then entered into a data matrix which was used as the starting point for statistical clustering techniques. Both techniques are clearly a formalised version of the methods used both by ceramic petrologists and those trying to sort pottery fabrics macroscopically and could well be useful as a means of making our intuitive approach to classification more open to examination. This naturally leads on to the final paper in the volume, 'Extending Ceramic Petrology' by Ian Freestone. Freestone draws together various strands running through the papers and tells some home truths, both about the limitations of ceramic petrology and about the limitations of ceramic petrologists (principally that they have never sat down and established a formal terminology). Freestone proposes the adoption of a minimum standard consisting of six primary characteristics:

1) A list of all the inclusions present above trace level, with some indication of their relative abundance.
2) An indication of the total quantity of non-plastic inclusion, even if only in subjective terms such as 'common' or 'abundant'.
3) An indication of the degree of sorting of inclusions.
4) An indication of 'typical' grain size.
5) An estimate of roundness.
6) The colour of the ceramic matrix and whether or not it is birefringent.

This standard could well form the basis for one based on macroscopic examination and, indeed, is very close to that used in the Museum of London and elsewhere. Following a discussion of textural analysis and mineralogical quantification Freestone's paper briefly mentions the relatively recent techniques of electron microprobe analysis in which the elemental composition of inclusions seen in polished section under the Scanning Electron Microscope can be measured. The method only works where the fabric includes minerals of complex composition and is not, therefore, an answer to the ubiquitous problem of what to do with quartz or grog-tempered wares.

To conclude, this volume shows that the techniques of ceramic petrology are being extended and applied to more and more diverse areas of archaeology (and ethnography). To anyone working on the classification of pottery by fabric, with or without the use of thin-sections, the volume will contain material of interest and earns a place on the library or laboratory shelf.

Alan Vince

E. Lewis (ed) *Customs and Ceramics — Essays presented to Kenneth Barton* A. P. E Wickham. 184 pp., 80 figures. Price £9.50 plus 50 p postage.

I find it hard to believe that Ken Barton has retired and gone to live in France. From my northern fastness in Aberdeen, I have come to expect him to be there when I journey south, ready as ever to examine my latest offering and to opine, discuss and, not infrequently, argue. But retire he has and this collection of ten essays has been presented to him by some of his friends as a tribute to his many years of work in the field of ceramic research. Examining a wide range of topics and spanning the medieval and post-medieval periods, the essays reflect the wide range of Ken's own interests.

Following an introduction by Graham Webster, who launched Ken on his archaeological career, John Hurst examines the beginning of the study of medieval pottery in his essay on antiquarian finds of medieval and later pottery. Frans Verhaeghe, following Ken's example, examines museum collections in a thought-provoking essay which considers a fragment of a Brussels aquamanile and from that discusses ceramic competition with quality metal goods in the middle ages. This is the longest paper in the book, and is presented with Verhaeghe's usual meticulous scholarship. Also pursuing Ken's life-long association with French pottery and the Channel Islands, Robert Thomson and Duncan Brown, and Bob Burns respectively examine some earthenware curiosities from the Saintonge, and Normandy stonewares from Guernsey.

On the home front, Mike Ponsford looks at the dating of Ham Green ware from Bristol, while Elizabeth Lewis looks at the documentary evidence relating to the Blackwater potters, another ware eagerly pursued by Ken. David Allen examines four bellarmine 'witch-bottles' from Hampshire, and Russell Fox describes 18th- and 19th-century chimney pot and inscribed tile production in the Portsmouth area. The collection is rounded off by Peter Brears, who departs from the ceramic theme and presents a delightful essay on the Christmas wassail custom in England, tracing it from its medieval origins to the 19th century.

This is an attractive and interesting collection of essays and one which I am sure Ken Barton will appreciate. However, just one note of caution to readers — the scale of the drawings is not consistent throughout the volume, while the book is produced in a paper-back size (landscape format). Some may find this irritating, as it makes it awkward to fit into bookshelves, but I have to say that it appeals to me. It slips easily into the pocket to take on journeys or to read while having a quiet drink in the pub. I did this recently and found it excellent company — I'm sure Ken would approve.

Charles Murray

I. W. Reed, *1000 Years of Pottery. An Analysis of Pottery Trade and Use. Fortiden i Trondheim Bygrunn: Folkebibliotekstomten (the Library Site).* Meddelelser Nr.25. Riksantikvaren, Utgravnings- kontoret for Trondheim, Trondheim 1990. 94 pp., 26 figures/tables. Price NOK50.

Norway is unique in Europe in that from the 7th century until *c.*1700 there were no local pottery industries; all the pottery used was imported, and this provides an extraordinary opportunity to understand the changing patterns of trade. The author of this report on the pottery from the Library site in Trondheim (over 34,100 sherds) is to be commended for making the most of the evidence at his disposal within a limited timetable and budget. To appreciate the strengths and weaknesses of this the first detailed publication of pottery from Trondheim requires a certain knowledge of archaeological and pottery research in Norway.

The first large-scale urban excavation in Norway was the Bryggen excavation in Bergen, directed by Asbjørn Herteig. This ran from 1955–69, but it was not until the 1970s that excavations began to be carried out in advance of development work on other sites, and not until 1978 that state-funded excavation units were established in historic towns such as Trondheim, Bergen, Tonsberg and Oslo. The approach to publication has varied. The different sites in Oslo and the Bryggen excavation in Bergen are being published in a series of monographs (the latter in English). In Tonsberg, publications have been planned but have yet to be published, while the Riksantikvaren in Bergen have produced a series of archive reports but no final publications. In Trondheim a compromise has been reached whereby the sites are published by means of A4–size fascicules which constitute a research archive rather

than a 'Level 3' or 'Level 4' report. The Library site in Trondheim was the first major excavation in the old town centre (3200 square metres). It started in 1973, and continued over several seasons until 1985, revealing a sequence of densely built properties on either side of one of the main medieval streets and part of a cemetery. The fascicule reports tackle different aspects of the stratigraphy, land-use, and finds. The advantage of these reports, produced in house to camera-ready copy, is that they are cheap and have appeared within a remarkably short time after the completion of the excavation. The disadvantage is that the print runs are limited and they are not widely advertised; a further consideration for the English reader is that, with the exception of the reports on the gaming pieces and the pottery, all are in Norwegian.

To proceed to the pottery, ceramic studies in Scandinavia are still very much in their infancy. The traditional method is to classify the material by firing and the presence or absence of glaze, using an alpha-numeric coding system (Selling 1976). Thus the pottery from Oslo was sorted into broad groups such as 'Unglazed earthenware', 'Lead-glazed earthenware' or 'Stoneware', which were divided into sub-groups according to whether the fabric was medieval/post-medieval, whitish, greyish or reddish (Molaug 1977; 1981). Although some distinctive wares such as Saintonge were isolated, the obvious danger of this method is that products from different kilns may be grouped together, while sherds from the same source, or even from the same vessel, may be counted in different groups, so that it is difficult to make meaningful inter-site comparisons. In Bergen different approaches have been used on the material from different sites. The vast collection from the Bryggen is now stored and listed as far as possible by fabric type and is being studied on a ware-by-ware basis by researchers from the different countries of origin (Lüdtke 1989). The pottery from some sites excavated by the Riksantikvaren in Bergen has been studied by the conventional method, but most has been classified as far as possible by actual ware type. Sadly, however, although important data has been prepared for archive purposes, the results are not readily available to the general public.

Against this background, a monograph devoted entirely to pottery, presented in English and in terms which are intelligible to archaeologists in all parts of Europe, is a major achievement. Due to the economic conditions prevailing it is a comparatively slender, unassuming volume, but this presentation belies the value of the content, which is divided into six sections. Following the introduction, the section on methodology starts with quantification (sherd count for all wares, plus weighing of the medieval wares) and the problems of residuality (it is thought that some 14% of the medieval material is residual); the chronological distribution of the wares is illustrated by means of seriographs. This is followed by a discussion of the distribution of joining sherds from the same vessel (520 cases), with supporting tables, distribution plans and diagrams of cross-fits in the style proposed by Duncan Brown (1985). Eleven of the twelve main structural phases are presented in a series of small-scale site plans, although these lack even approximate time-scales; a synopsis of the stratigraphy would have been useful for the non-local reader, but those requiring further information must refer to other fascicules in the series.

The third section (seventeen pages) comprises fabric descriptions of the 65 ware types (defined macroscopically), arranged more or less chronologically by country of origin, the terminology following that recommended in the MPRG Guidelines. References and notes on dating are also included. The fabric codes used in the computer analysis are listed in an appendix. The fourth section, on the interpretive uses of the material, combines a consideration of vessel function with further distribution analysis of different wares to answer specific socio-econmomic questions relating to different properties or the relative freqencies of ceramic and non-ceramic (*e.g.* wood or stone) vessels. Although of local interest, the results were largely negative, and so it is surprising that nine pages are devoted to general distribution plans of the different wares (all periods), with only one page showing typical examples of the different form types (cooking pot, pipkin, pitcher, jug, beaker/drinking jug, bottle, costrel and aquamanile).

The most interesting section for the non-Norwegian reader is that on mercantile activity as evidenced by pottery, which firstly discusses the waxings and wanings of the different wares by country of origin. This is followed by a discussion which draws together the evidence offered by all the wares present at different times, although the author stresses the dangers of circular argument, residuality and the many other reasons why pottery may not be a true indicator of trade patterns at any one time. The resulting chronology, which develops the ideas formulated during research on pottery from smaller sites in the town, and also supports the work in Bergen (Lüdtke 1989), opts for three broad phases: Period 1 *c.*AD 1000–1250, Period 2 *c.*AD 1250–1500, and Period 3 post-AD 1500. In the Period 1, most of the pottery is from the Low Countries, with *c.*22% from England and 2% from Scotland. The presence of sherds from two vessels of eastern Mediterranean origin bears witness to the extraordinarily far-reaching contacts of Norway during the Viking period. In Period 2, some 35% of the pottery is from Grimston, while a further 25% is comprised of other English wares. German wares are the second most common, but the Low Countries are barely represented. In Period 3 the Low Countries wares dominate the market again, with German wares in second place; English and other wares are virtually non-existant. The final section comprises a summary which covers rubbish management, pottery as evidence for social differences and change, and pottery and trade, where some recommendations for further work are made.

This is a thoughtful and thorough study of an important stratified ceramic sequence. Given the vast amount of material to be processed, some corners have perforce been cut, some wisely, others perhaps less so. Arguably the most regrettable omission is the complete absence of drawings of the actual material. The reason for this radical decision (explained in the introduction), is that the stratified medieval material is fairly fragmentary, with few reconstructable profiles, and the forms are, on the whole, well known. The impression is that there has been a conflict between the local and the wider interest, and that the latter would have been better served by fewer distribution plans (of which there are fourteen full pages) and two or three pages showing the best examples of the stratified wares. Since the bias of fabric types found in western Norway differs from that in Oslo, it is to be hoped that the need for a visual corpus of stratified finds may be filled by adequate budgetting for other publication projects in Trondheim or in Bergen.

Notwithstanding this last point, this volume represents an important advance in Scandinavian pottery studies, which should be read by all those with an interest in North Sea trade. The detailed fabric descriptions should be invaluable to pottery researchers in Scandinavia, and it is to be hoped that the old ABC system of classification may now be abandoned once and for all and that an internationally accepted standard will allow for meaningful inter-site comparisons in the future.

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Lyn Blackmore

Sabine Wirth, *Mittelalterliche Gefässkeramik. Die Bestände des Kölnischen Stadtmuseums*, with contributions by Georg Hauser and Stefan Neu. Kölnisches Stadtmuseum, Cologne (1990). ISBN 3-927396-34-6. 220 pp., 197 plates, 16 colour plates, 17 figures, Maps 2. Price DM 32.

During the late Middle Ages Cologne, situated on the river Rhine, grew into one of the largest cities in northern Europe, with a population of over 50,000. By the 16th century, the city was one of the most powerful states, both politically and militarily, in the Holy Roman Empire. As a member of the Hanseatic League, its influence and wealth were based primarily on trade, and especially long-distance riverine contact. The Cologne *Englandfahrer*, for instance, were responsible for the shipping of English cloth to the Low Countries and along the Rhine valley. Ships on the return journey would have carried consignments of pottery and tiles as part of their cargoes of wine and other goods. Throughout the medieval and later period the city was the pivot of the international export trade in Rhenish stoneware and earthenware.

With the exception of a number of interim reports dealing with the pottery excavated in the centre of Duisburg during the last decade (Krause 1986), the study of medieval ceramics in the Rhineland has been characterised by an emphasis on production sites. Bernhard Beckmann's 1975 corpus of wasters from the *Scherbenhügel* in the Siegburg Aulgasse springs instantly to mind. This new publication of ceramic finds from the Rhineland's most important consumer site makes a refreshing contrast to the previous diet of kiln-site reports and museum catalogues duplicating the "established" chronologies. However, although this is at least a positive attempt to provide an insight into Rhenish pottery in use, as opposed to that which never entered general circulation, most of the material presented here relies heavily on comparative dating and traditional attributions. That said, this reviewer remains grateful for any pottery published from perhaps the archaeologically least investigated metropolis of medieval Europe.

Essentially, the volume consists of a catalogue of medieval pottery housed in the Cologne Stadtmuseum (town historical museum). Virtually all the pieces are casual finds, although most have a fairly precise provenance from the city. (It is only in the last decade that quantifiable assemblages of medieval and post-medieval pottery have been collected on a systematic basis on city excavations). The 773 catalogue entries follow the traditional format: ware-type, date range, dimensions, findspot, museum inventory number and comment section. The main ware-types covered by the volume are Badorf-type ware, Pingsdorf-type ware, Greyware (*Blue-Grey ware*), Siegburg-type earthenware, proto-stoneware and stoneware, Langerwehe whiteware, Rhenish whiteware, Raeren stoneware, and Cologne stoneware. Chronologically, the catalogue ends with the earliest examples of stoneware production in the city (*c.*AD 1500). Nearly 200 entries are accompanied by black-and-white photographs; sixteen are illustrated by full-page colour plates.

The catalogue comprises a valuable overview of ceramic consumption in the city of Cologne from the 9th to early 16th centuries. This reviewer would, however, stress the essential usefulness of the volume as an *aide-memoire* to the regional circulation of ceramics during the Middle Ages, as opposed to a survey of the proportional relationship between wares in use from different sources. This crucial drawback is compensated in part by the addition of two interim reports on recent excavations in the city-centre. Georg Hauser's paper covers the extensive assemblage of 14th-century pottery recovered from the foundation trenches of Cologne cathedral during 1986. Here the local dominance of the Siegburg stoneware industry parallels the situation in the neighbouring Netherlands (Janssen 1988). The contribution by Stefan Neu discusses the discovery during 1986–7 of a series of kilns producing lead-glazed earthenware in the Cologne Severinstrasse. The pottery types are typologically similar to the early 16th-century redwares found throughout the Lower Rhineland and Low Countries (Gaimster 1988a, Fig. 5). The find affords for the first time the opportunity to investigate the source of these products by chemical analysis.

Returning to Sabine Wirth's catalogue section, it is regrettable that the dating of individual vessels relies heavily on the well-known (and misused) publications by Beckmann (1975) and Reineking-von Bock (1986). This policy is doubly disappointing when one considers the wealth of closely dated contexts of Rhenish medieval pottery now available from excavations in the Netherlands, Britain and Scandinavia (*e.g.* Janssen 1988; Hurst 1987; Lüdtke 1988 respectively). Similarly, individual attributions suffer from the same uncritical duplication of previous publications. Bottle forms with a purple exterior wash are still slavishly ascribed to Langerwehe (Cat. 4.552), although they undoubtedly originate in Siegburg (*cf.* Hähnel 1987, Cat. 135–151). As for the descriptive text, it is surprising that no use has been made of the recently published fabric and form terminologies published by the Landesmuseum Bonn or the *Arbeitskreis für Keramikforschung* (see Gaimster 1988b). It might have been helpful to add Munsell colour codes as Elsa Hähnel has done in her Siegburg catalogue (1987).

Despite these quibbles, Sabine Wirth and the Kölnisches Stadtmuseum must be congratulated for making this important collection of medieval pottery available for the first time to an international audience. The quality of both the monochrome and colour photography is impressive, making this hardback book exceptionally good value for DM 32,–. As an introduction to the richness of Cologne's ceramic heritage, the publication makes a worthy companion to Ingeborg Unger's ground-breaking monograph on the Cologne stove-tile industry (1988), the first of this series on medieval and later ceramics held by the Museum. Colour plates of the spectacular anthropomorphic proto-stonewares from Siegburg (Cat. 4.346, 4.348, 4.348a) warrant purchase of the volume alone.

David R. M. Gaimster

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