites, Knowth, by Dr. Philip Stooke of the University of Ontario.



"I was amazed when I saw it. If you place the markings over a picture of the full Moon you will see that they line up. It is



without doubt a map of the Moon, the most ancient one found," aid Dr. Stooke of the University of Ontario.

The oldest map of the moon was generally believed to have been drawn by Leonardo da Vinci, in about 1505. The rock carving is about ten times older, and Dr. Stooke said, "The people who carved this Moon map were the first scientists. They knew a great deal about the motion of the Moon. They were not primitive at all."

The Neolithic passage tomb at Knowth is about 5000 years old. It was built by people who had a sophisticated understanding of the motions of the Sun, Moon and stars. Although it has been known for years that many stone circles are aligned with the Sun, little attention has been paid to possible lunar alignments, until recently. Archaeological investigations over the last twenty years have shown that, at certain times, moonlight could shine down the passage of the tomb at Knowth and illuminate the carved lunar map.

The stone in question is called Orthostat 47; on its right side are the lunar carvings. However, the circular rim of the Moon is not included in the carving and Dr. Stooke believes that it may have been drawn on the rock with chalk or coloured paints, of which no trace survives.

Roman ships found deep in the mud at Pisa

Eight almost perfectly preserved Roman ships have been found buried in the mud of what was once the harbour of Pisa. One of the ships is thought to be a Roman warship, from the design of the prow. "If confirmed, this will make it the first Roman warship ever found," said Stefano Bruni, the Italian archaeologist in charge of the excavation. Professor Andrew Wallace-Hadrill, director of the British School in Rome, said that the ships were, "extremely impressive, outstandingly well preserved, and in pristine condition... I could hardly believe the wood before my eyes was not modern-day wood in a modern boat. It is as fresh as the day it sank. This is a very exciting find."

Giovanna Melandri, the Minister of Culture, said the find was "...of exceptional importance.

NEWS



Until the discovery at Pisa, almost all of the information on Roman ships was from mosaics and frescoes such as this fresco from Pompeii which shows a light coasting craft.

The archaeologists have uncovered a marvel, because of the state of preservation of the ships and the numbers involved...the ancient port of Pisa has come to life before our eyes."

The ships range in length from 24ft to 90ft and are believed to date from the 3rd century BC to the 5th century AD. They were all anchored in the area that is known as the ancient port of Pisa, where the River Arno joins the River Auser near the coast. The area has now silted up, and is several miles from the present coast. The ships were discovered within the ground being excavated for the high-speed rail link between Genoa and Rome. Construction of the link is now being held up, and there is pressure to resume work at this crucial part of the railway, which is being built to serve tourists visiting Pisa during the millennium celebrations.

"The Romans controlled the Mediterranean and called it Mare Nostrom – our sea – and these ships found at Pisa show the range of goods that were being traded in a culturally diverse area," said Professor Wallace-Hadrill. "I think we are looking at a lagoon harbour which was probably linked to the coast by a canal. Big cargo ships would have moored off the coast, and these would have unloaded goods on smaller ships that would have come by the canal to the harbour at Pisa."

Some of the boats were found with oars, others were under sail. The boats are not fragments but whole vessels with baskets, jars and complete

cargoes. It seems there was a Pompeii type of catastrophe, perhaps a flash flood, which overwhelmed them. Elena Rossi, an archaeologist working on the ships, believes that they may have suffered different fates at different times.

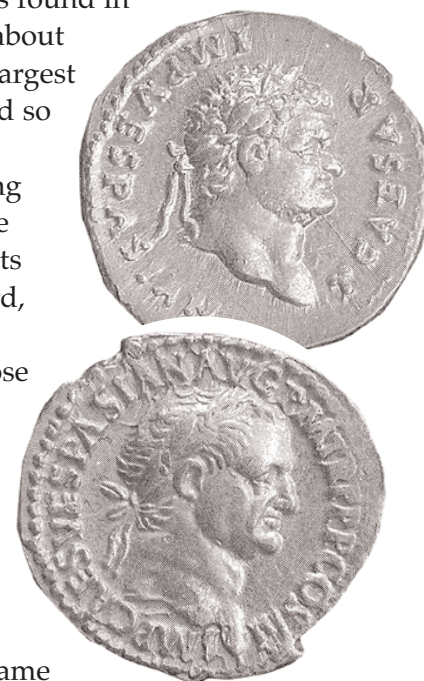
Whatever the timing of the disaster, it has left a wonderful archaeological treasure for researchers to work on.

Roman gold coins found in eastern England

Archaeologists are investigating the discovery of 122 Roman gold coins found in the Midlands worth about £200,000. This is the largest gold coin hoard found so far in Britain, and it highlights the amazing wealth of some native Britons. Archaeologists think the buried hoard, found near Shefford, Bedfordshire, was close to a Celtic temple complex dated by other evidence to around AD79.

About half the coins are in mint condition and it is suspected that they came directly from the Roman treasury. This means that the hoard throws new light on the attitude of the Roman

authorities to some native Britons. Members of the British ruling elite were divided in opinion about the Roman occupation. Those who welcomed the occupation were probably rewarded with large cash incentives by the imperial administration. The hoard, hidden for emergencies and enough to pay an average Roman soldier for about eleven years, probably represented only a part of the owner's wealth.



Two of the 122 coins found near to a Celtic temple site in Bedfordshire.

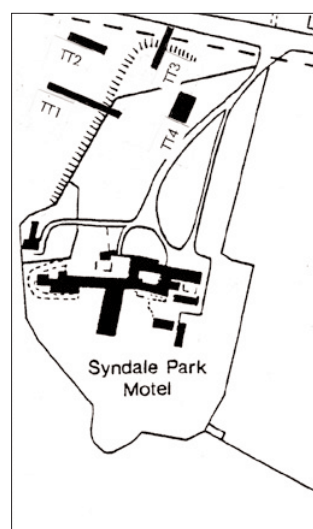
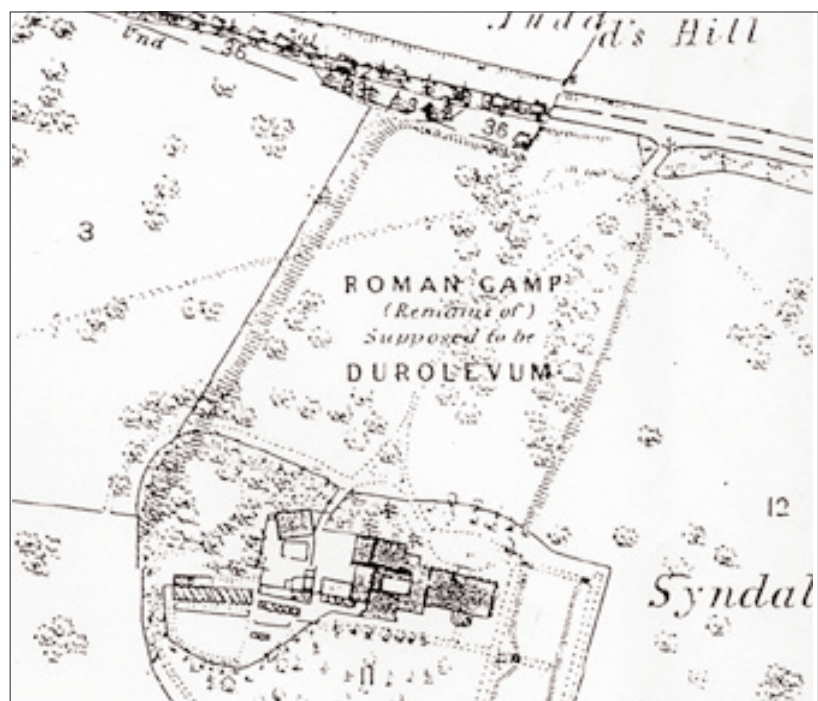
A ROMAN FORT NEAR FAVERSHAM, KENT

A weekend of excavation by members of the Kent Archaeological Field School revealed sufficient evidence to confirm the existence of a four-acre Roman fort able to hold about 1000 Roman troops. Pottery found in the infill of the ditch dates the fort to the time of the Claudian invasion.

In 1938, the editors of the *Victoria County History* wrote all that was known about this site. "On top of Judd's Hill, 900 yards west of the Maison Dieu at Ospringe, the mutilated remains of a bank and ditch formerly enclosing an oblong area of about 400 feet from north to south and 480 feet from east to west (i.e. about 4 acres) adjoins Watling Street on its southern side. In the south-western quarter of the enclosure stands Syndale House."

In September 1999, The Kent Archaeological Field School excavated three sections across what was hoped would be the rampart and ditch of a Roman fort. Preliminary geophysical work had been done by Malcolm Davies, and his print-outs showed a multitude of features strung along the Roman Watling Street at Syndale (which does not follow the same route as the modern A2.). One of these features indicated a Roman fort of some 4 acres.

By the end of the first day of excavation it was apparent that, indeed, we had a Roman fort of about 4 acres capable of holding a *cohors milliaria*, a unit thought of as being 1000 men strong but usually of about 800. The rampart, 5 metres wide, was of clay and still survived to a height of 1.5 metres. It sloped down to a ditch which is some 16 metres away. This ditch was excavated and found to be 1.68 metres deep, its base being a small square slot some 22 cm wide. This feature is the proverbial "ankle-breaker" renowned in antiquity. The square shape of the channel is easy to clean out with a shovel, and increases its effectiveness as an obstacle: it is almost impossible



Above. O.S. map of 1906, showing part of the site and ramparts first noted in 1760 by Kent historian Hasted. It was supposed recently that they were part of the landscape gardening of Syndale House.

Left. The location of the test trenches. Both TT1 and TT2 revealed the Roman military ditch of the Claudian period whilst TT3 indicated that Watling Street (dotted line) was built over and after the Claudian military ditch.

to stand upright in the channel or to climb out, and it compels a man to have both feet parallel to the axis of the ditch, which was v-shaped or, as Hyginus calls it, "fastigated".

Two sections, 10 metres apart, were excavated and the survey showed that both sections of the ditch exactly matched each other in dimensions. The lower part of the ditch had infilled with alluvial sand, and few pottery sherds were found in this context. However, the top third of the ditch was filled by an earth, charcoal, pottery mix some 78cm deep. The pottery is consistent with the period of the Claudian invasion in AD 43.

We suggest that the fort and ditch were built before the Roman Watling Street. Excavation of a section to the north of the fort seems to show that

hill was to the north, and the northern end of the interior had been raised in the Roman period by about a metre of topsoil laid on top of the natural greensand. The interior of the fort has never been ploughed and offers a unique opportunity to preserve an early Roman fort in Kent.

This fort, adjacent to the later Watling Street, dominated the surrounding area, and had access to the sea via Oare Creek. Further research may show that it was situated inside a fortified Iron Age township of significant size.

The finding of the fort, along with the geophysical data, the known Roman cemeteries, and the Roman standing monument at Stone Chapel, confirms that this indeed could be the lost Roman town of *Durolevum*.

Professors Frere and Rivet in 1971 suggested that names prefixed by "Duro" were transferred to Roman towns from neighbouring comparatively short-lived forts of the early Roman period. Professor Rivet in 1980 suggested that *Duro* is a

"specifically Belgic linguistic peculiarity", and ascribed its appearance in Britain to the Belgic migration recorded by Caesar. The geophysical survey by Malcolm Davies has also recorded large features to the east of the fort and future investigation may reveal a *mansio*, or inn, used by the

Roman imperial postal system. These inns were for state use and were spaced some 25 miles apart along major Roman roads. One is known to exist at the Roman town of Dover (25 miles to the east of Syndale) and at the Roman town of Springhead (25 miles to the west of Syndale). The system, organised by Augustus, consisted of relays of post-carriages travelling between *mansios*, and covering about 50 miles a day. The *mansios* often developed into villages or small towns with baths, shops, etc. They form a definite class of Roman settlement, of which *Durolevum* may be one.

PAUL WILKINSON



The top picture shows trench one (TT1) with the A2 to the west of the site. At the bottom of the valley is the standing masonry of Stone Chapel encapsulating a possible Roman temple. The photograph to the right shows the Roman post holes inside the fort.



the defensive ditch is under Watling Street. However, further work is needed on this aspect, as the Roman Watling Street has been destroyed at this point by deep trenching carried out in 1996 to lay a gas pipeline.

Malcolm Davies and members of his team, aided by students from the Kent Archaeological Field School, removed the turf from a 10-metre square inside the fort (TT4) and found immediately below the turf post-holes, some of which indicate at least one rectangular or square building at right angles to the ramparts. The Roman metalled road was exposed. The inside of the fort had been levelled, the natural slope of the

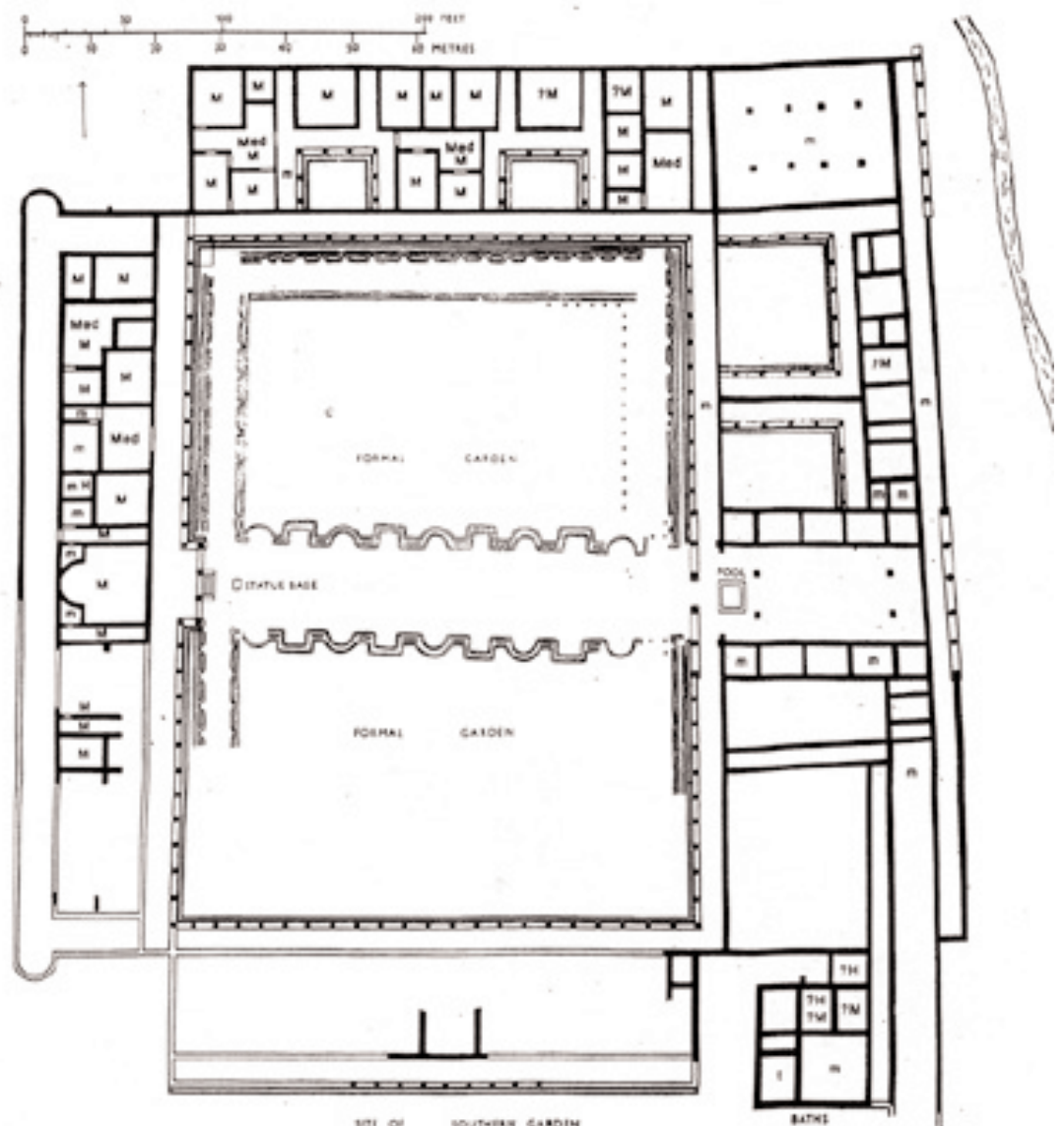
FISHBOURNE - NEW THOUGHTS ON SOCIETY

Ernest Black argues that if the building recently excavated to the east of Fishbourne Roman Palace was a shrine in the native tradition and that if the north range indicates accommodation for a native aristocrat's household, then, indeed, the palace's owner was a Briton.

In 1971, Professor Barry Cunliffe published his report on the large Roman building with its numerous early mosaics at Fishbourne in West Sussex. Since then he has maintained that this was the home of Togidubnus (then believed to be called Cogidubnus), a client-king ruling his people by arrangement with the Romans. Other candidates for ownership have been favoured by other scholars – perhaps the Roman governor (so making the palace imperial property?) or perhaps a successful negotiator (businessman). In discussing these possibilities little reference has been made to the palace itself, beyond the obvious point that its architecture and decoration are fully Roman and that it was clearly the product of great wealth. Perhaps it is time to give it a closer look at the palace, to see what the accommodation, and the arrangement of its various components, suggests about the sort of household that may have lived there.

First, we need to ask what we know about the social structure of a native chief's or king's household at the time of the Roman invasion in the mid-first century AD. There is no direct evidence, either written or archaeological, only hints. The historian Tacitus tells us that Queen Cartimandua of the Brigantes

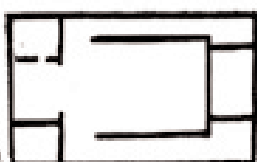
replaced her husband, Venutius, with his armour-bearer, Velllocatus. Velllocatus is assumed to have been of high social standing himself so perhaps there was a class of office-holders – druids, bards, doctors and the like, as well as armour-bearers – at the top level of a royal household whose status reflected that of their lord. This can be supported by the evidence from the cemetery at Stanway





Above. The mortuary chambers at Stanway near Colchester. Here the Colchester Archaeological Trust excavated four large ditched enclosures dating from the decades on either side of AD43.

Left. Fishbourne Roman palace showing major units of accommodation in the northern part of the west range and in the north range.



near Colchester (see plan above). The Colchester Archaeological Trust excavated four large ditched burial enclosures spanning the decades either side of AD43. In each enclosure was a sunken "mortuary chamber", where a body may have been laid out for a period for rituals and mourning before eventual cremation. Burial was not within the mortuary chamber. Instead, the ashes may have been laid to rest within a barrow that has since been totally removed or were disposed of in some unknown way. However, there were subsidiary burials which have survived. In enclosure 3, a burial was found with articles including an inkwell, and another with a spear and possibly a shield. Could they have been

the burials of a scribe and a bodyguard/champion respectively, belonging to the household of the aristocrat whose body had been displayed in the mortuary chamber at the centre of the enclosure? In enclosure 5, there was a burial which deservedly attracted much publicity in the national media when it was excavated in the summer of 1996. The burial contained a set of gaming counters still in the positions they had occupied on the board when the grave was sealed. It also contained a set of surgical instruments, indicating a doctor's grave. So these rich satellite burials seem to provide evidence for the importance and high status of functionaries attached to a native aristocratic household in the first century AD, but what sort of accommodation would reflect the structure of such a household?

This cannot be successfully measured for the Iron Age where, apart from size, distinctions in housing have left no surviving evidence, but it may be visible in Roman villas. J.T. Smith has identified "units" of accommodation and

postulated a form of "joint proprietorship" at many villas. Could what appears as "joint proprietorship" sometimes represent the structure of an aristocratic Celtic household?

At Fishbourne little is known about the south range of the palace. However, major units of accommodation, comprising suites of rooms accessed from a hallway

(*medianum*), can be identified in the northern part of the west range and in the north range (far left). Two further units, similar in plan to simple villas, each lay to the side of its own small courtyard in the east range. There is no difficulty in identifying the quarters of the owner of the palace. The domestic hypocaust in the west range, an early type designed to heat an adjoining room indirectly, is the only one known in the original building. It is also here that some rooms with mortar floors, rather than of mosaic, attest to the permanent presence of servants. The rest of the range may have been assigned to members of the owner's immediate family. A second suite can be identified in the northern part of the range and another two could have existed in the southern part. Since the west range was raised on a podium



Below. The west front, looking east, of the building east of the palace at Fishbourne (see below, left). The stream would be in the foreground.

above the level of the other ranges there can be no doubt about the higher status of its occupants. In the north range the rooms were floored with mosaics. Were these intended for guests? This seems unlikely because the scale of the individual suites is comparable to that of those in the west range and there seem to be no rooms suitable for accommodating the personal servants who would have accompanied their masters. There is little information about the two suites in the east range, but the presence of rooms with mortar floors as well as one probable mosaic suggests a mixture of servants and high-ranking occupants. This and the provision of private courtyards makes it likely that these two suites were designed to house guests and some of their retinues. Is the answer that the north range was occupied by high-status functionaries of the household?

It is notable that when the easternmost suite in the north range was demolished in the second century the remaining two suites were subdivided so that the number of rooms remained the same. It looks as if the requirement for accommodation remained constant over time, as would be the case with the office-holders of a great household.

Excavations by David Rudkin and John Manley for Sussex Archaeological Society from 1995 onwards have revealed the complete plan of a masonry building to the east of the palace. The plan has a superficial resemblance to a military headquarters building (*principia*) but there are no other military features to go with it since it is dated to Period 1B or 1C, after the military occupation of Period 1A. When the palace was built (Period 2) this building remained standing and continued to do so through the second century AD.

Indeed, it is clear that the planning of the east range of the palace took careful account of this pre-existing building. It was situated between, and in advance of, the two most important structures in the palace's eastern facade. Although floor levels and doorways do not survive it is a reasonable inference that this building faced east also. But what was its function?

Small rectangular structures from Iron Age settlements have sometimes been identified as shrines. Similar structures, built of masonry, can be found in the plans of Roman villas such as Hambleden (Buckinghamshire), Cosgrove (Northamptonshire) and Beddington (East Sussex). They are sometimes prominently situated

in front of the main entrance, as at Darenth, Kent, where a monumental pool lay between house and shrine. Such buildings may have provided the focus for the worship of a protective deity or even the settlement's founders or ancestors.

Admittedly, this is a guess and no religious artifact or bone assemblage from a sacrifice is generally found in association with them. Could the building east of the palace at Fishbourne have been such a shrine, more elaborate than those elsewhere but embodying the same spiritual protection for the settlement? On this interpretation the room on the east side of its courtyard would have been an entrance hall and the open-fronted room on the west side would have been the shrine itself.

It is notable that there was access from the north and south galleries to the area in the courtyard just in front of this room, where an altar would be expected. The shrine, if it existed, was not a substantial or a permanent feature since no foundations were found. The Triangular Temple at Verulamium, St. Albans, echoes some of the features of the Fishbourne building, and individuality of design was an option in the third quarter of the first century AD when what was later to be the standard form of the Romano-Celtic temple was just beginning to be introduced. The re-channelling of the stream in Period 1C so that it flowed between the "shrine" to the east and the other known masonry buildings to the west could even have been intended to enhance its liminal status.

If the building east of the palace was indeed a shrine in a native tradition and if the accommodation and the palace's north range does reflect the high status of office-holders in a native aristocrat's household – in contrast to the slave or freedman status of such men in a Roman context – we can conclude that the palace was built for a man who was probably a Briton.

It would be going too far to say that this was Togidubnus, since we do not know whether he was still alive when the palace was built. However, it may have been the home of Togidubnus' heir, Tiberius Claudius Catuarus, whose inscribed gold signet-ring was found close by in 1995.

ERNEST W. BLACK



THE ROMAN GIRL IN THE LEAD COFFIN

For the curators in the Museum of London the last few months have been very exciting as they waited with mounting excitement for the Roman lead coffin to be opened.

The Museum of London Archaeology Service has recently excavated a site adjacent to Spitalfields Market in London. The excavation was known to be on the site of the cemetery of St. Mary Spital, a mediaeval church and, prior to that, the area formed a part of the northern cemetery of Roman London that bordered Ermine Street, the Roman road to York.

Archaeologists have found numerous mediaeval and Roman burials. They also made an unexpected discovery. An undecorated limestone sarcophagus was found, deliberately buried in a grave-cut. Stone sarcophagi were usually left above ground as a memorial to the deceased. In this case, the lid had broken and when it was removed on



Above left. The coffin was opened with extreme care to protect both the contents and the staff.

Above. Conservators cleared debris from the lid of the lead coffin to reveal a scallop shell and cable pattern.

site, a lead coffin was found inside. This was only the third example of this type of burial to be discovered in Roman London.

Archaeologists and conservators cleared an in-fill of soil from the lid of the lead coffin and from between the sides of the two coffins in order to assess whether the coffin was airtight. The lid of the lead coffin was found to be decorated with a moulded cable pattern which divided the lid into lozenges and triangles with scallop shell clusters. Scallop shells are not uncommon depictions on lead coffins as they were associated with the pagan belief of the journey of the dead to the Underworld or Isles of the Blessed. Once conservators had ascertained that the coffin was not sealed and that there was little possibility of human tissue surviving, arrangements were made to open the coffin.

Inside the coffin lay a well-preserved skeleton, lying in a layer of wet silt. The bones indicate that the deceased was female, early- to mid-twenties in age. She was 164cms tall, 6cms above the average for women in Roman London. There was no obvious cause of death and it is most likely that she died of an infectious disease that has left no trace on the bones. The bones show that she had eaten a healthy diet during her lifetime although her teeth were beginning to show signs of decay due to a sweeter, richer diet.

So who was she? The sarcophagus bore no inscription so she will never have a name. The lead coffin and the objects buried with her indicate that she was a member of a wealthy family of 4th-century London. Whoever she was, her burial has sparked great public interest, already fuelled by a growing interest in televised archaeology. The circumstances of her discovery will feature on BBC TV's "Meet The Ancestors" early in 2000 when the sarcophagus, coffin and finds will go on permanent display.

JENNY HALL

FIELD SURVEY

A "how-to-do-it" practical guide by tutors from the Kent Archaeological Field School, part of a ten-part series on all aspects of archaeological field survey.

Archaeological surveying is a skill that many archaeological students feel is beyond their abilities. Yet without it, the practice of archaeology is severely restricted and even counter-productive. This article, and others to follow, will explore and demystify the process of archaeological survey, and, hopefully with a little science (and practice), this black art will become a matter of routine.

Surveying can be divided into two types of activity. First comes the recording of the position of objects, including the position of artifacts in the bottom of a trench, the run of exposed foundations or walls and, on a larger scale, the recording of major features on a site.

Secondly, we need to be able to lay out grids, trenches and a measured survey framework within which features may be located. Both types of survey are designated to put a plan or section on paper as a record of what was found and what was excavated.

It is important that measurements are as accurate as possible. Site survey notes should be clean and accurate and contain all written and drawn information which is deemed important by the surveyor – you. Remember, what you are about to draw may not exist tomorrow, so it is essential that a full and complete record is obtained from the evidence in front of you. Always work with a measured drawing on graph paper. You can then check that your drawing looks like whatever is in front of you. Always check your work, both visually and with measurements from another point. It may not be easy to return to that particular site or excavation, and it may be embarrassing if you decide that you have to do so.

The end result of surveying is to have a scale plan of what was on the site. The ratio of real size to drawn size will depend on a number of factors. However, there is a lot to be said for drawing at the largest scale possible to the sheet of paper you have available. Scales of drawing have been standardised in many commercial units. MOLAS

MOLAS Standard Scales

Site plan	1:100
Contexts	1:20
Elevations and Sections	1:10
Inscriptions, mosaics, timber	1:1

for instance, recommend the scales set out in the table above.

To put this in real terms, the metric scale of 1:100 means that 1cm on a metric ruler equals 1m on the ground. You will find that metric graph paper is divided into 1cm squares and each 1cm square is also divided into tens. The following table is included to illustrate the comparison of imperial and metric scales, but always record in metric.

Comparison of Scales

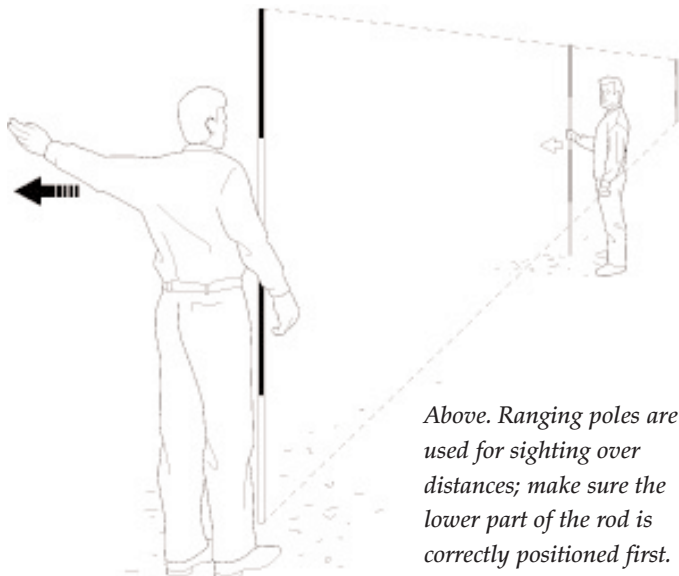
Metric equivalent	Imperial	Imperial ratio
1:10	1 in =1 ft	1:12
1:50	1 in =4 ft	1:48
1:100	1 in =8 ft	1:96
1:500	1 in =50 ft	1:600

A number of methods are used to measure distances on the ground. Direct measurement by a scaled tape is practicable only for short distances, because tape measurement is limited by the terrain and the cumbersome nature of the technique. It is best to use an engineer's steel tape or, if a cloth or glass fibre tape is used, make sure the tape is taut but not stretched before a measurement is taken.

Align the tape by eye between ranging poles set over the distance to be measured. Ranging poles are about 3cm in diameter, 2m long and coloured alternately black/red and white. It is essential that metric and not imperial ranging poles are used. In the process of sighting look along the lower part of the ranging poles first;

these will be nearer the points on the ground that mark the correct positions and will be unaffected by any inclination of the ranging pole itself.

Locate a ranging pole at the far end of the line to be ranged in. Fix another pole at the near end



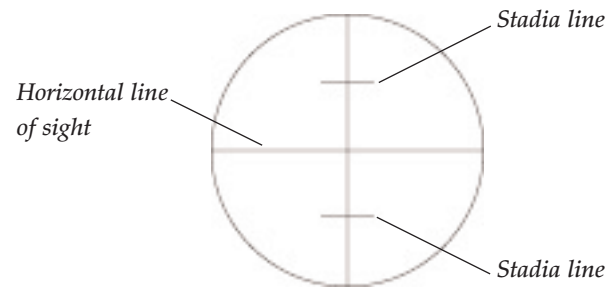
of the line. Stand close behind the latter and look towards the far pole. Direct your assistant to move the intermediate pole to a point on the postulated straight line between the near and far poles. With practice this will become a very speedy operation.

Distance between ranging poles is calculated from the number of tape lengths, obtained by physically moving the tape from one point to the other. Keep the tape taut (at a fixed tension) and horizontal. The tape is held off the ground, free from obstacles and the end measurements are made against the vertically set ranging rods. If the land is not flat, the inclination of slope must be measured and the measured distance must be corrected to obtain the horizontal distance.

For archaeological surveys, distances can also be measured optically (this method is often called tacheometry) using a theodolite and a normal levelling staff.

When using a theodolite or level it is usually apparent that apart from the main cross wires running horizontally and vertically across the field of view, there are two short horizontal lines equally spaced above and below the main horizontal. These are called the stadia lines and enable the theodolite to be used as a tacheometer.

When the staff is sighted through the theodolite the line of sight will, of course, be horizontal and



Above. Typical stadia lines showing above and below the main horizontal cross wire. Stadia lines can be used to measure distance, usually by

subtracting the highest from the lowest height readings and multiplying by 100. However, keep in mind that inaccuracies will also be multiplied by 100.

the staff vertical. The formula to use is:-

Distance = 100 × (highest staff reading minus lowest staff reading)

If the staff readings are 2.150 (highest) and 2.015 (lowest) then $2.150 - 2.015 = 0.135 \times 100 = 13.5$.

The value of multiplying by a constant 100, depends on the optical design of the theodolite, but rarely is any other value used. The accuracy of the results depends on the accuracy with which the staff is read. Sight distances should not exceed 175m; beyond this distance accurate staff reading becomes increasingly impossible. Remember also any inaccuracies in field recording will be multiplied by 100!

Until quite recently, surveys of large areas using theodolites were compiled from numerous small area surveys based on accurately measured base lines. With the introduction of electronic distance measurement equipment (EDM), distances can now be determined easily and very accurately.

The electronic instruments used to measure distance are of two types: those using light waves and those using high-frequency radio waves. Both systems work in the same basic way as radar: the distance is determined by measuring the time it takes the light or radio beam to travel out to the target and back to the receiver. Using light, a mirror is placed at the target point to reflect the transmitted light beam back to the receiver. This method of distance measurement is more accurate than that using radio waves but is effective over only short distances (typically less than 2 kilometres) because the light beam is affected by the clarity of the air.

Next issue: Grids and base lines.

PAUL WILKINSON

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