

An Assessment of the use of the RAPPORT system for the Romano-British pottery assemblage from Wroxeter.

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INTRODUCTION

The analysis of the Romano-British pottery assemblage from Wroxeter is now nearing completion. The material has been recovered from a long term excavation stretching back some 17 years in which time over 110,000 sherds have been recovered. As outlined last year the main problems encountered for analysis were in the large quantity of material and the complexity of the site. The archaeological deposits excavated stretch over half a hectare and include thousands of distinct archaeological contexts formed over 300 years and more of the Roman occupation of the site.

The brief for the work stipulated that all material had to be catalogued so there was no question of sampling. Computers were a pressing need for the site. I developed a cataloguing system on a Commodore 16K PET micro-computer which was both quick (half as fast again as conventional paper records) and accurate (with built in verification procedures). This material was recorded onto cassette tapes (we could not afford a disk drive) and transferred to the DEC2060 mainframe at Birmingham University. It was decided at an early stage that the RAPPORT database system was most suitable for our needs of analysis. It has useful facilities including:

- i) Record updating and good data integrity
- ii) Fortran programs could be converted to run directly with the system.
- iii) The interactive query facility was a very attractive feature offering the possibility of getting results rapidly while sitting at the terminal.

There is no doubt that the RAPPORT system does have advantages over alternative systems, but with hindsight after using the method for over two years, it is now possible to reveal the drawbacks encountered and to consider other possibilities which might have achieved the same results more efficiently. At the same time we can report that the analysis has been highly successful providing our catalogue and elucidating many details of site chronology.

The problems of the RAPPORT database system

In practice some of the advantages of the RAPPORT system evaporated. The DEC2060 computer at Birmingham works on a normal time-sharing basis so that the greater the number of people using it at any one time, the less CPU time is available to each individual user. This has serious consequences for the interactive query facility. Demand for the DEC2060 is now so high that use between 9.00a.m. and 7.00p.m. is painfully slow. With the large size of the database it effectively means that the IQL facility was not

viable for most of the time. Because this was one of the initially attractive advantages of the system its value was considerably reduced. It must be concluded that for databases of any large size careful consideration must be given to whether the work can be planned so as to use the computer at times when the 'LOAD' is low. I had to use the computer during week-ends and late at night to get the work done.

The other practical limitation is the 'greed' of RAPPORT itself. Because the system is built for integrity and portability it is very expensive in terms of computer time. Thus a simple search through the database for a particular vessel form can take up to 20 minutes of CPU time. And anything more complex can take considerably longer. As I was using the system I had considerable difficulties in the way that batch jobs would be constantly shuffled to the back of the queue and not run for several days. This is hardly the rapid response promised by the IQL system.

Let me urge those who might consider the use of the RAPPORT system to ponder most carefully what they want from the system and whether it will really be the system for them. Without the IQL system it does not have the same ease of access. And it can be remarkably slow in handling FORTRAN programs. With hindsight I believe the database could have been set up with many smaller sub-files to allow more rapid access. This is certainly a key to some of the difficulties. However, as one obtains more results from the computer, objectives change. Some areas of analysis that seemed important do not bear fruit, while others flourish and are extremely productive. So it proved with the Wroxeter material. Whatever system had been used there would always have been problems here because of the size of the database and, I must admit, the innocence of the user. Nevertheless, I feel we could have given more thoughts to the aims and objectives of the cataloguing from the very beginning and what system of analysis we should choose. I imply a note of self criticism here, but the problem is also in the way these projects are funded. Recent guidelines issued by the Department of the Environment (now the Commission) do not allow their money to pay for serious research. Research design is a dirty word. They further insist that all material must be analysed rather than a sample. Indeed in the pot world as a whole, sampling has a very bad image. This is partly because they do not understand it and partly because there is a lack of knowledge and interest on the part of those academics capable of producing good sampling designs for this material which meets all our needs. Recent criticism of the lack of sampling in pottery studies is to some extent valid, but is generally ill-informed as to our needs.

Given that all material had to be analysed what alternatives could we have chosen? The possibility that we could have used a simple package such as SPSS with its ready made analysis system is certainly strong. I have used

this system in the past and found it quite successful despite its inflexibilities and other drawbacks and I feel that it would have been a quicker form of analysis for the Wroxeter material. More interesting even than this is the idea that we could have done much work with a good micro with disc drive and peripherals and just used the mainframe for large scale analysis. Because my work was based at Wroxeter many miles from the mainframe at Birmingham, this could certainly have saved both time and money. Again there are practical problems here in the way the project was funded which discouraged capital spending (on things like micros and so it took me 10 months out of my 35 working on the project to get any machine at all) but which was quite happy about current spending. Thus my travelling expenses alone could have purchased an excellent micro and all the peripherals we might need. This could have been used not only for the pottery, but also for all the other finds which now must be analysed. This brings us to the needs for good research design from the beginning.

RESULTS OF ANALYSIS FROM WROXETER BASILICA

I do not want to sound negative about the work at Wroxeter, I merely hope that others might benefit from the lessons of our experience. There can be little doubt in fact that the difficulties our RAPPORT system encountered were more than balanced by the excellent and interesting results we have been able to produce.

Wroxeter is a large and complicated site with many years of occupation. For the pottery analyst like myself, the problem is, or has traditionally been thought to be, to build up a picture of the way the supply of different forms and fabrics of vessels changed through time. With a good detailed analysis the hope is that not only can we build up a chronological framework for the pottery but for the different phases of the site's occupation. On many sites the pottery is the basis of a site's dating and thus vital. Because the Romano-British population at Wroxeter possessed and consequently broke many vessels (in excess of 10,000 are represented on our site alone) and sherds from these are incorporated in archaeological deposits which may be dateable, the approach has much merit. Unfortunately, Wroxeter is typical of many urban sites in being subject to massive engineering and building activities which churn up archaeological deposits that have been laid down in the past and mix the pottery from the different periods. At Wroxeter we estimate that considerably more than 90% of the sherds of pottery have been redeposited in this way. Thus although we can do some work with the stratigraphic evidence we have, there would be considerable gaps in the chronological sequence. We have excavated no layers which formed in the first century and hardly any which formed in the third (although we have much pottery from both these periods).

The traditional approach would have been to give up any hope of analysis for these 'gaps'. It would also have been to disregard any material that was considered redeposited ('residual'). In other words over 90% of the material would have been disregarded for analysis.

When I began work at the site my brief was to try to assess if any use could be made of such material. I had considerable advantages. Not only was every sherd meticulously recorded as to archaeological context, but it was also recorded in its position within the site grid (the smallest unit was a 2.5²m square). There were problems with on site recovery, but these have been overcome by sample wet-sieving and quantification procedures which reduce bias to a minimum.

I also had the advantage of the excellent program devised by Nathan Sutton for presenting distributions of the pottery fabrics and forms across the site in a variety of different ways. It has been invaluable. From an early stage of the analysis it became clear that there were very clear patterns in the distribution of the pottery despite the heavy redeposition, reflecting chronological differences. The more work we did the clearer these patterns appeared to become. We soon realised that these patterns applied not only to the pottery but other useful forms of dating evidence such as the Roman coins. Even in so-called residual contexts, coins from particular periods tended to concentrate in particular parts of the site. It was noticed too that the distribution of these coins bore a striking resemblance to the distribution of certain of the pot types. Fortunately in many cases we could check the relationship of the distribution of coins and pottery with the evidence from the stratigraphy. There was a high degree of correlation between the evidence from these two sources. Thus, say, Oxford colour-coated wares, which we knew from the stratigraphy to be a fourth century type and particularly heavily represented after 350 A.D., had a strikingly similar horizontal distribution on site to the coins of this period.

Of course this becomes very interesting and useful as a technique when dealing with periods in which there is no stratigraphic back-up. There was virtually no useful third century stratigraphy even though there were numerous coins of this period (and presumably pottery). What is more the distribution of these coins was quite distinct and it closely matched the distribution of certain pot types which we found impossible to date by other means.

It is now becoming increasingly clear in this work on distributions that the horizontal patterns of pottery is at least as useful a guide to the chronology as the stratigraphy itself. What is more, it is now possible to make a good guess as to the dating of a particular type of pottery simply from the configuration of its distribution. I must also strongly recommend that the horizontal as well as the vertical distribution of sherds be used more widely

in pottery studies. It is not only useful for assessing chronology as described here, but also promises much in terms of providing information about activity areas and the nature of the occupation of a site.

The database system used has provided much information about the site; the nature of the archaeological deposits; the chronology of the pottery and its distribution. We have been able to achieve all the objectives we set ourselves. We now have a full catalogue of all the site's pottery to date, in terms of pottery forms, pottery fabrics and archaeological context. We also have available for publication a summary catalogue which plots the important pottery forms and fabrics against the phases of occupation on different parts of the site.

What of the future? Clearly we have to complete the excavation of the site, which may take one or possibly two years. All the pottery can then be analysed (the layers to be excavated in future are not expected to produce large quantities of pottery). It is possible we may try new methods of spatial analysis which may reveal more detail of the site's chronology.

CONCLUSIONS

The Wroxeter pottery assemblage is now nearing the completion of its analysis. There have been difficulties and drawbacks in the techniques employed and the RAPPORT database system has been rather disappointing in application. Not only has it proved slow in practice, but one of its major advantages the Interactive Query language has proved virtually unusable. Nevertheless we have been able to achieve many of our initial objectives and particularly we have been successful in utilising a largely redeposited pottery assemblage for chronological analysis.