

argument on the actual stage distances seems quite sound. There is of course no doubt that there was a Roman settlement at Ewell large enough to have metalled side streets and its situation would have been quite suitable for the station."

As it is undesirable that anything should be read into this that may not have been in Mr. Margary's

mind when he wrote it, no comment will here be offered. It may, however, be pointed out that, unfortunately, apart from a few fairly old shops in the High Street, the rest of the Ewell area is residential, built up mostly during and since the inter-war period. So opportunity for excavation on any but a very limited scale is unlikely to arise for at least fifty years or more to come.

Analytical comments on the Highgate Pottery

Tests Made on the Local Clay

SAMPLES of clay were taken at a depth of 3-4 feet from the area immediately surrounding Kiln 2. When dug, the clay was a bright greenish-ochre colour, fairly clean and very plastic. Preparation was minimal: the more obvious foreign bodies were revealed by thin-slicing and picked out by hand. It was then prepared by "wedging": a technique of mixing to ensure even consistency and to remove air.

Although more plastic than the standard red earthenware obtainable from potters suppliers, the Highgate clay threw and modelled well. From the "leather" hard to the dry state it shrank by 12.5%. When fired to 750°C it showed no shrinkage between the dry and the fired state. Test pieces were fired at various temperatures from 750°C to 1080°C: the colour changed to a brownish-red at 750°C becoming a brighter orange-red at the higher temperatures. The pieces were passed on for thin sectioning (see below).

A fresh series of tests was then made using different proportions of the sand which is present in quantity to the south of the site. These were measured to compare shrinkage rate.

The clay was first reduced to a slurry and put through a 100 mesh sieve. Three samples were prepared: one of the sieved clay with no additive, a second containing 10% of sand, and a third containing 20% of sand. (The clay and sand were completely dried out to ensure accurate weighing.)

The three samples were then fired to 900°C. None showed any shrinkage between the dry and the fired state. They were then fired to 1060°C. It was found that the proportion of sand had made no difference to the rate of shrinkage in the firing, (there was a shrinkage of 4% in all three tests).

These tests were in no way intended to reproduce the work of the Roman potters since their methods involved using wood for fuel which produced a "reduced" atmosphere resulting in the familiar grey or blacking colour. The samples were "clean" fired in an electric kiln and were undertaken for the purpose of discovering temperature resistance, degree of shrinkage and possible additives. Thin sections have been made for comparison with sherds of Highgate Ware.

It is hoped to make further tests and possibly to build a simple kiln of the type found on the site so that the clay can be fired under conditions approximating to the Roman methods.

MARY LAMBERT

Statistics

THE Highgate site poses an extreme example of a problem common to most archaeologists—it reveals a great quantity of excavated material, containing a vast amount of information, which will be wasted if it is not sifted and interpreted. The statistical approach is of value because, by dealing with attributes of the pottery which can be measured or counted, it can reduce part of our mass of information to manageable proportions. Also, we can reduce our work-load by taking a sample of the available material, and still have confidence in our results, provided two conditions are satisfied. Firstly, the attributes we chose must be relevant, and secondly, the sample must be representative and large enough for the statistician to work on.

The attributes used are broad type and rim diameter, which are both relevant to problems of how the pottery was produced and what it was used for. The theory of sampling does not allow us to say how accurately a particular sample from various parts of the dump, and from some of the pits, we have avoided the dangers of bias which might come from examining just one level or just one area of the site.

Further statistical work is progressing on two fronts. The first is an attempt to divide up the broad types so far used into smaller natural groups, and the second is a study of the relationships between the different types to see what can be deduced about the site as a factory.

C. R. ORTON

Thin Sectioning

THE technique of thin sectioning in the study of ceramic material is derived from that used by the mineralogist in the study of rocks. The thin section is made by grinding one surface of a sherd's section perfectly flat with carborundum powder, cementing that surface to the microscopic slide and then grinding the specimen away until it is transparent.

In thin section the Highgate pottery is seen to contain a large amount of sand embedded in a matrix of clay. The clay has too fine a structure to be adequately resolved with the optical microscope, so the work is concentrated on the minerals found in the sand. The most common is quartz, the majority of which is present in crystalline form although a small proportion appears as chert. The second most common mineral is feldspar in various forms, most of this is orthoclase, with some plagioclase and a very small amount of microcline. Muscovite

(mica) is also present and the odd crystal of chlorite.

Thin sections have also been prepared from the experimental firings described (see above). Comparison of the results with sections of the Roman ware enable one or two very tentative conclusions to be made. There are two main types of fabric present at Highgate: normal sandy fabric and one with a slightly soapy texture. Compared with the experimental firings so far undertaken the normal sandy fabric contains added sand, while the soapy fabric contains less sand. However, many more sections need to be made and statistically evaluated before the extent of these alterations to the basic clay mixture can

be stated with any confidence.

It is hoped that future work will make it possible to recognise in thin section Highgate ware from other sites. This will, however, necessitate considerable study of 1st and 2nd century coarse wares, and depend upon some particular technological or mineralogical uniqueness in the Highgate wares.

S. A. MACKENNA

Correction. On pages 62 and 63 in issue No. 3 the pottery illustrations have got their captions reversed. The pottery on page 62 is from Pit 2 and that on page 63 is from the base of the rubbish dump.

Letters

NEW COUNTY SOCIETY

I READ your recent article "Joining a Society" in the Spring issue of *The London Archaeologist* with both interest and enthusiasm. I found that I was in full agreement with the points that you made. It is especially important, as you pointed out, that all who are interested in either history of archaeology, should support their local and county societies. Not only is the quality of the activities of these societies a reflection upon their members, but without them they cannot even exist.

The point which I must contest with you arises due to an omission. This I am sure, is due only to the recent inauguration of our society. I am referring to the formation of the Hertfordshire Archaeological Society, in January of this year.

Many members have already assisted on excavations throughout the county and especially at Much Hadham where we are excavating the Romano-British potteries at Bromley. Others have carried out fieldwork, both on known sites and those recently discovered by aerial photography.

Besides providing evening lectures, the Hertfordshire Archaeological Society which is based on Balls Park College in Hertford, is also arranging and planning a wide range of other activities including training courses. Membership costs £1 per year, and 10/- for any other member of one family, or full time student. Further information may be obtained from the Membership Secretary, 44 The Street, Braughing, Hertfordshire.

9 Roman Way,
Puckeridge,
Ware,
Herts.

MICHAEL SMITH
(Chairman)

ANTIQUITIES BILL

WITH reference to the comments of *Gromaticus* in your last number, I would like to make it clear that no museum curator worth his salt wants to discourage people from bringing antiquities—or what they think may be antiquities—to his museum. Such enquiries have always been welcomed in any museum of which I have personal knowledge.

The proposed Bill would, however, impose on the finder

of any archaeological object the duty of sending a *written report* which the local archaeological agent appointed by the Minister would be obliged to investigate. This agent might or might not be the curator of the local museum. An "archaeological object" is defined as "any chattel which has by reason of its archaeological interest a value greater than its intrinsic value or which is otherwise deserving of archaeological study." With certain exceptions, such as surrender for treatment or to an archaeological agent, the finder would be obliged to retain the object in his possession for a minimum period of three months.

What worries London archaeologists is the impossibility of observing this law in a place where thousands of artefacts, each of which might qualify as an archaeological object under this broad definition, come to light each year. A further difficulty is that in most cases the finder is a labourer on a building site, to whom the proposed statutory duties would seem an intolerable burden, and moreover one which promised no reward, since he would have no title to his find.

Extending the responsibility to site agents and others in authority on the site does little to help, since these over-worked people have already quite as much paper-work as they can cope with. I fear that in most cases the easy way out would be taken, and antiquities would quickly but quietly disappear. It is not unknown for similar illegal but understandable action to be taken when human skeletal remains are unexpectedly found—simply to avoid the trouble and delay resulting from proper observance of the regulations. Since failure to obey the law must be concealed from those who are likely to be interested, there is a very real danger that one result of the proposed legislation would be to curtail the freedom now readily given to archaeologists to visit building sites. If so, the loss would be immeasurably greater than the gain.

Guildhall Museum,
Gillett House,
55 Basinghall Street,

RALPH MERRIFIELD
(Assistant Director)

Correction. The price of Graham Webster's *The Roman Imperial Army* mentioned in issue No. 3 should have read as 63s.