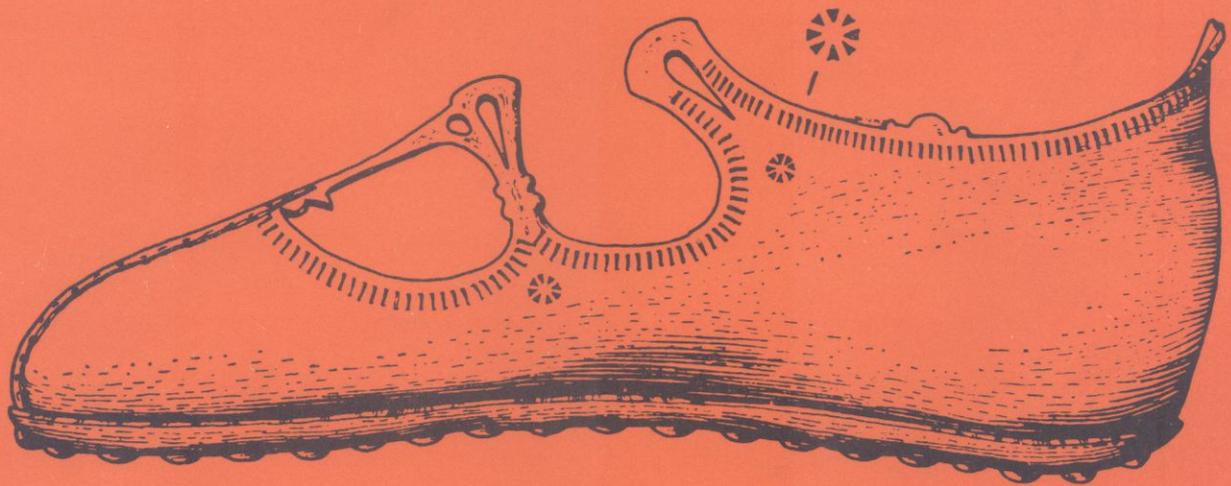


RECENT RESEARCH  
IN  
ARCHAEOLOGICAL  
FOOTWEAR



ASSOCIATION  
OF ARCHAEOLOGICAL  
ILLUSTRATORS  
& SURVEYORS

TECHNICAL  
PAPER NO. 8, 1987

# **RECENT RESEARCH IN ARCHAEOLOGICAL FOOTWEAR**

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**ASSOCIATION OF ARCHAEOLOGICAL  
ILLUSTRATORS & SURVEYORS**

*IN ASSOCIATION WITH THE*  
**ARCHAEOLOGICAL LEATHER GROUP**

*Cover Illustration:* Leather Shoe from Hardnott, Cumbria.

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## Foreword

This publication constitutes the proceedings of the 'Recording Shoe Finds' Seminar at the Museum of London, on 24 September 1985, organised particularly to publicise the method of recording and drawing of footwear, pioneered by Olaf Goubitz, conservator and restorer of wet leather objects, at the State Service for Archaeological Investigations in the Netherlands, at Amersfoort (ROB).

Other important research relating to archaeological footwear was included in the Seminar and published more fully here.

## Acknowledgements

The Editors wish to thank The Society for The Promotion of Roman Studies for permission to reproduce the illustration on the front cover and fig. 7, p. 38.

The London Seminar was the sixth meeting, organised under different auspices, since 1973, concerned with mainly excavated shoes.

From the interest shown at this meeting, an Archaeological Leather Group has been formed, to bring together people interested in all aspects of leather production and artefacts.

Honorary Secretary: Mrs Sue Thomas, Senior Conservator, Herbert Art Gallery and Museum, Jordan Well, Coventry, CV1 5RW.

Diana Friendship-Taylor  
June Swann  
Sue Thomas

# Calceology: a new hobby: the drawing and recording of archaeological footwear

*Olaf Goubitz*

*Drawings by Olaf Goubitz, except for figures 7a, 21 and 26*

Firstly, I should like to thank the organising committee for having invited me to the Seminar.

The author also wishes to thank Mrs. Diana Friendship-Taylor and Miss June Swann for putting the text into English.

This paper is an extension of that in Goubitz, O., 'The drawing and registration of archaeological footwear', in *Studies in Conservation* 29, no. 4 (1984), 187-196.

Twenty years ago, a carload of wet leather from the City of Dordrecht was delivered at our laboratory. After that, more leather was to arrive and this continued for some ten years: luckily, not always as carloads, but nevertheless, the mountain of bags full of wet leather grew. In the beginning, I used my lunch-breaks to keep it as wet as possible and also cleaned some of the leather.

After six months, I was assigned to dealing with the leather on a full-time basis. Stealthy enquiries taught me that practically nobody was doing anything about wet leather in the Netherlands, so the challenge was born. With about 10,000 shoes to handle, I had enough material to develop something I would one day call 'Calceology'.

Apart from the cleaning, conservation and restoration, there is quite a lot of work to be done on the recording of all kinds of information concerning footwear in general, and archaeological footwear in particular.

I have written articles on:

- a database structure for computer registration;
- a bibliography about footwear;
- a castor-oil treatment for wet leather;
- a PEG 600 treatment for wet leather;
- a suggestion for a footwear typology;
- a checklist for describing footwear;
- a glossary of terms for medieval shoes (in Dutch, but with English additions);
- an article about shoe finds in a Dutch town;
- an article about the restoration of a leather jerkin.

I will use the drawing of leather objects as a lead to mention some of these various aspects.

What is the use of a drawing? A drawing is made to note specific data, which are difficult or even impossible to photograph. On a drawing, one can omit confusing elements, such as false pleats and other deformities, irrelevant damage and missing parts. One can emphasise the technical and stylistic characteristics of an object. One can reconstruct a complete object from a few parts or fragments. It is even possible to make, as shown in *Fig. 1*, a leather reconstruction from a photograph, such as this one shown in Eunice Wilson's book. (Wilson, Eunice 1969). This was only possible after having made a drawing of the cutting pattern, which was not an easy thing to do. However, in the end, one learns to think of shoes in terms of cutting patterns.

## Mule

(*Figs. 2,3,4,5*) This is a mule dated to the end of the 16th century, of which I made four drawings:

*Fig. 2* is actual size. It is a simple line drawing, with a slight suggestion of volume, showing the decorative lines.

*Fig. 3*. This is a section showing the construction. On the inside, the vamp edge is strengthened with a sewn-on cord. The heel lift is sewn on along the sole edge with a separate stitch and is pegged across the breast edge. The filling between insole and sole is cork under the forepart and wood under the heel. (Wood was used where a concave profile was wanted).

*Fig. 4*. Instead of a strictly side view, a shoe can be drawn slightly angled, to convey a better idea of its volume.

*Fig. 5*. The same position is perfect for drawing an anatomical view of an object, which is very useful for showing the bracing and the layers of the heel. Needless to say, it is not necessary to do this with every shoe. Nearly every other mule of this kind is constructed in this way.

*Fig. 6a,b*. illustrate other ways of showing constructions. The 16th century mule and 17th century shoe are hypothetical examples, but the technical data are taken from real Dutch shoe finds and are, therefore, absolutely reliable. The shoe shows one method of attaching a heel.

## Shoes

*Fig. 7a,b*. Leather objects are often difficult to photograph and, if the particular character of an object has to be shown, a true to life drawing is the logical thing. But, if the drawing looks exactly the same as the photograph, it is nonsense to go through all the effort of drawing all the creases, as in this example of a shoe from York (*a*) (MacGregor, A., 1978). Instead, a drawing (*b*) can show the original appearance, its normal model, the way the shoe is constructed and how the fastening functions.

*Fig. 8*. In some cases, we need drawings as well as words to make things clear, especially when dealing with decoration. It is much easier to show the decoration on this shoe than to describe it (Goubitz, O., 1985). The decoration on the vamp was made by making incisions with a knife. Impressed lines are added either side of the long cuts and also enclose all the decoration on the vamp. On the quarters, the small holes were made with an awl. A dotted line is used to indicate that the quarter continues with a latchet under the vamp.

I made a watercolour illustration of a hypothetically complete boot, as an experiment, but I found it impossible to reconstruct the characteristics of leather. Such an illustration might give the impression that there is an equally complete original, which might be misleading.

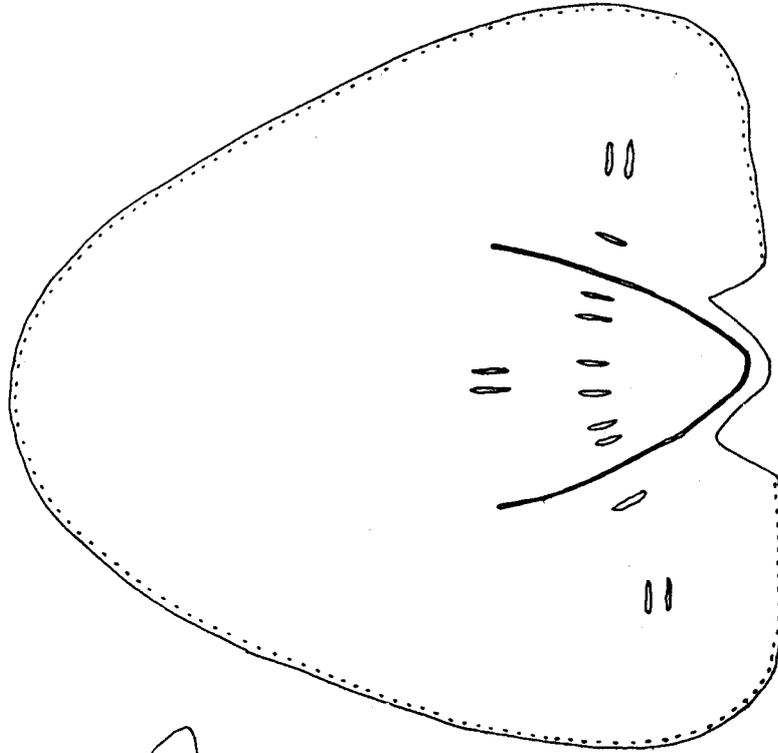


Fig. 1a Pattern after a photograph of a shoe found in Kilkummin, Ireland (Wilson, E., 1969).

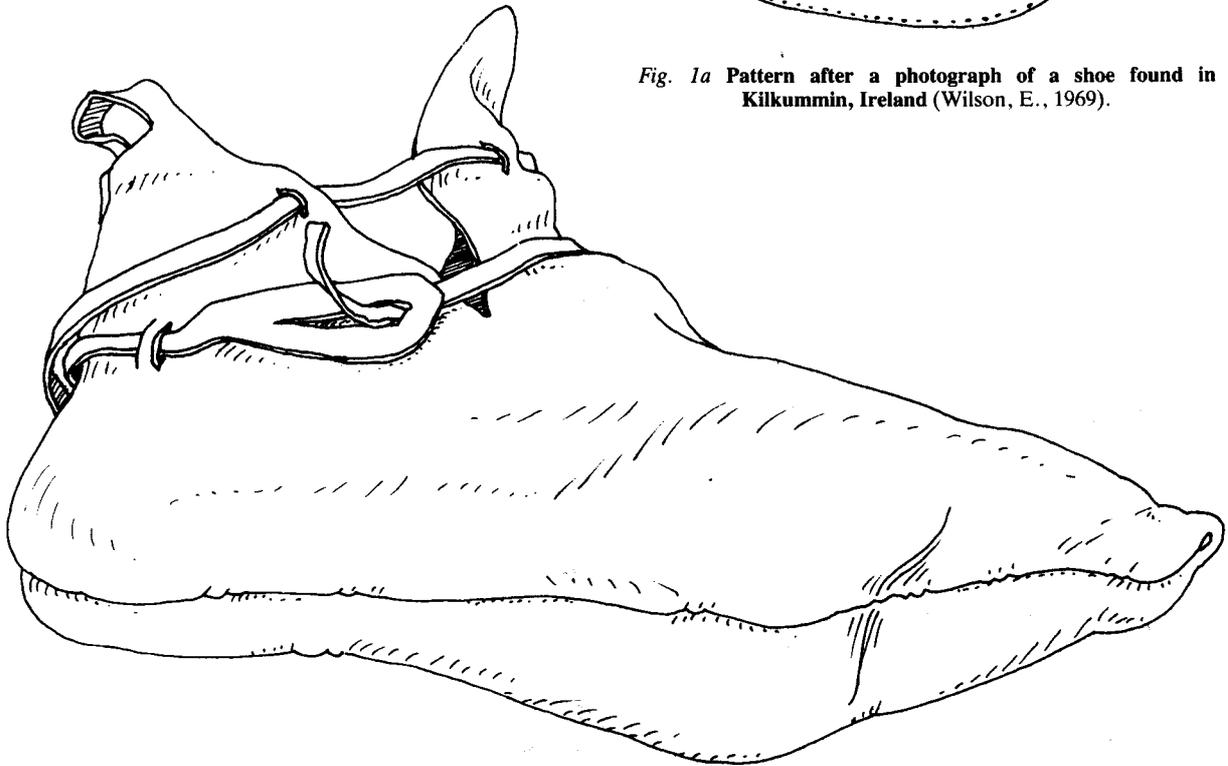


Fig. 1b Drawing of the same shoe after the reconstruction of new leather, showing clearly the seam underneath the foot.

Fig. 9. Care should be taken that cut edges are drawn with a straight line and torn or broken edges with a frayed line. To make drawn distinctions between wear and tear and between recent or original leather will result in unclear illustrations. These finer distinctions are better explained in the text. These drawings of two hypothetical 18th century soles show some of the most common phenomena. The holes for attachment to the uppers have been left out for the sake of clarity.

**Moulded Objects.**

Fig. 10. Even leather at its weakest may have some

form resistant spots, due either to external influences like soil pressure and hardened spots caused by lime and iron oxides, or to the moulded shape of the leather itself, made during the construction of the object, e.g. (fig. 10) the toe of a 16th century vamp, quarters and heel stiffener from Groningen (Goubitz, O. forthcoming 1987), which cannot, and should not, be flattened out. In such cases, we have to stick to what is actually visible, or else use our imagination, together with our knowledge about the object and try to reconstruct the most acceptable shape on paper.

### Buckle Shoe

*Fig. 11.* Making a drawing has the advantage of creating a clearer picture of an object. I usually draw a shoe with the toe turned slightly towards me, to show as much of the other side of the shoe as possible, to enable the character and function of the fastening to be understood. I can draw straps in such a way that they do not interfere with the technical data I want to emphasise, without letting it look unnatural. This example is less elegant than I have drawn it: I have added the missing part and restored the edging, which can only be done if one is absolutely sure of its correctness. The shoe is fastened by two small tin (pewter) buckles and the straps have brass ends.

### Shoe from Oslo

*Fig. 12a,b.* A draughtsman has to look at objects in a particular way, in order to translate a three-dimensional object into a flat projection. Thereby, he also learns to inverse the situation and turn a drawing into an object, as we have seen in *fig. 1*. Together with sufficient knowledge about

the object in question, it might be possible to illustrate some new ideas, as with this example from Oslo (*b*) (Schia, E. 1977). It seemed very illogical to me to make a shoe like this (*a*), with an opening over the instep and in the cuff at the sides. The only conclusion might be that the shoe was too narrow and that the wearer made a cut at the throat.

### Shoe with Instep Lacing

*Fig. 13.* What can never be photographed is a reconstruction of something like this. It is the inside facing and edging of a fastening opening, of which only the impressions survived in the leather. I had never seen this combination of features before, hence the effort to understand it. Another exceptional thing is the slit lace holes, which suggest a different way of fastening than was originally intended. From the very beginning of my career, I made sure to note every phenomenon in this manner and now it is on paper for others to see.

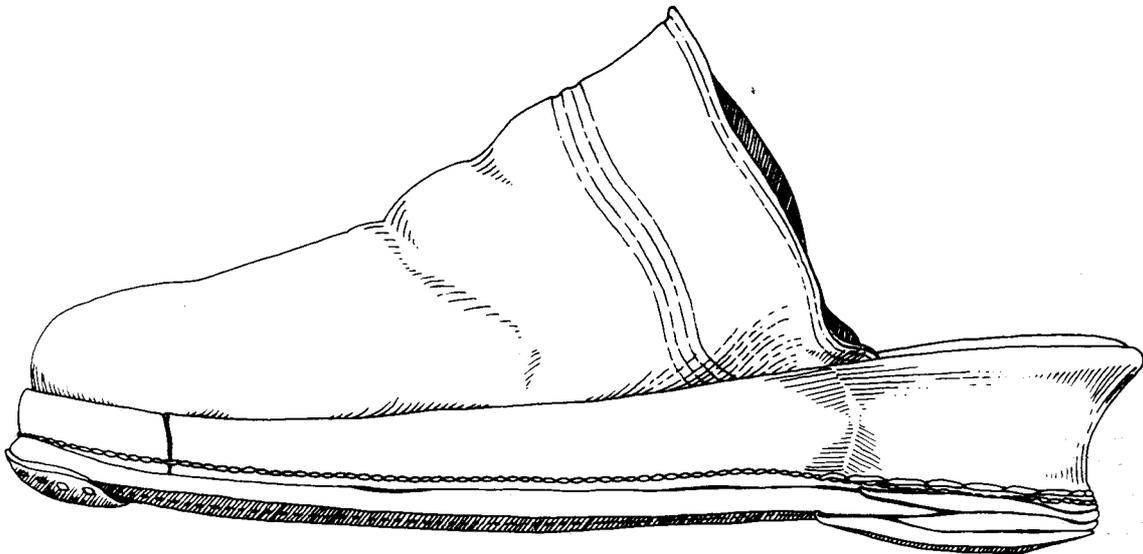


Fig. 2.

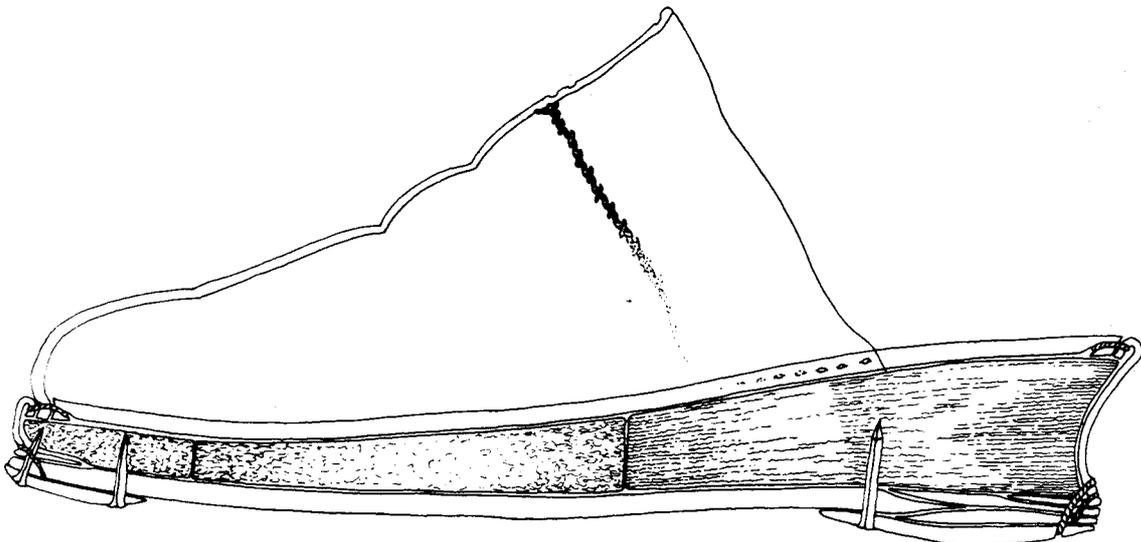


Fig. 3.

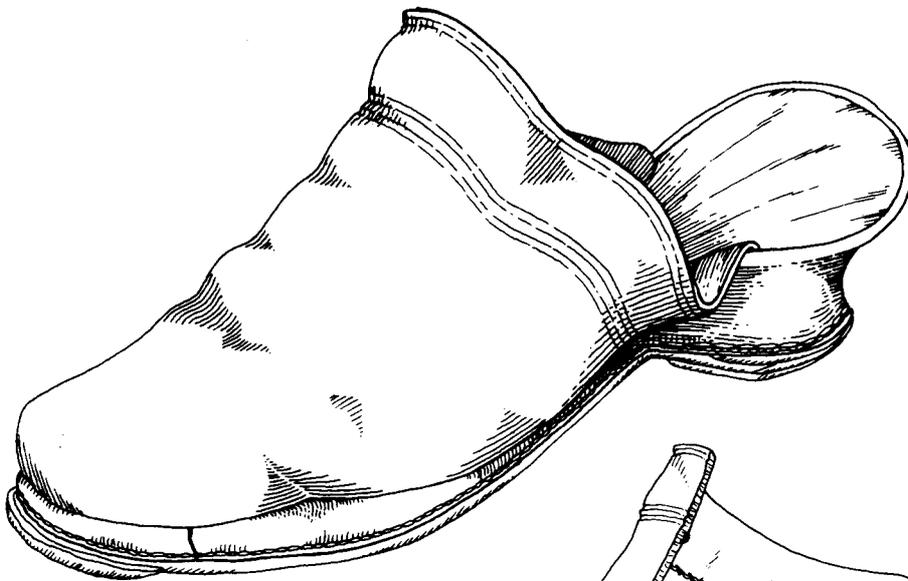


Fig. 4.

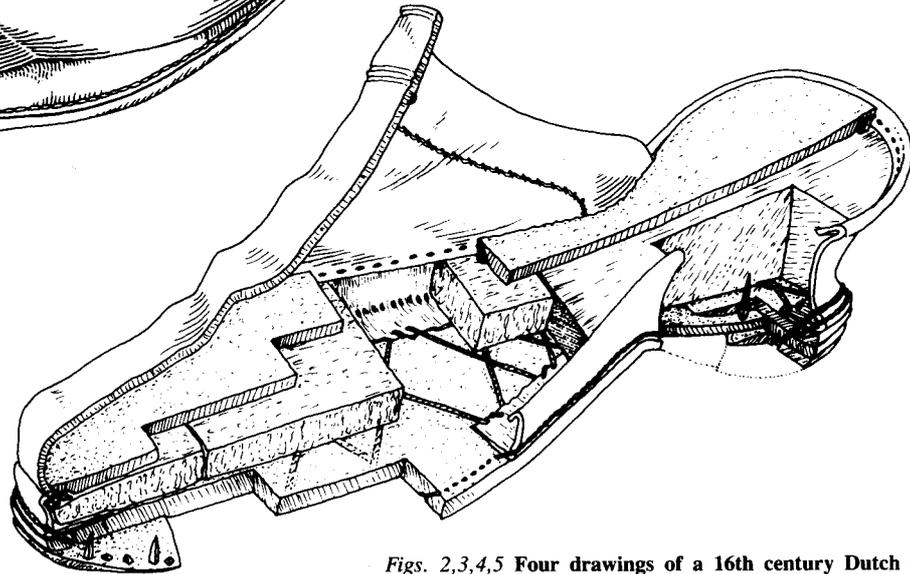


Fig. 5.

Figs. 2,3,4,5 Four drawings of a 16th century Dutch mule. (Future publication).

### Puzzle

*Fig. 14a,b,c,d.* Drawing is a very useful method of making reconstructions of possible models. This fragment of upper leather (*a*) is all that was found. Two similar examples have also been found, so it is probably a type variant. There are several possible ways of completing this shoe. However, a combined fastening like these (*b,c,d*) is very unlikely, but the same goes for this strange piece itself.

### Sandal

*Fig. 15.* How popular were sandals? Europe does not have a suitable climate for sandals, otherwise more than three would have been found. This one from Dordrecht is missing the heel strap, of which only impressions remain in the leather. Wooden and leather pattens had more than one type of such heel straps, especially children's pattens. From these examples, I have chosen one and projected it with a dotted line to show its certain, but otherwise ghostly, existence.

### The use of lasts

*Fig. 16.* In order to make reconstructions, it is often necessary to use a last to get a proper idea of form and function. It is almost impossible to use modern lasts, because these are made for heeled shoes and it is very difficult to correct them to the required shape. It is easier to make your own lasts, from a soft wood, or from a synthetic material. Lasts also come in very useful to pin up pieces of

leather to be drawn in shoe form, as with this example from Groningen, probably of 11th/12th century date (Goubitz, O. 1987). They can be used too, for restorations and as sewing lasts, when making new leather reconstructions.

### New leather reconstructions

*Fig. 17a,b.* There are cases where even the best draughtsman can go wrong, when not sufficiently armed with the appropriate knowledge. Because of its stiffness, it was impossible to form the original around a last, which led me to make a leather reconstruction. The original of this shoe, of 12th/13th century date, was found in the city of Dordrecht.

As much as one can overdo effects in a drawn shoe, the same applies to reconstructions. In the beginning, I made the mistake of imitating the state of the original shoe, with dirt and all the marks of wear and tear (*fig. 18a*). Since then, I have made reconstructions that look exactly like reconstructions (*fig. 18b*). In that way, they are most truthful and can be handled by others, which might be one of the reasons to make them.

Up until now, I have always had originals — however fragmentary — to work from. It is quite different to make shoes of which only pictures or drawn patterns exist, to fit particular feet.

### 'Eared' mule

*Fig. 19a,b.* These are the two types of drawing that I always make of a shoe that is suitable for

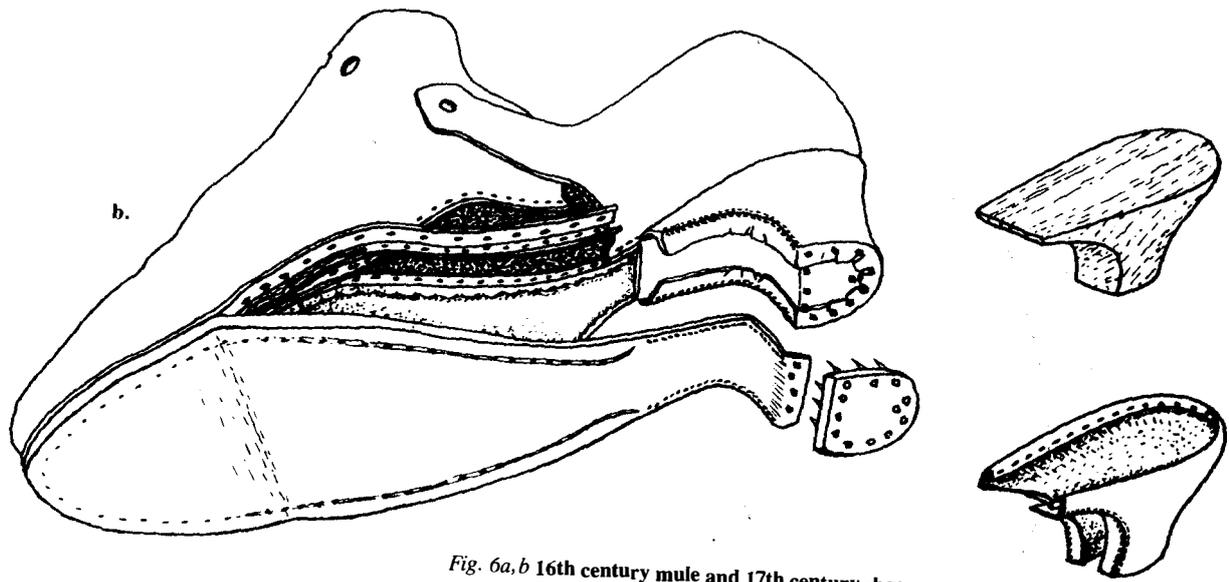
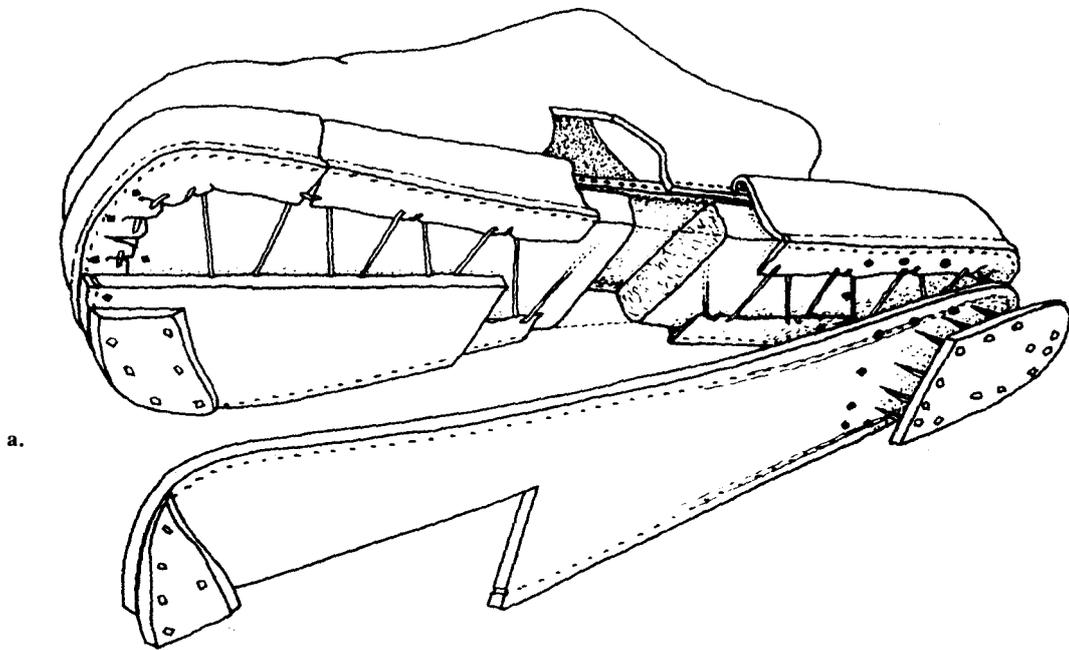


Fig. 6a, b 16th century mule and 17th century shoe.

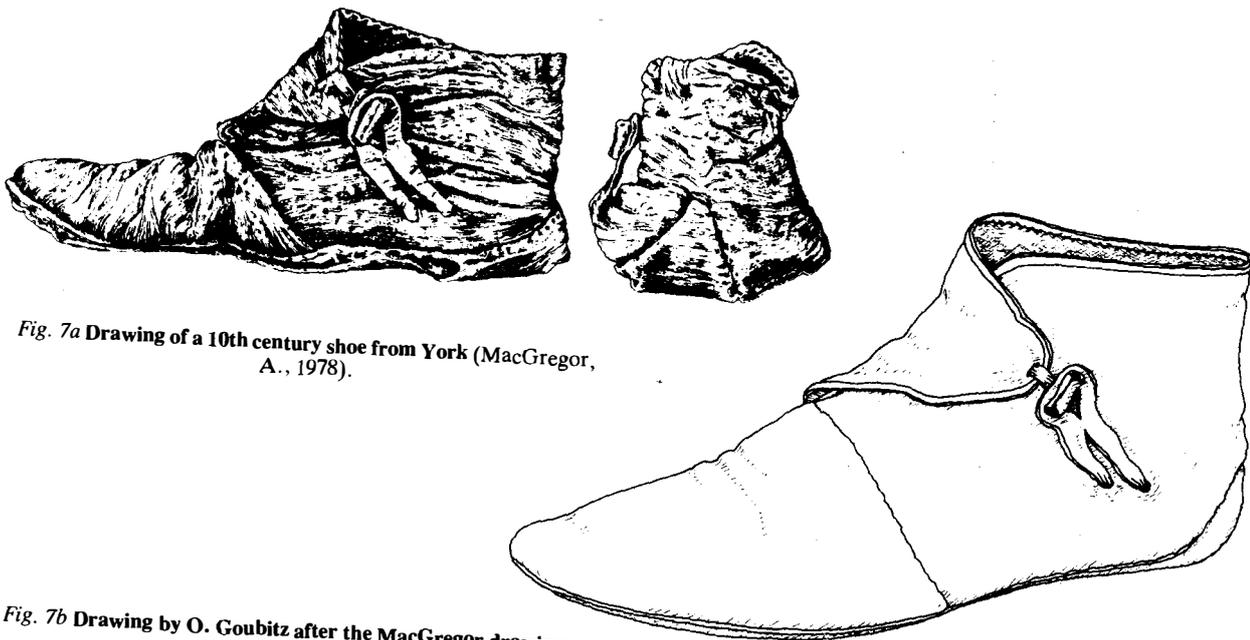
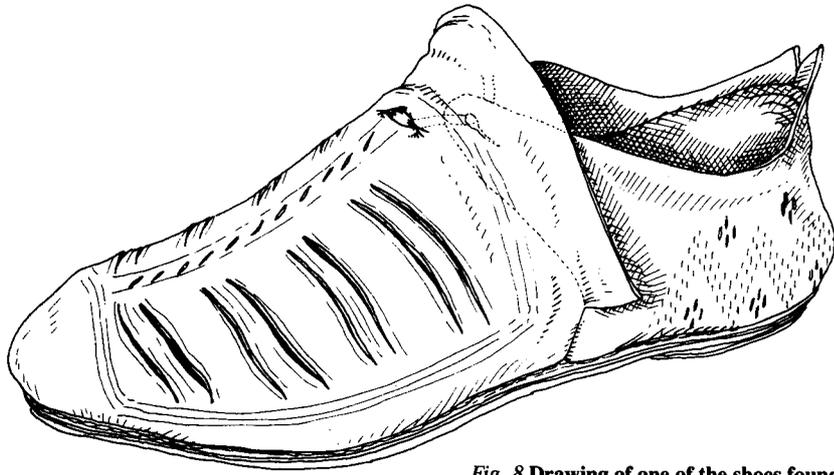
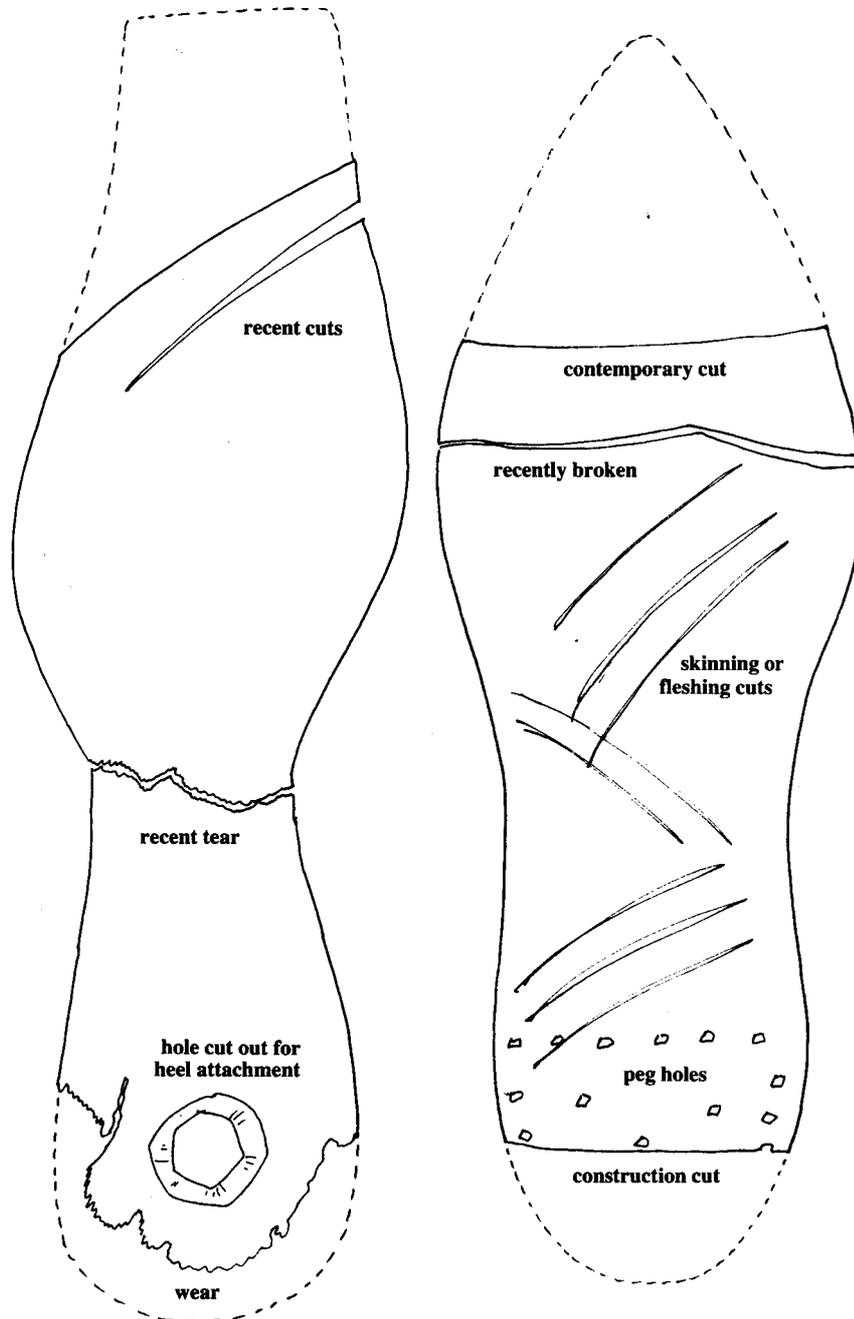


Fig. 7a Drawing of a 10th century shoe from York (MacGregor, A., 1978).

Fig. 7b Drawing by O. Goubitz after the MacGregor drawing.



*Fig. 8 Drawing of one of the shoes found in a Dutch shipwreck, near the coast of Frisia c. 1580 (Goubitz, O., 1985).*



*Fig. 9 Hypothetical 18th century soles, showing drawing conventions.*

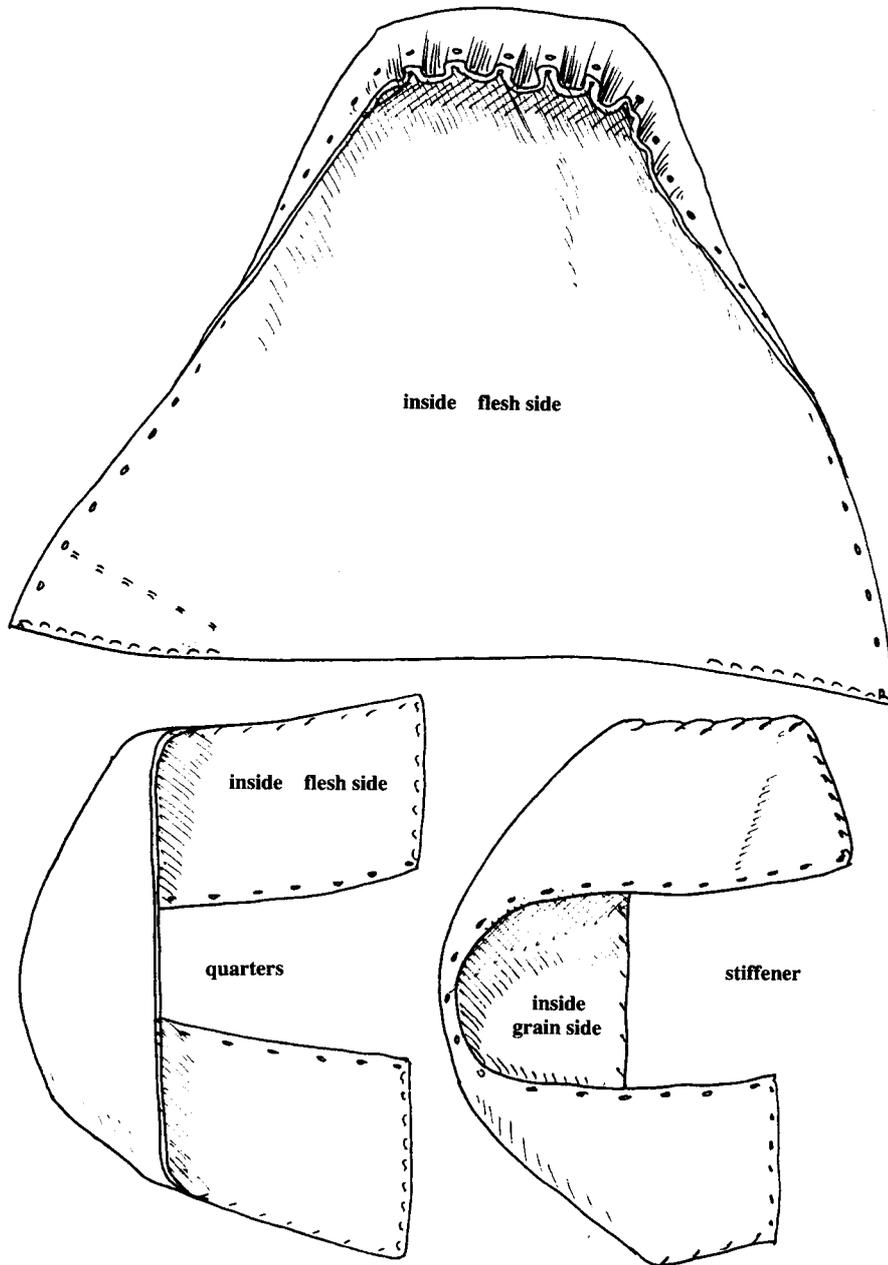


Fig. 10 Vamp and quarters of a 16th century shoe from Groningen.

restoration. Drawings are made by placing the still loose and damp pieces on the drawing paper (a). I trace their outlines with a pencil. After that, the stitch holes are drawn, with their own characteristics and, also, as here, the outline of the foot impression is drawn as seen on the insole. Drawing b was made of the restored shoe, on a standard file card, not necessarily to scale. Nevertheless, I always note the shoe length and the height of the shoe at the heel.

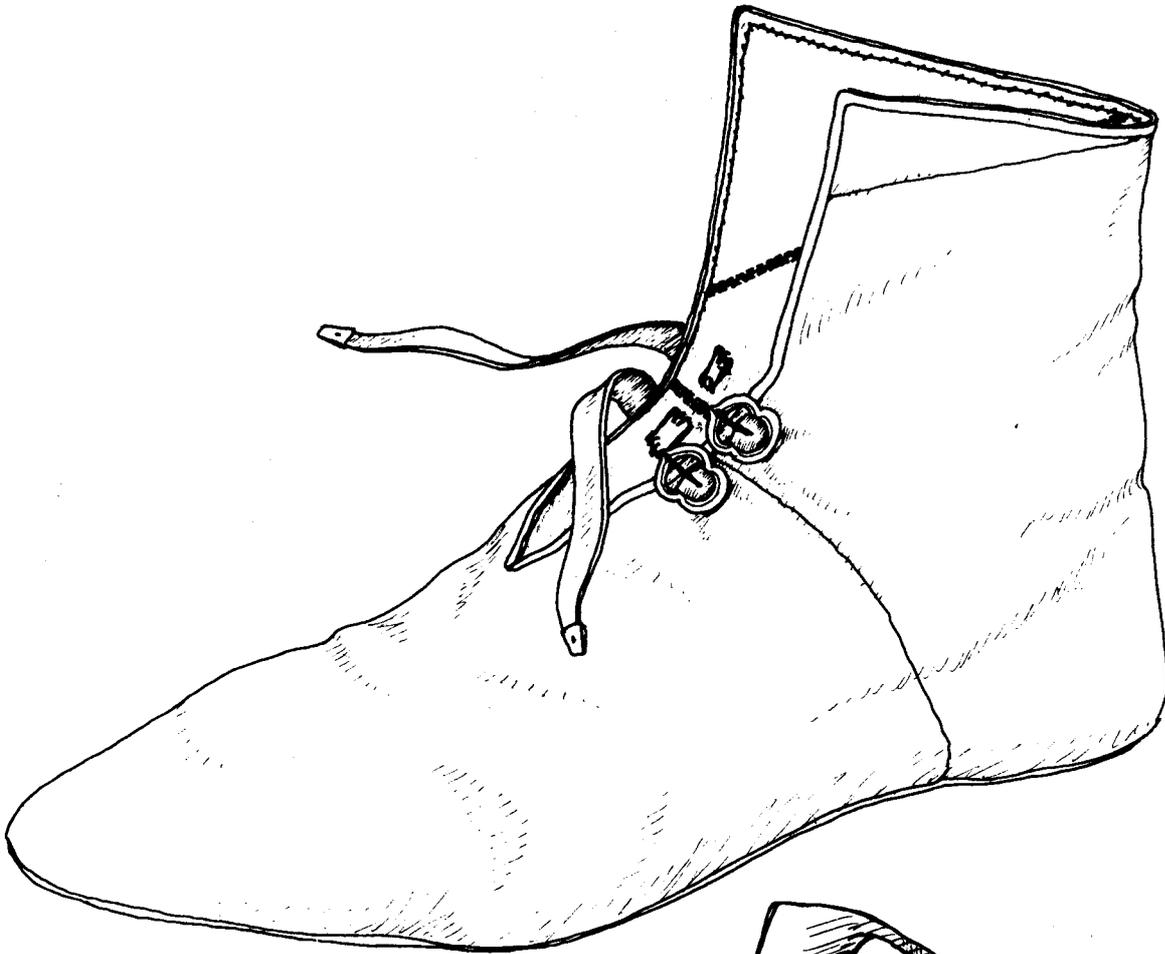
**Revivals**

Fig. 20a,b,c. One of the aspects I am also interested in is the phenomenon of revivals. a is an example of a 13th/14th century turnshoe, that can be put on by unfolding the leg. The construction of the fold and the integrated lace are proof that the fastening is really meant this way. The same applies to a lady's boot, of 1982 (b), which belonged to my assistant. The third shoe is from

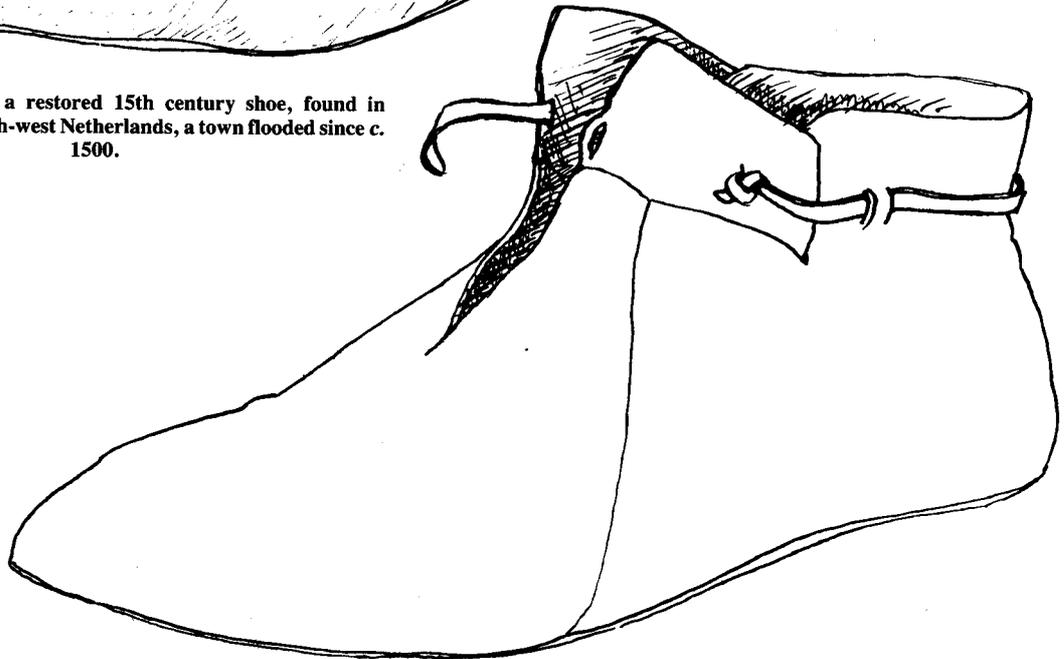
York (c), which fastens by a flap over the opening. The shape and position of this flap and its fastening could be regarded as a prelude to late medieval fold-fastening. I often wonder at the fact that certain phenomena return after a time, seemingly without any idea of a former existence.

**Iconology**

Figs. 21,22. A draughtsman is better able to interpret a drawing made by another person. This comes in very useful when trying to use old drawings for shoe typology. Every draughtsman has his own style when drawing common objects (fig. 21). Shoes, especially, were more often drawn as symbols instead of realistic and true to nature objects (cf. figs. 21 and 22). That goes particularly for shoes depicted before the Renaissance. Knowledge about the artist, the period he lived in, his working conditions and his social status, should be taken into account. For example,



*Fig. 11* Drawing of a restored 15th century shoe, found in Reimerswaal, in south-west Netherlands, a town flooded since c. 1500.



*Fig. 12a* Shoe c. 1300 as depicted in Schia, E., 1977, redrawn by O. Goubitz.

compare the works of Pieter Brueghel with those of Lucas van Leyden. The people they depict differ greatly, although they lived in the same period.

#### **Different materials**

When drawing leather objects, one cannot escape having also to draw iron, other metals, wood, cork, bone etc., which are connected with the object.

*Fig. 23.* Of these materials, wood may be the easiest to draw. The lines suggesting the grain can be used to give the necessary relief to the wooden object. With wooden pattens, there seems to be a connection between the type of sole and the shape of the toeband, but only occasionally are the two found together. I think that, after becoming unwearable, the wooden patten was used as fuel, but to avoid the stench, the leather toeband was removed first. About 50% of the toebands are cut off and 25% torn off.



Fig. 12b Re-drawing of the same shoe, by O. Goubitz, as he thinks it would have been originally.

Fig. 24. So the data about wooden pattens form separate collections: the soles and their irons for calk or strengthening may differ; toebands have different shapes and different ways of fastening over the foot. Then, about 60% of toebands have decorations which also differ, which can also be put into a typology. All these data will form at least a framework to date this kind of footwear, so that it can be fitted into a chronology.

**Decoration**

Figs. 25,26,27. Bronze Age shoes are already known to have been decorated. The most frequently used decoration technique for footwear

of all periods is the perforation. These cut-out or punched-out decorations follow their own tradition by culture and change with art styles.

In the late medieval centuries, the cross was often used for decoration. On shoes, the cross consisted of four punched out elements placed together in a circle (fig. 25). Apart from the cross, this element (black figure) was arranged in other ways. But although there are more than twenty-five possible arrangements, only five (asterisked) have been used.

Most decorative elements were applied in combination with a score of others.

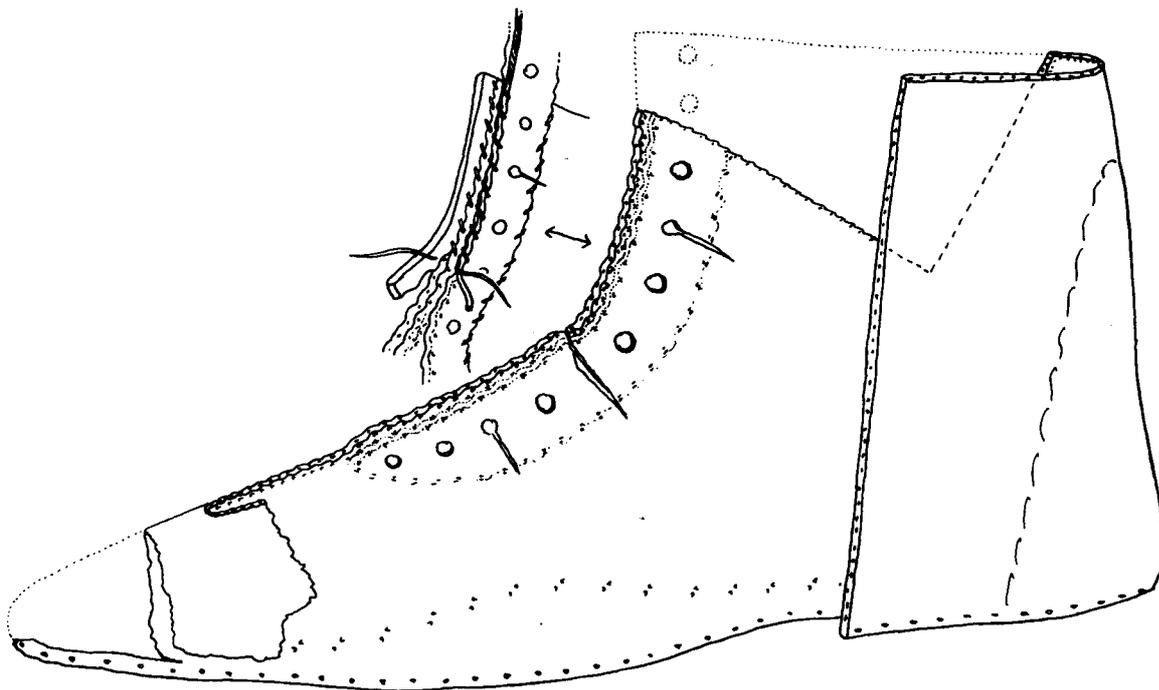


Fig. 13 Drawing after a 15th century turnshoe from Dordrecht.

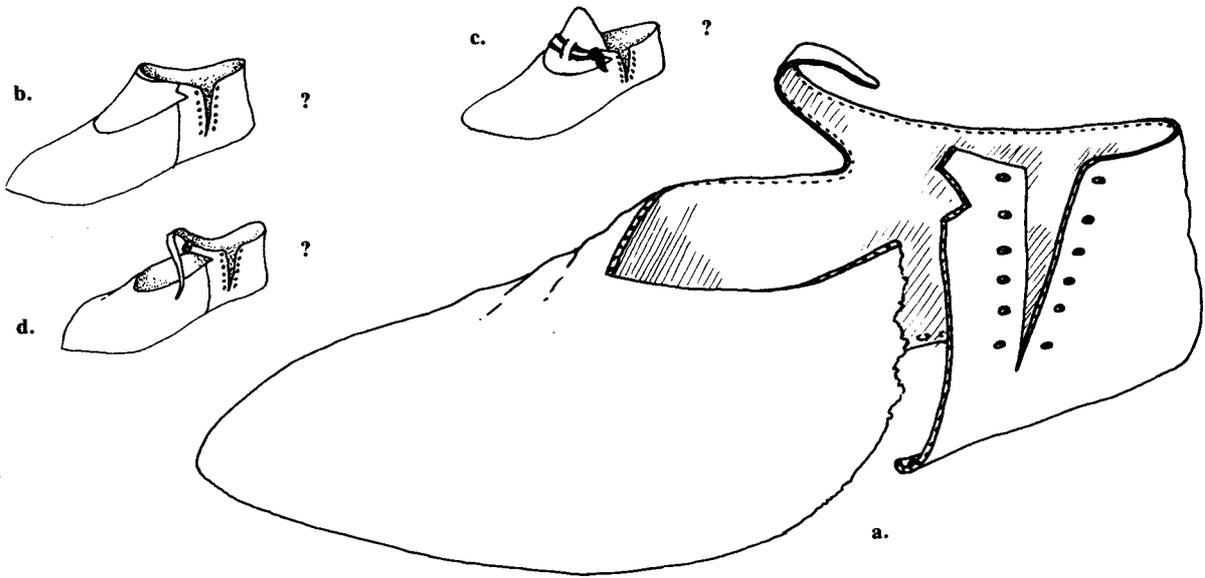


Fig. 14 Drawing of a fragment of a 14th/15th century turnshoe found in Dordrecht.

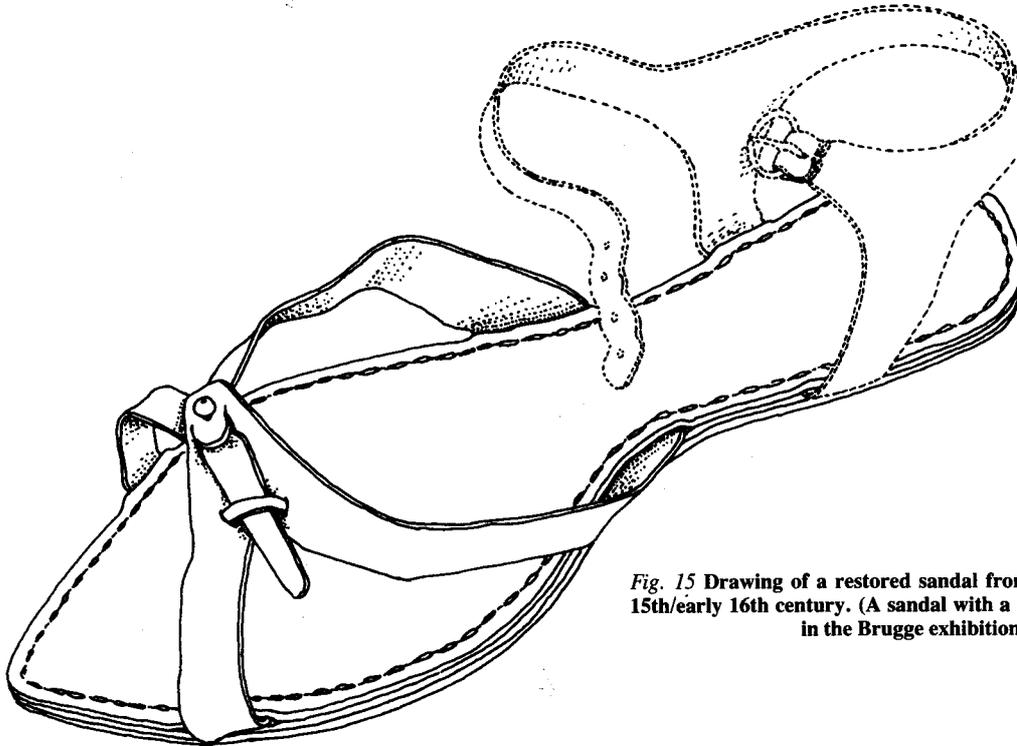


Fig. 15 Drawing of a restored sandal from Dordrecht: end of 15th/early 16th century. (A sandal with a heelstrap was shown in the Brugge exhibition).

Fig. 26 is the shadow of a decorated vamp as made by a copying machine. Other pieces of leather can be copied in this way, which often saves a lot of measuring and drawing.

Fig. 27. From such a copy, a scale drawing can be made, or an enlarged or reduced drawing. If wished, damage and distortions can be omitted, as on this drawing, which shows some of the different kinds of decoration.

#### Soles

The shape of a sole, its composition and the way it was fixed and all kinds of impressions, can tell us quite a lot about the shoe itself, such as its make, the period of manufacture and often, something about the wearer of the shoe.

Fig. 28. All things have two sides and that goes especially for soles of course. This is one of the ways to depict the technical data to be seen on insoles. The same can be done with middle soles

and outsoles. In this way, we only need half of the number of drawings.

#### Joined soles

Fig. 29. Apart from foot impressions and wear marks, soles often have seams that relate to the thriftiness of the shoemaker. Most of the seams are logical enough, as they are situated under the arch of the foot, but others are on much less comfortable parts of the sole.

#### Typology

Figs. 30,31,32,33,34. When dealing with more than thirty different shoe types (fig. 30 shows the variants within a single type), one needs a method of distinguishing one from another. For some of these shoes, contemporary names are known, but, in other cases, only the names of their type are known, such as 'boot', 'mule', or 'patten'. Of medieval shoe names, almost nothing is known, so what is left for distinction is codes. I like to use

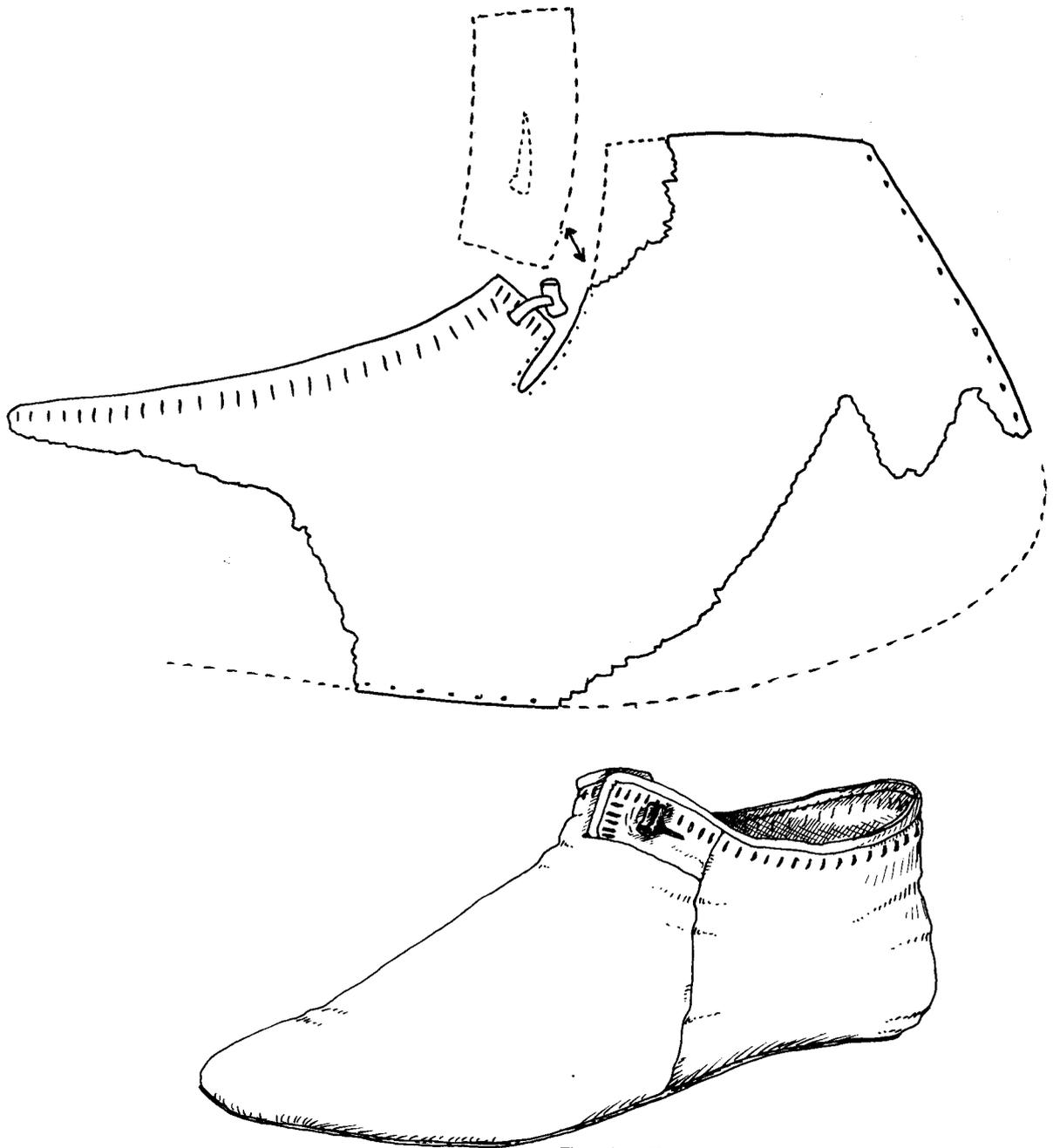


Fig. 16a,b Shoe fragment from the city of Groningen, 11th or 12th century. (publication forthcoming 1987).

codes in which their period of use, their differences in fastening methods, their sole/upper constructions and the kind of heels are included.

The asterisked shoe in *fig. 30* has the type code 'Q035b / 60.1', which denotes a 14th century shoe with a particular kind of fastening. The model is high cut, turnshoe made and has no heel. Problems can be expected when I call this a 'shoe', while others tend to call it a 'boot'. This is about the highest model of its kind and there is a range of about ten models down to shoe height. It is not logical to call the higher ones 'boots' and the lower ones 'shoes', unless we use quite different criteria for typology. Whatever method we use for creating a footwear typology, we can expect problems.

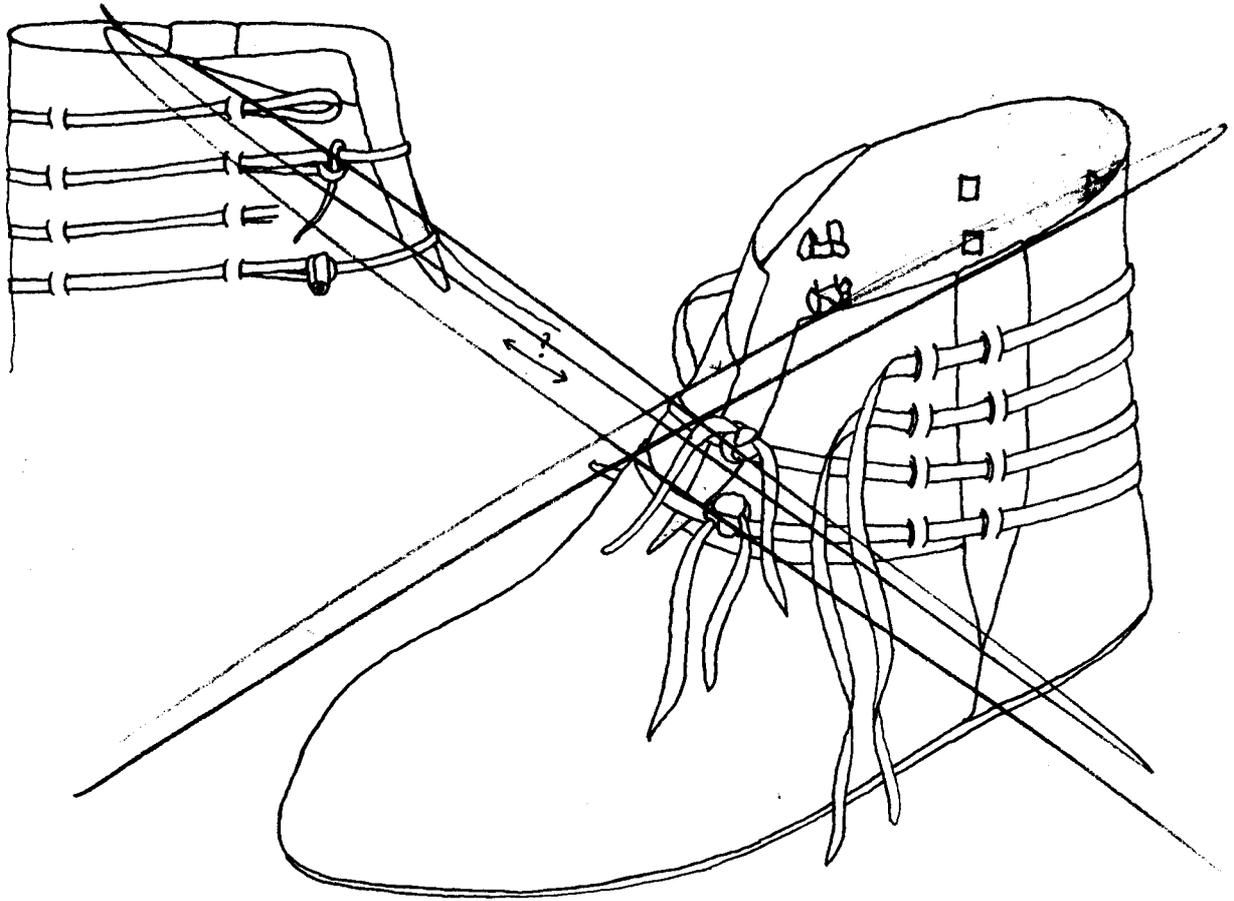
Another instance of this kind of problem is in the case of shoes fastened with one or more buckles, of which there are several shoe types (*fig. 31* and *fig. 33*). These 15th and 16th century shoes

can be neatly divided into types, sub-types and variants, according to where the buckle is situated on the shoe. But a problem arises in an example such as the asterisked example in *fig. 32*: as a shoe, it should be put with the latchet types, but, because of its fixed buckle, it should be included with the buckled shoes.

We can find other problems too, such as when a latchet ceases to be a latchet. This is not only a problem with technical and stylistical phenomena.

The same latchet/buckle shoe can be put among the models fastened with a detachable buckle (*fig. 33*), which is often worn as much for decoration as for practical reasons.

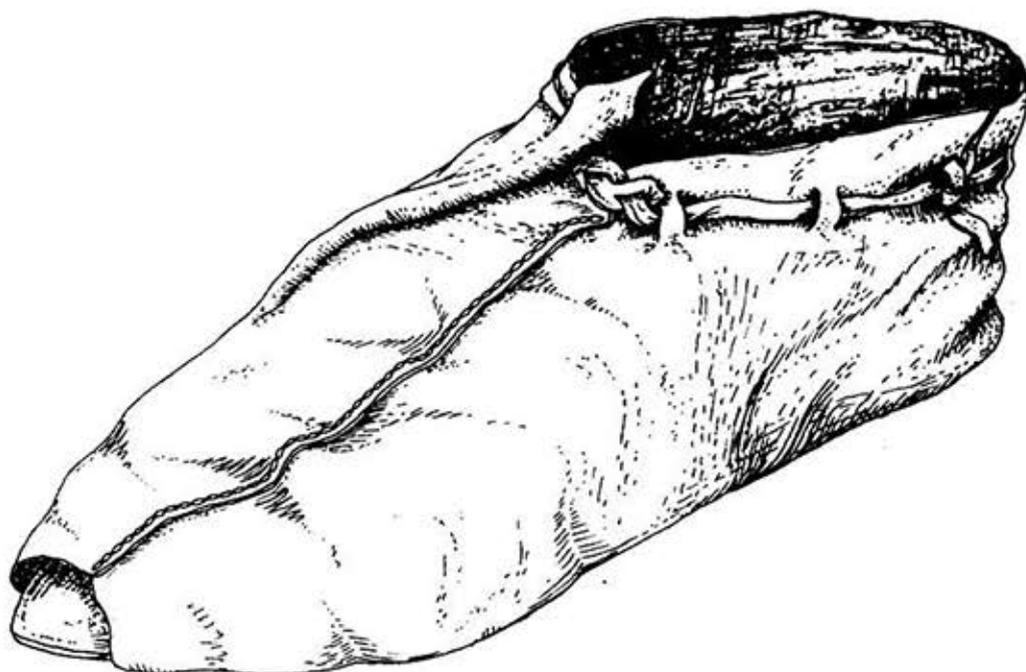
There are other variations within this group: one tends to divide these into separate groups, but, if we make too many distinctions here, we must also do so with other types and then we might easily become overwhelmed with distinctions. Three well-known buckle attachments are illus-



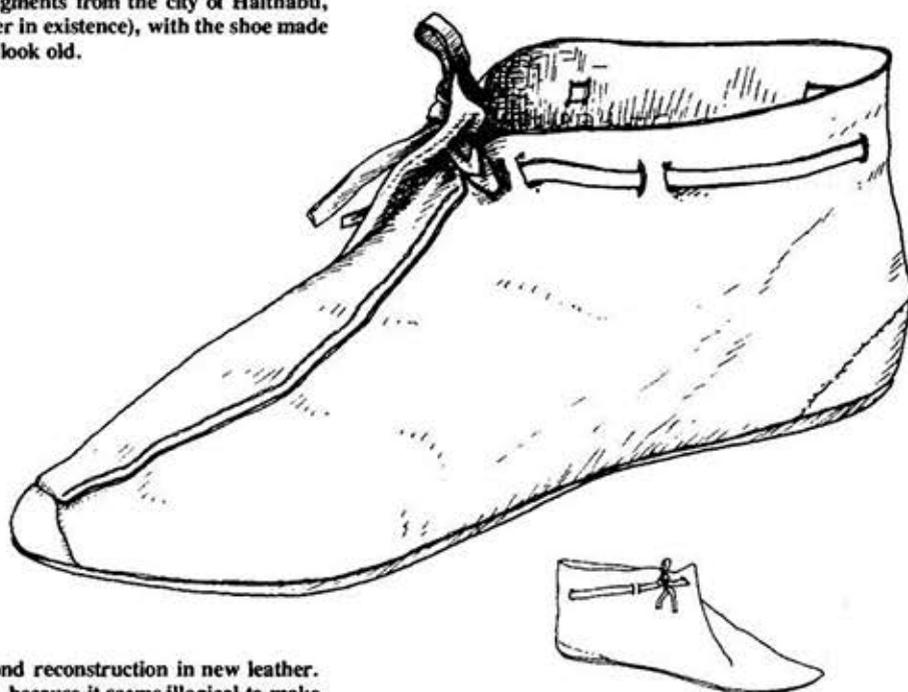
**Fig. 17a** Shoe from Dordrecht, probably 12th century: incorrect drawing.



**Fig. 17b** Drawing of the same shoe, based on the new leather reconstruction.



*Fig. 18a* Drawing of the first reconstruction, based on original c. 9th century shoe leather fragments from the city of Haithabu, northern Germany (no longer in existence), with the shoe made to look old.



*Fig. 18b* Drawing of the second reconstruction in new leather. (The open toe has been filled, because it seems illogical to make a tight fitting ankle shoe in this way).

trated: the chape, the knob and the anchor and I expect that there are other methods.

*Fig. 34.* This is the only shoe I know of in the Netherlands with the original buckle. Most buckles, including the small ones fixed to the shoe, were removed before the shoe was thrown away. The strap carrying this buckle was simply folded around the spindle and held in place by pressure against the vamp. The buckle is made of brass. The shoe has lost the sole.

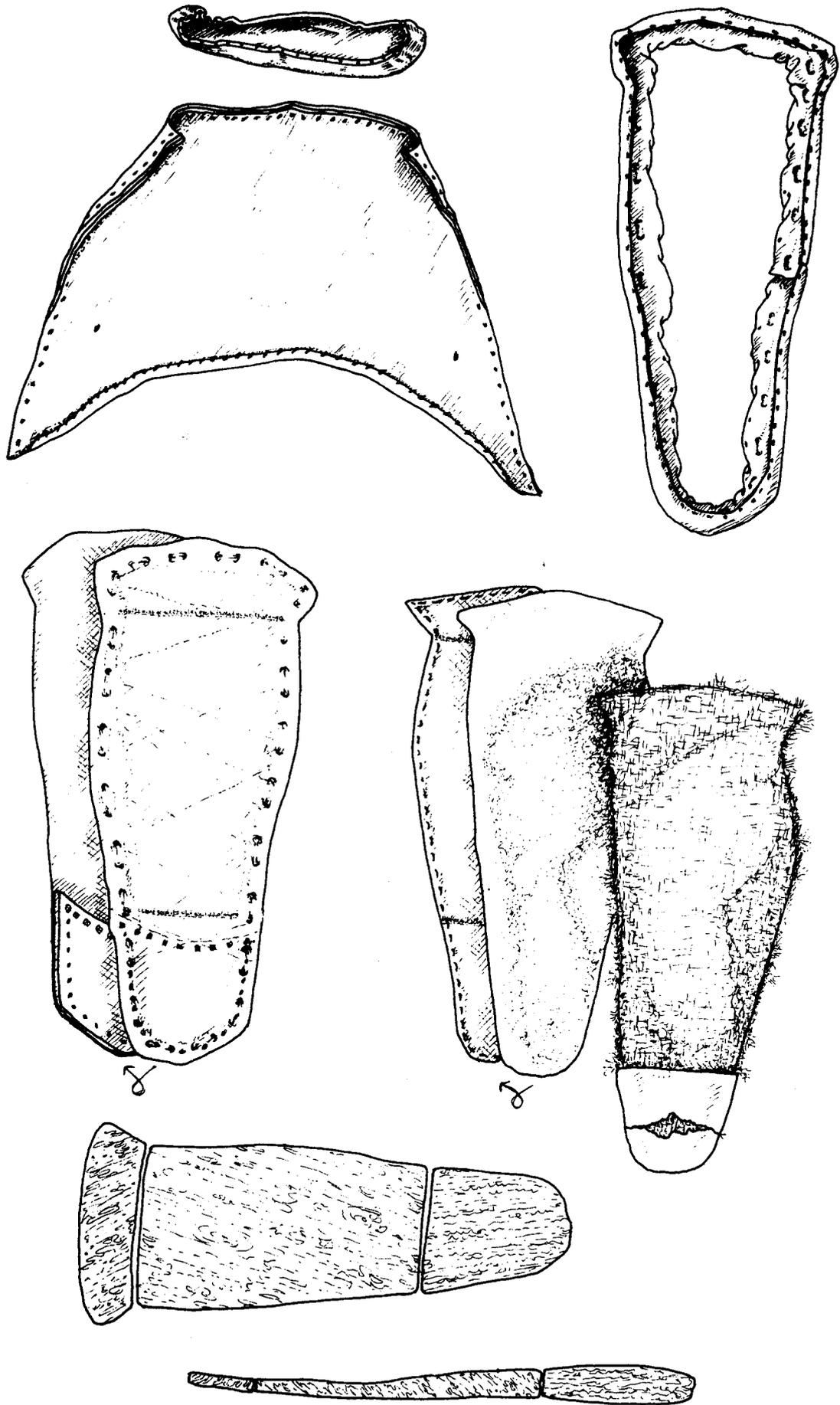
#### Constructions

*Fig. 35a,b,c.* I made this kind of construction drawing (a) long before I learnt that it was the accepted way to do so in modern shoe manufac-

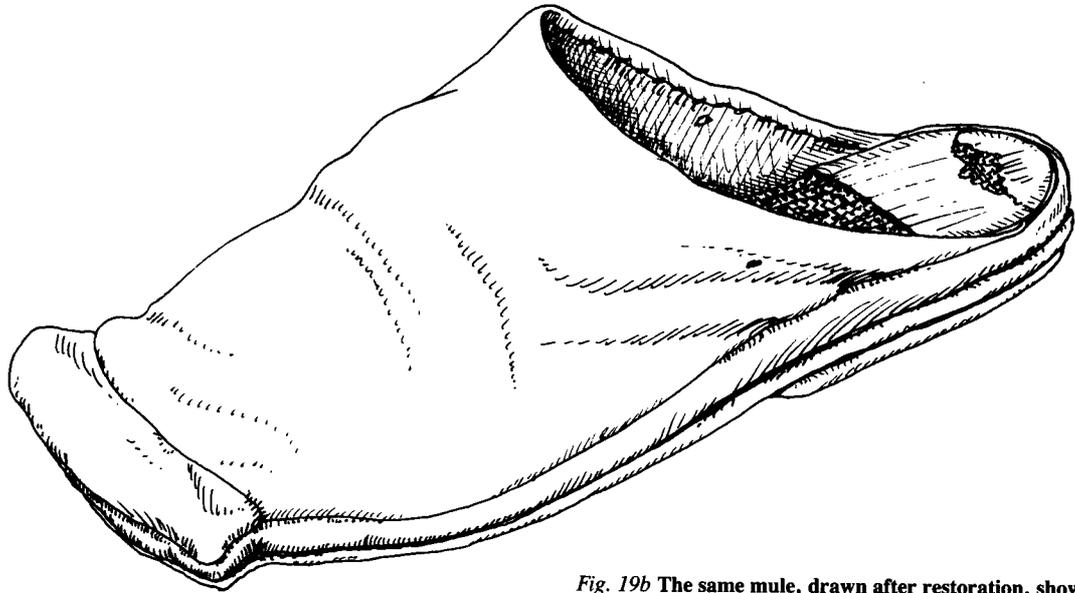
ture. These are very useful for defining a method of construction.

But to show the exact nature of such constructions, you need something like this (b). On the other hand, there is no better way to understand it than to take up a piece of leather, thread, needle and awl and do it yourself.

Also, heels and their construction need to be illustrated (c). This is a very common type in use from the 16th to the 19th century. In the later 19th century, more substantial shanks were used, instead of the piece of leather or wood that was formerly in use.



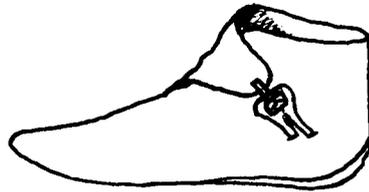
*Fig. 19a* Plan drawing of the parts of an 'eared' mule found in Zaltbommel, Netherlands, 1985. First half of 16th century.



*Fig. 19b* The same mule, drawn after restoration, showing that the insole is covered with a piece of woollen textile. (Publication end 1986/early 1987).



*Fig. 20b* Modern lady's boot, 1982.



*Fig. 20c* Excavated shoe from York, 10th century.



*Fig. 20a* Excavated shoe from Dordrecht, 13th/14th century.



Fig. 21 Woodcut, 16th century German, which serves as a comparison example for the shoe in fig. 22.

### Calceology

#### Checklist of data

- site name/code
- feature name or number/context number/  
layer number
- small find number
- excavation date
- name of site director
- name of finder
- excavation drawing reference
- photographic reference

#### Recording these data on own file card

- name of the object
- material
- condition
- possible destination

#### Putting the find in provisional storage

- note whereabouts on file card

#### Cleaning the object

- manually
- mechanically
- chemically

*Examination and sampling material for analysis*  
*Taking measurements, e.g. of soles, for statistics*  
*Noting data about leather parts on documentation sheet*

*Determining treatment procedure*  
 use of media, materials, tools and apparatus  
 (record suppliers and their documentation)

*Provisional conservation*

*Final conservation*

*Recording of treatment on file card*

*Making plan drawings of separate parts*

*Storage of conserved leather*

note whereabouts on file card

*Restoration of object*

with photography of progressive stages

*Recording of restoration*

with model drawing

with photography

*Sampling data for publication*

classification of object:

- typological
- chronological
- technological

date the object with the help of:

literature

collections:

- museums
- private

contacts:

- personal
- correspondence
- iconology

*Maintaining and developing the correct terminology*

*Writing reports about:*

- experiences
- treatments
- results

*Making reconstructions, with new leather*

*Taking care of stored finds*

*Writing an article about the object(s)*

*Designing all kinds of registration sheets*

*Recording all kinds of data on computer file*

*Giving advice and information about footwear and wet leather treatment to museums, institutes, professional and amateur archaeologists, students and scholars, etc.*

*Supervising trainees*

*Giving lectures.*

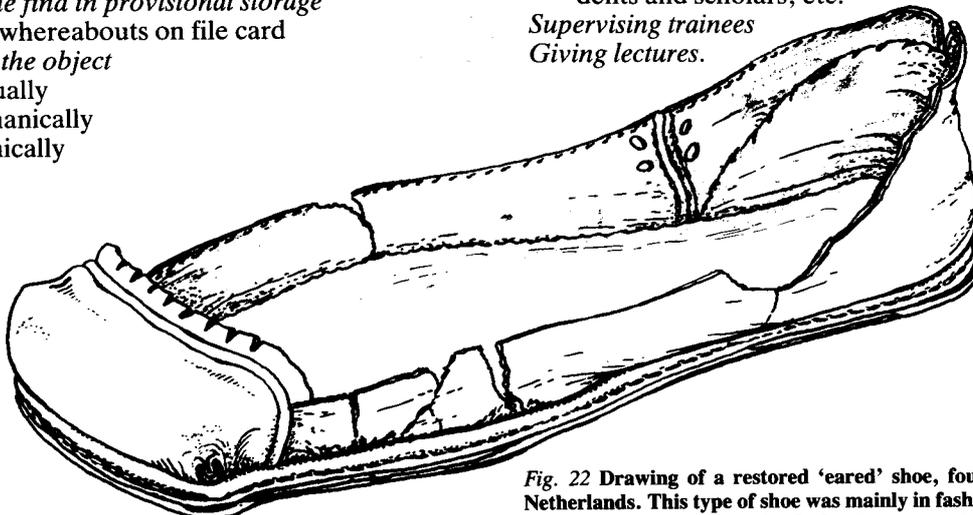
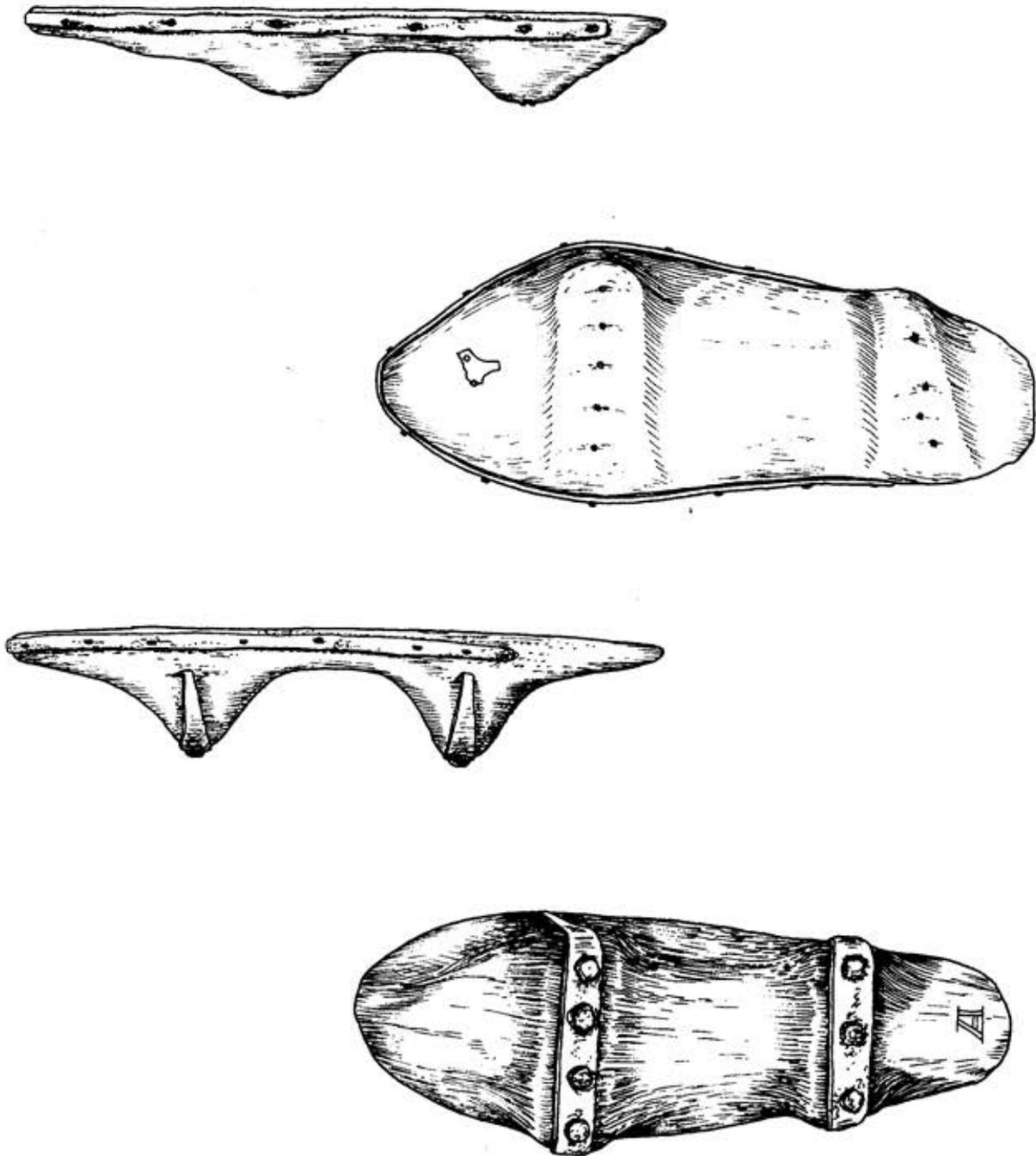
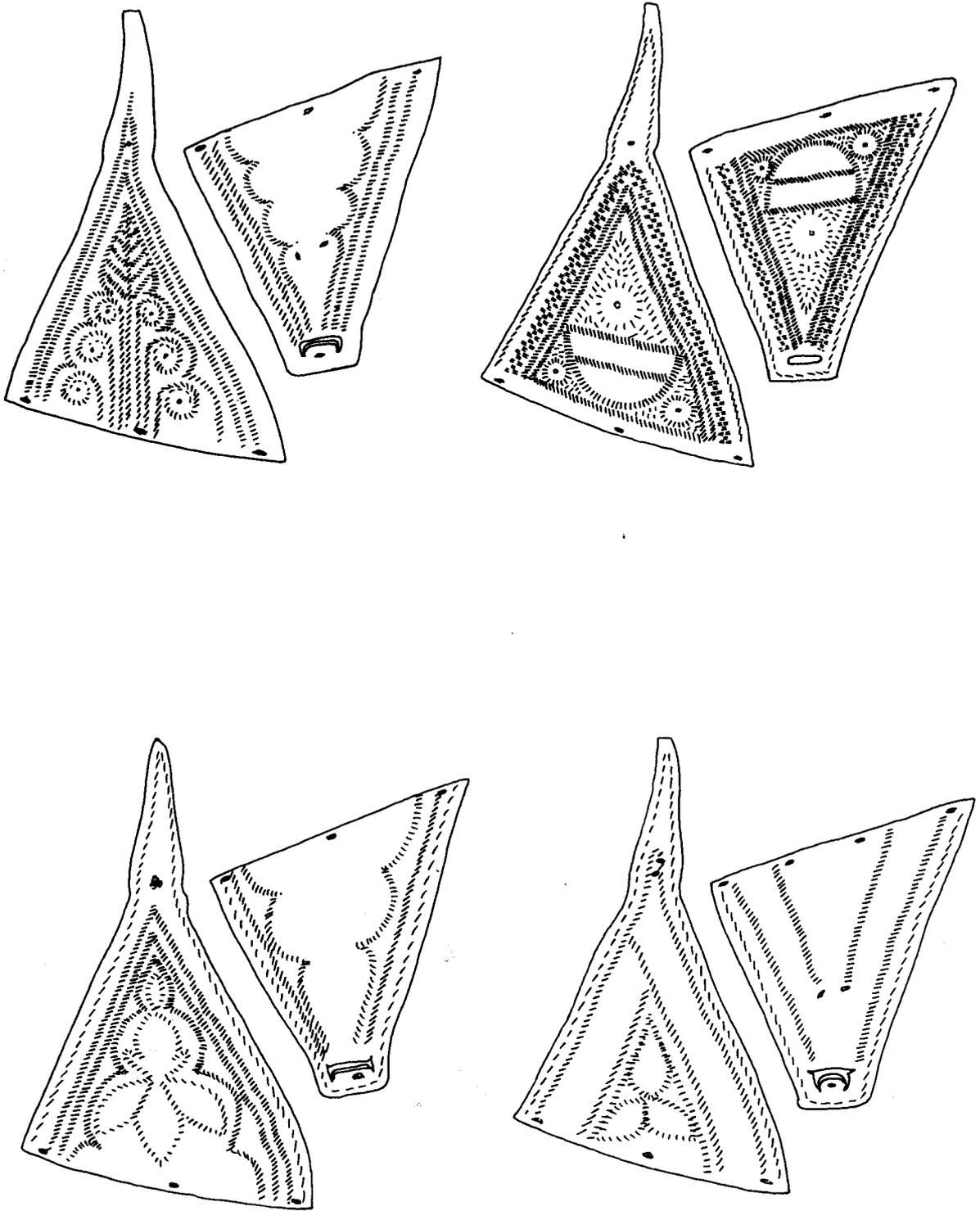


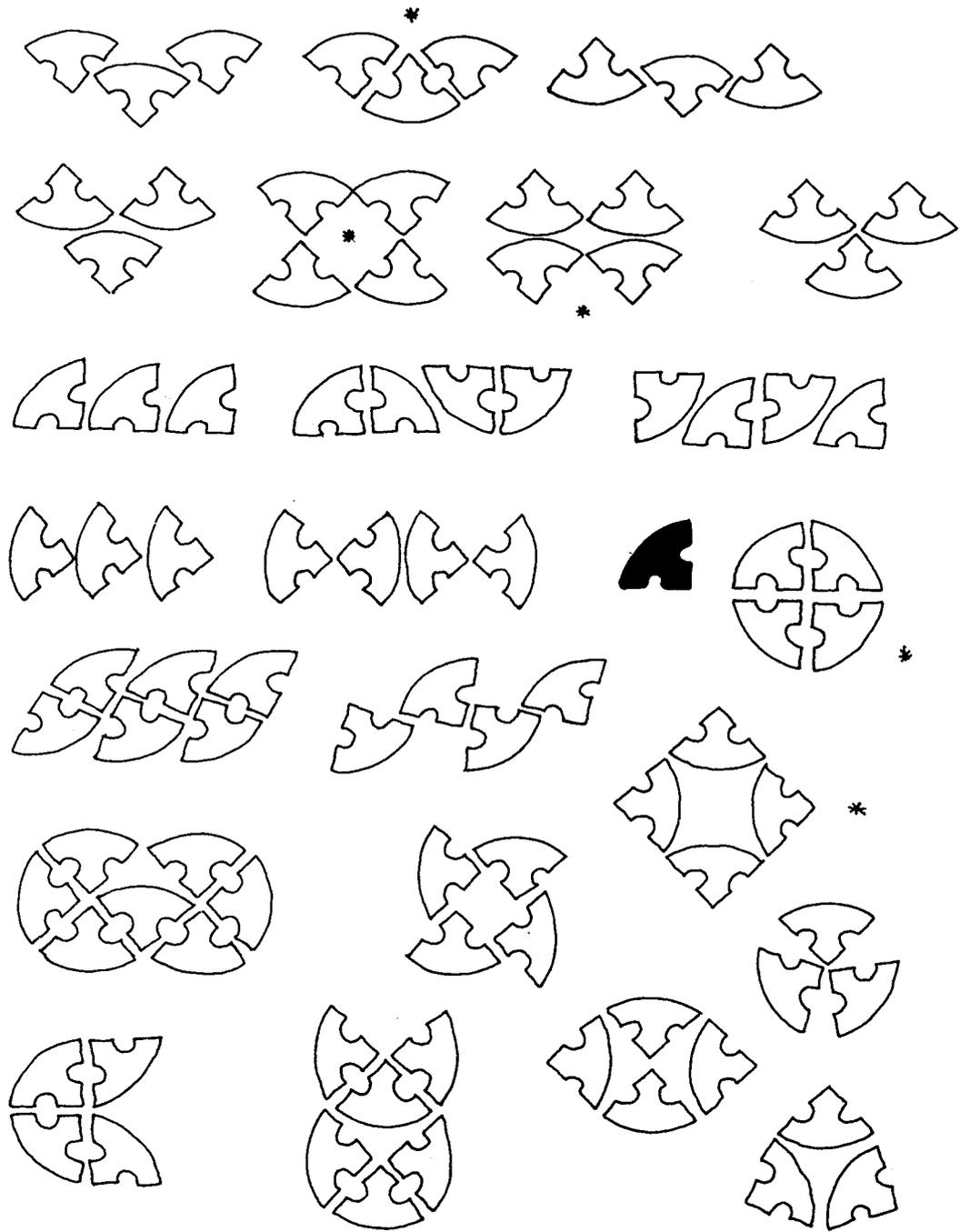
Fig. 22 Drawing of a restored 'eared' shoe, found in Weert, Netherlands. This type of shoe was mainly in fashion in the first half 16th century. It lacks the buckle and the instep strap.



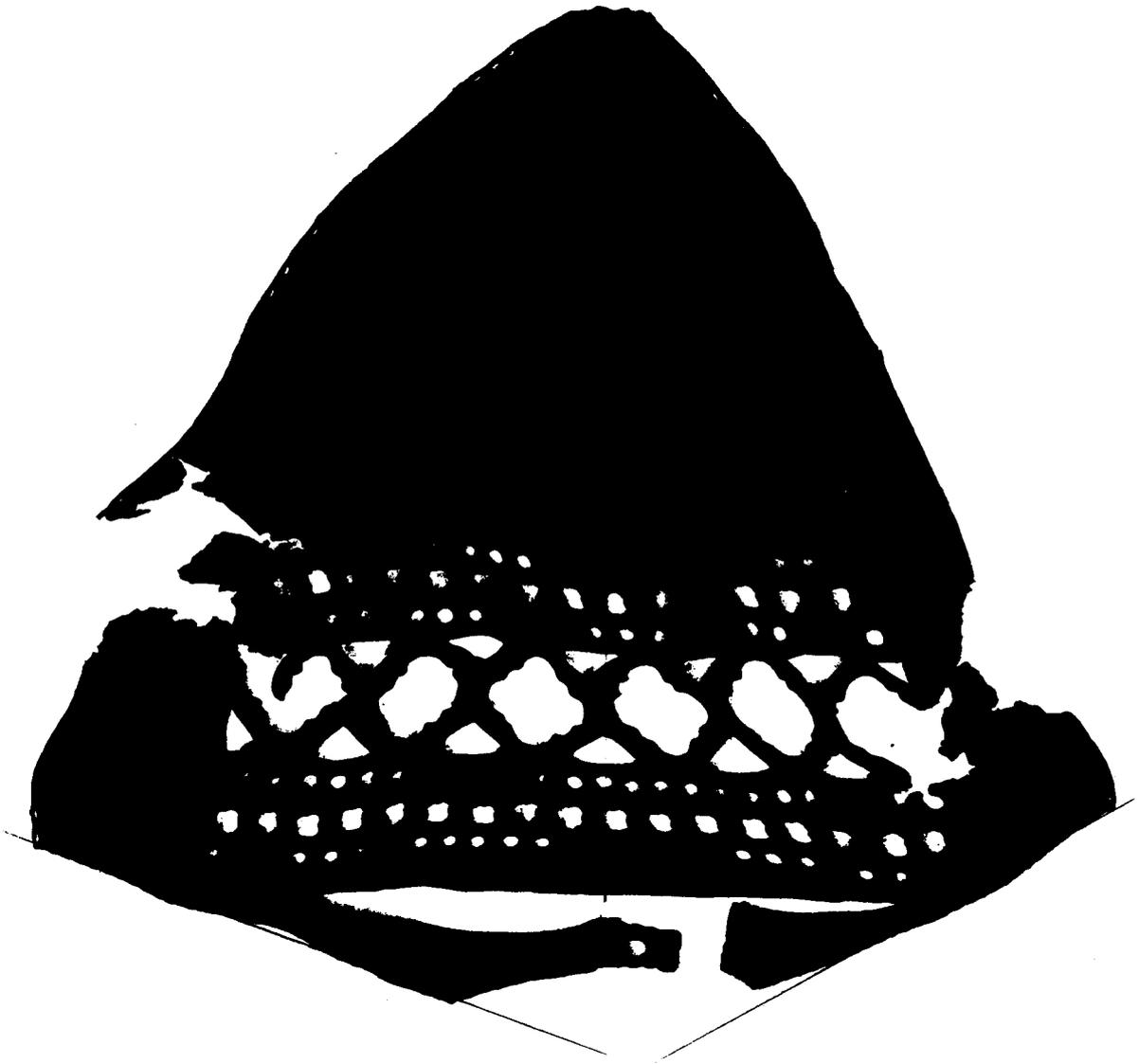
*Fig. 23* Wooden pattens, side and bottom views. Dutch, c.1500, found without the uppers. The iron bands along the margin suggest that the uppers would have been more the shape of a mule vamp than a toeband. (Illustration for a future publication).



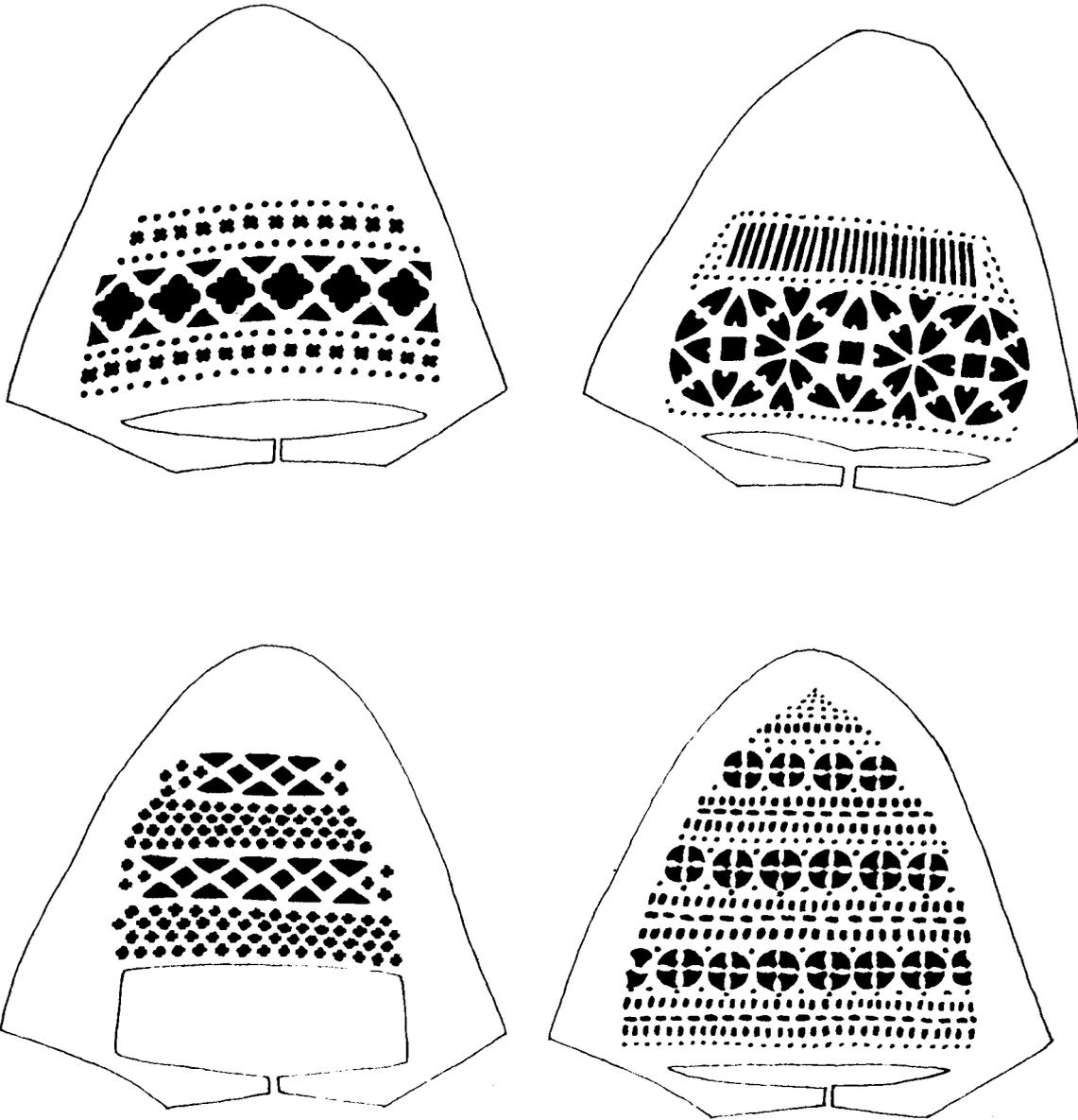
*Fig. 24* Some examples of toebands from wooden pattens, Dutch, 15th century. A possible method for a sequence of decorations. (Illustrations for a future publication).



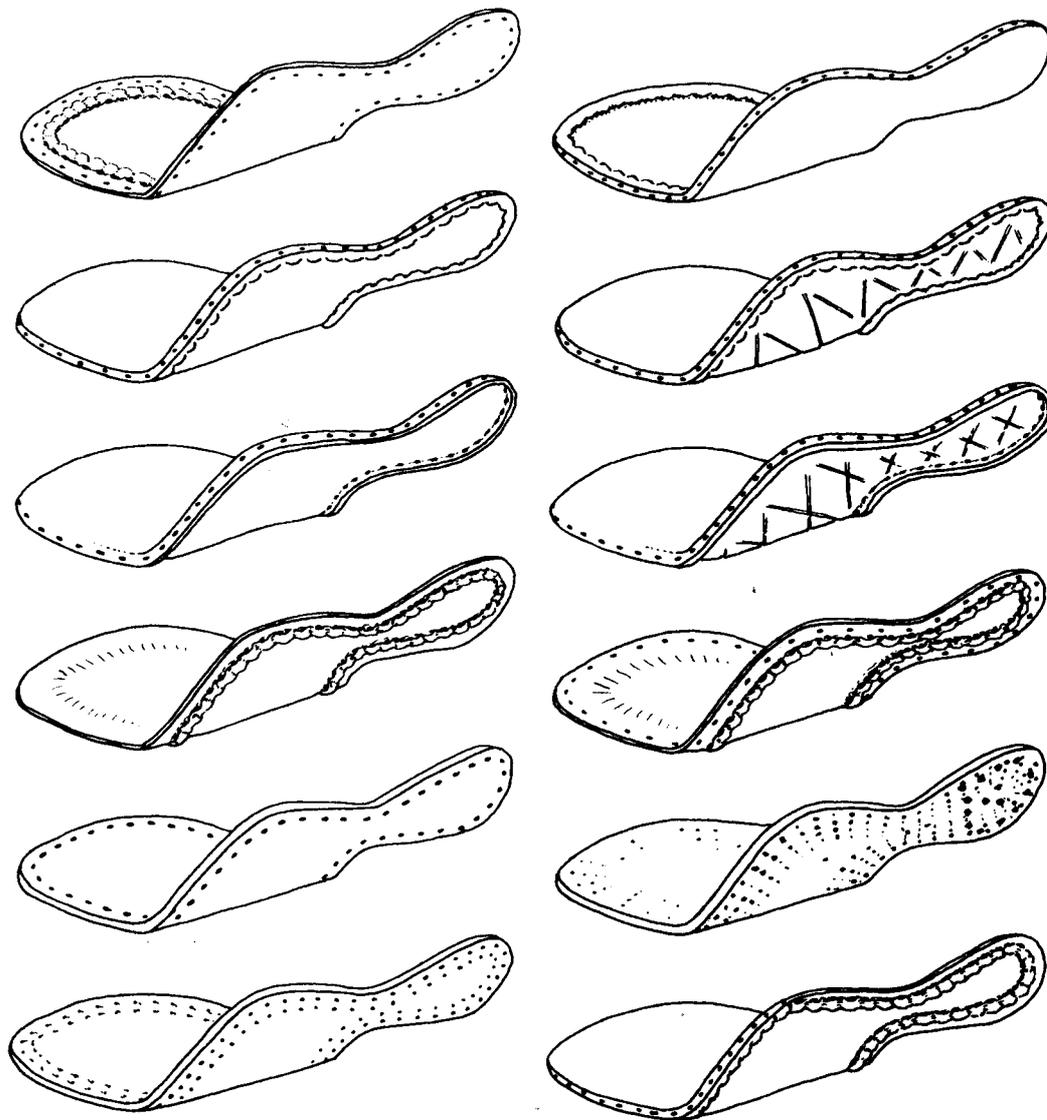
**Fig. 25** Combinations of a decorative element. (Illustrations for a future publication).



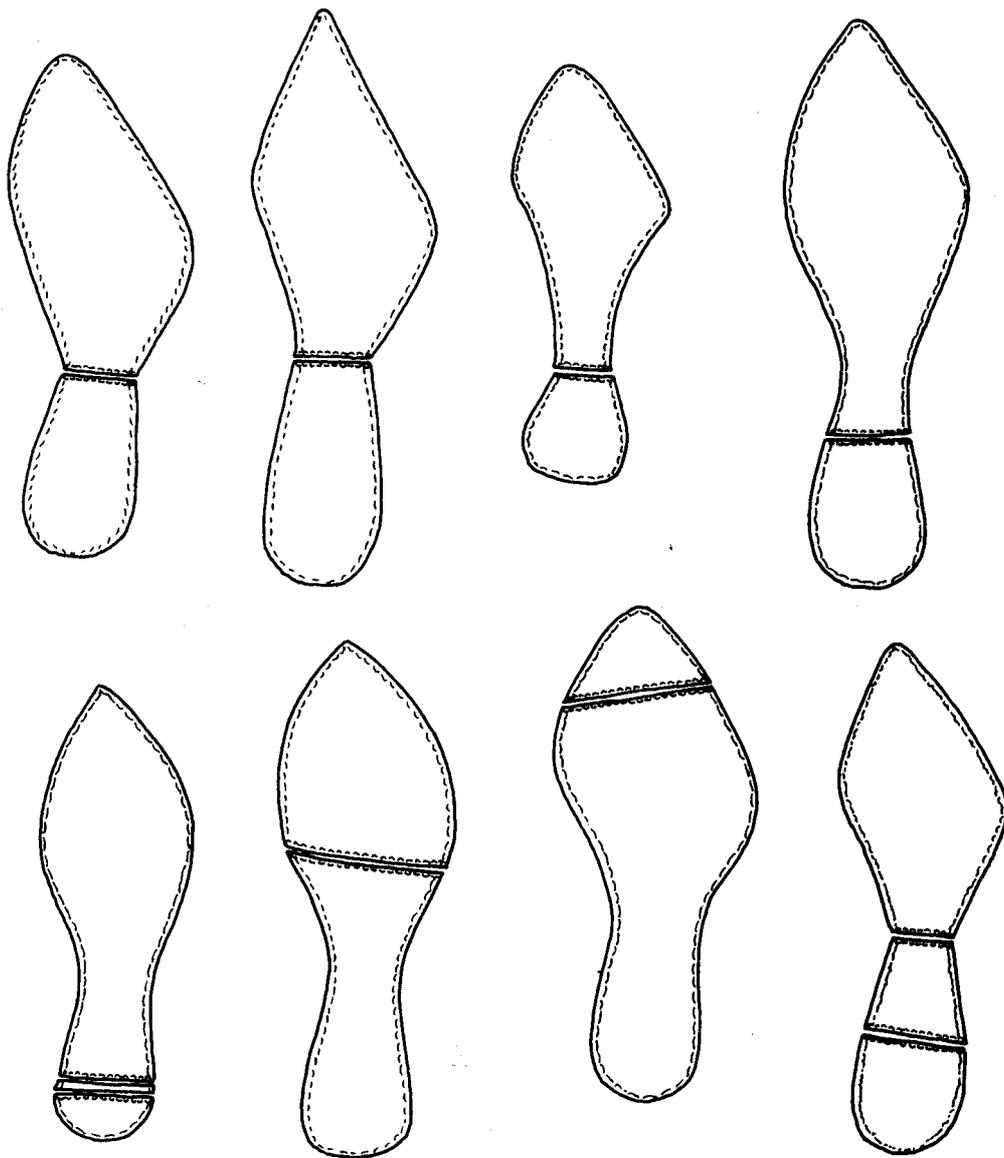
*Fig. 26* Photostat of a 14th century shoe vamp.



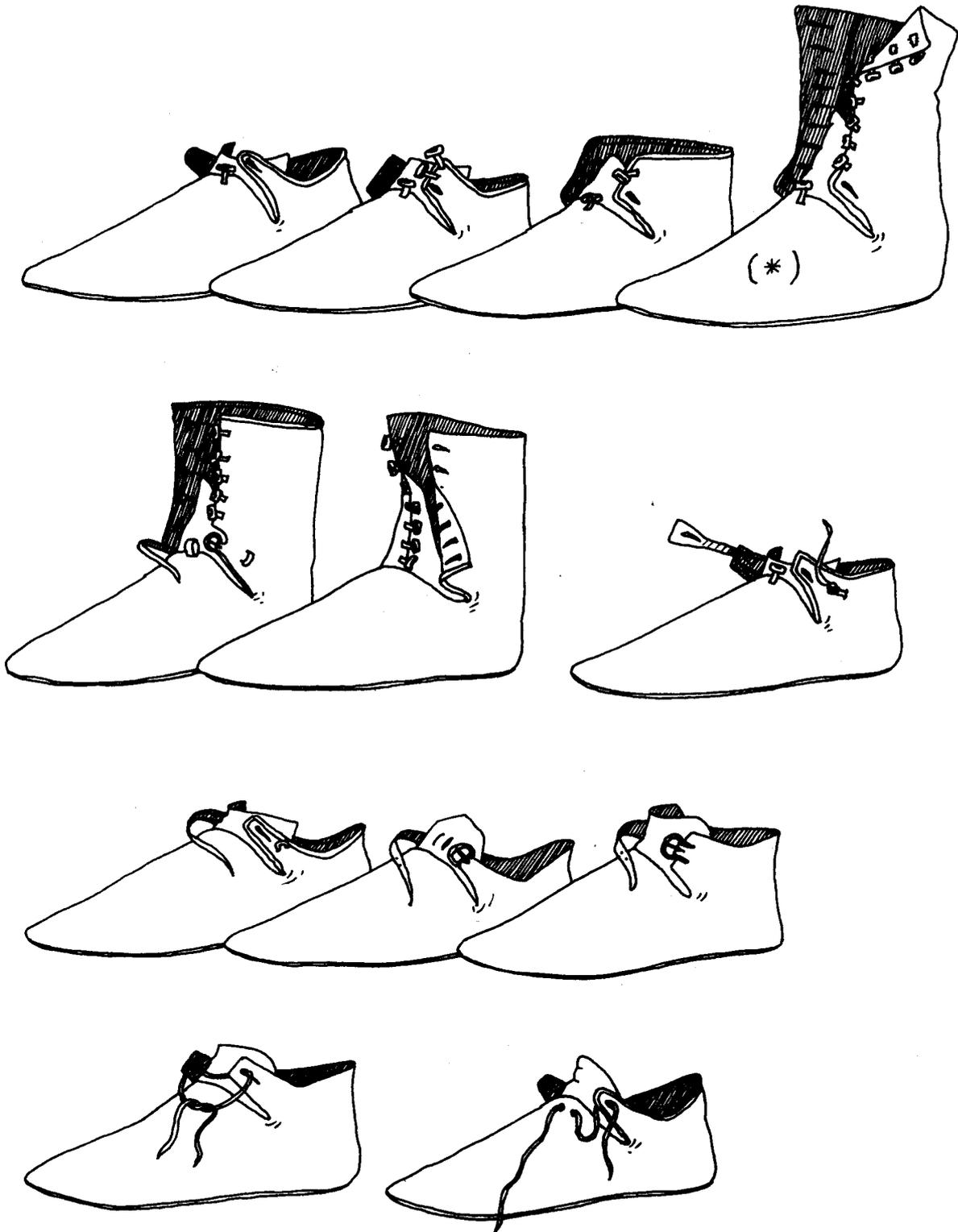
*Fig. 27* Decorated vamps from 14th century shoes. (Illustrations for a future publication).



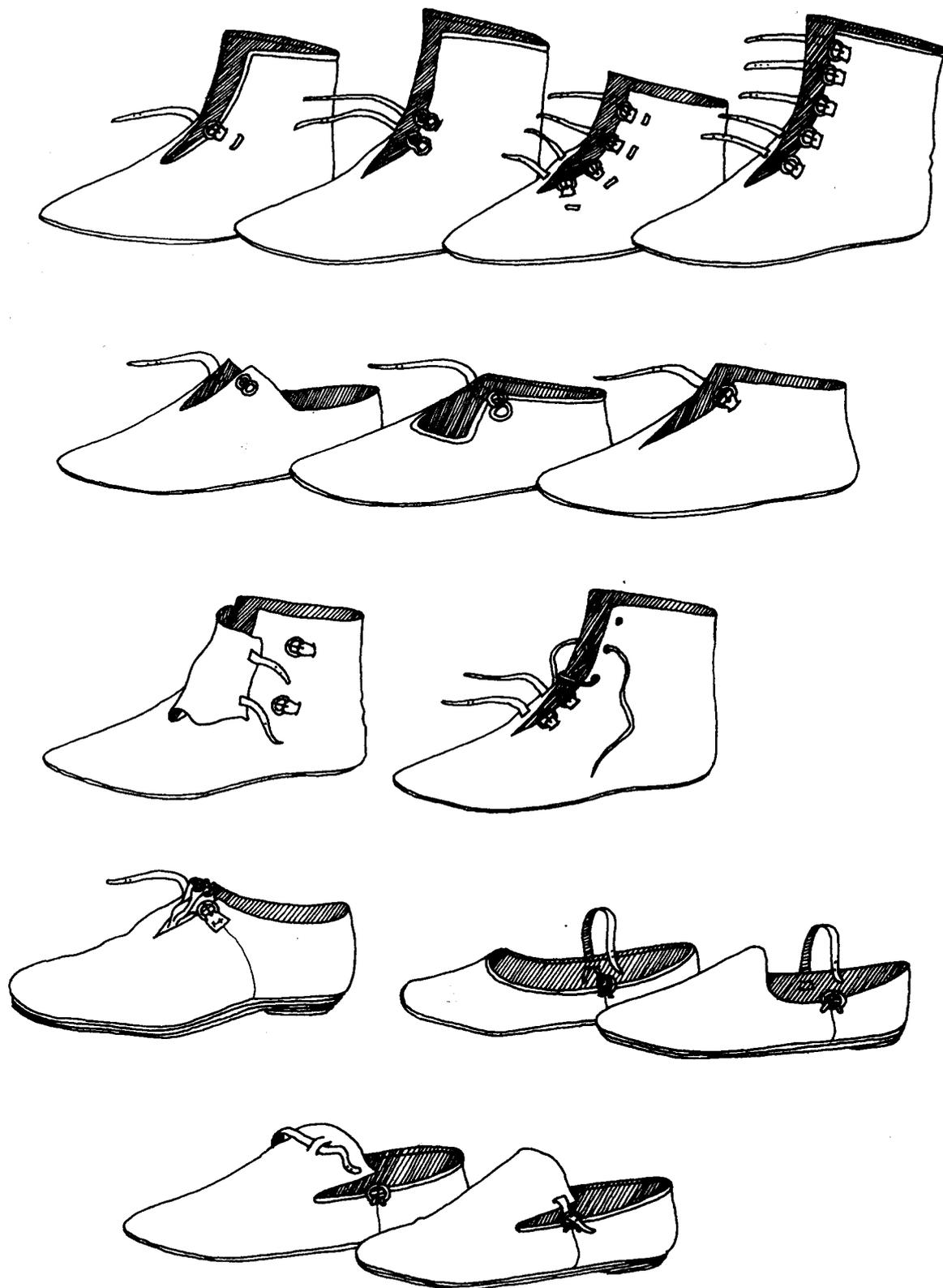
*Fig. 28* Drawings to show the many marks to be seen on soles, of various dates. (Illustrations for a future publication).



*Fig. 29* Typical medieval soles with transverse seams.  
(Illustration for a future publication).



**Fig. 30** Examples of one 14th century shoe type, with its various models and (3rd row) its variants and (4th row) some derivatives. (Dutch finds: illustrations for a future publication).



**Fig. 31** Examples of shoes fastened with fixed buckles. The three top rows are 15th century, the two bottom rows, 16th century. (Dutch finds: illustrations for a future publication).

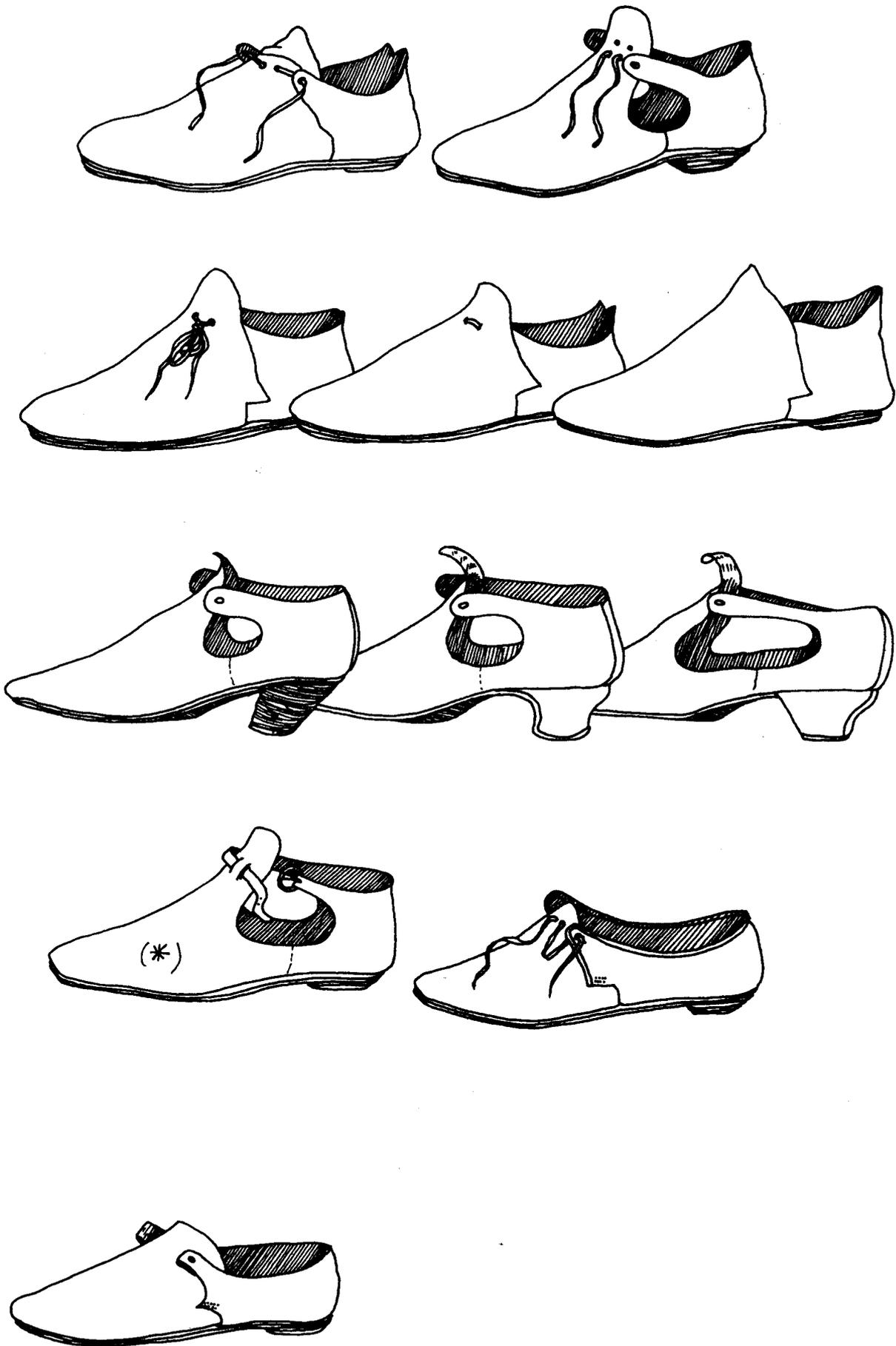


Fig. 32 Examples of latched shoes, 16th to 18th century. (Dutch finds: illustrations for a future publication).

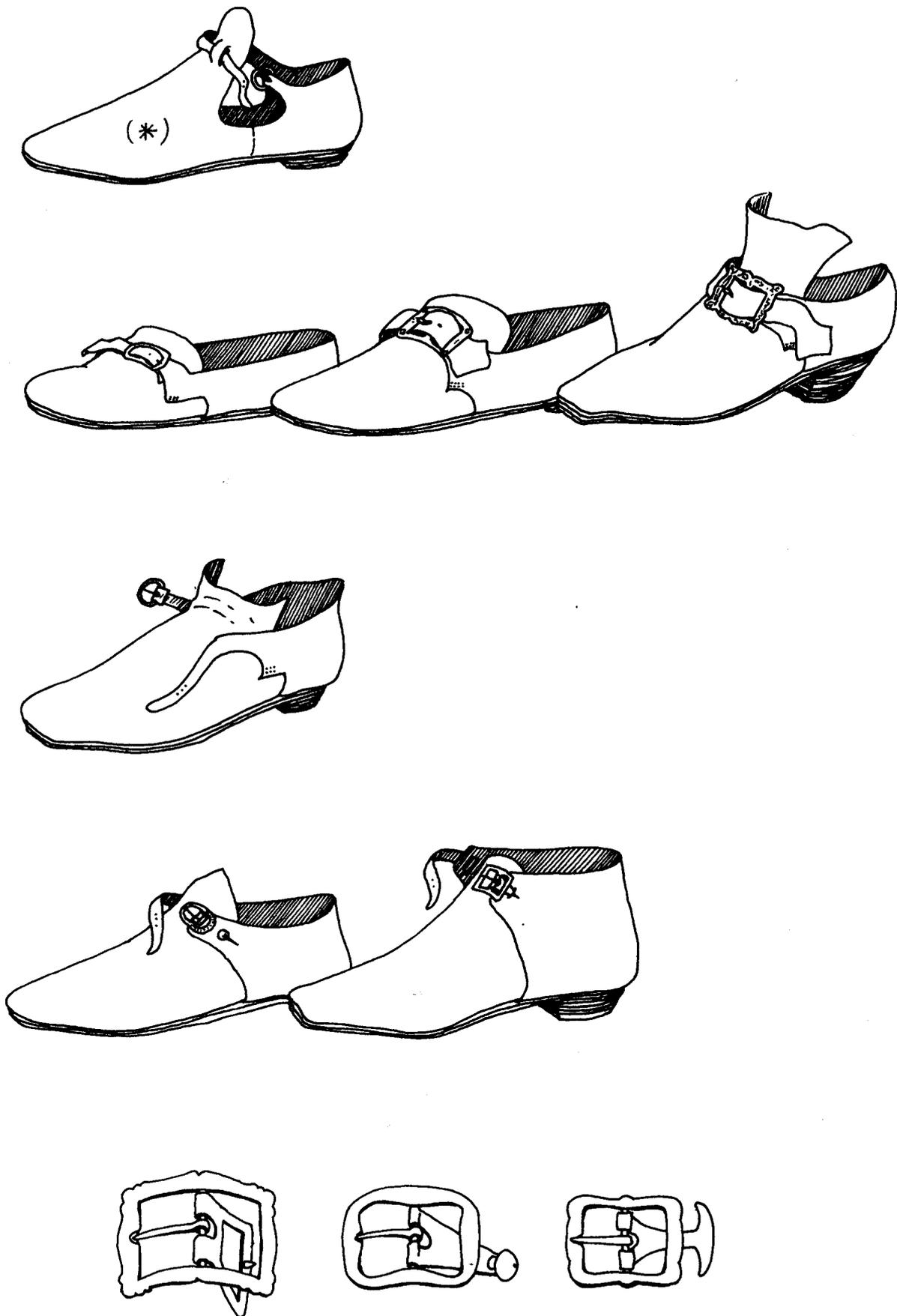


Fig. 33 Examples of shoes fastened with detachable buckles (except the top one). (Dutch finds: illustrations for a future publication).

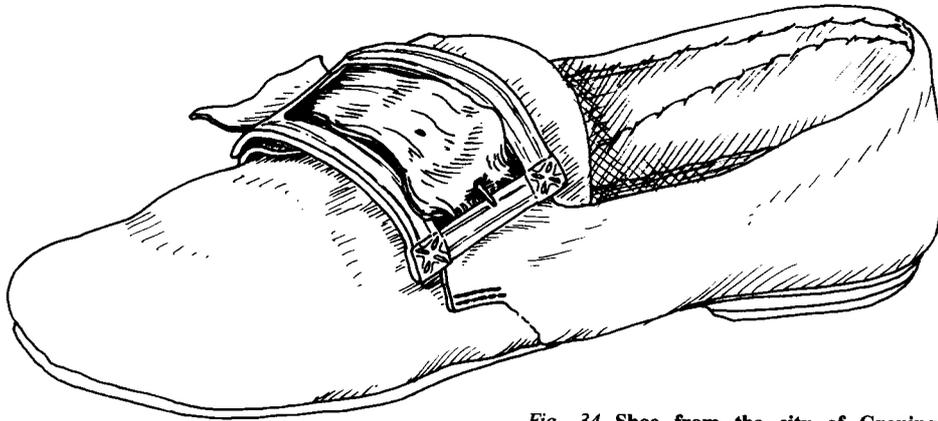
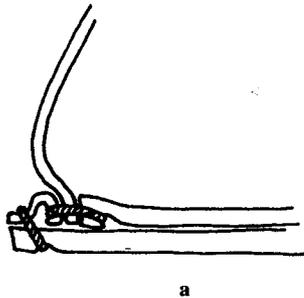
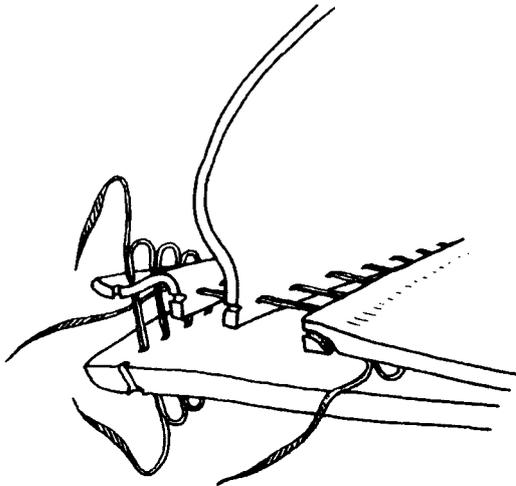


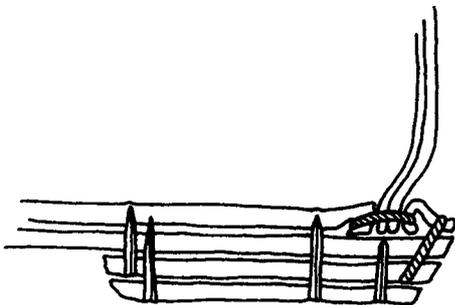
Fig. 34 Shoe from the city of Groningen, 18th century (publication forthcoming, 1987).



a



b



c

Fig. 35a,b,c Drawings to show a construction method. c shows a method of heel attachment.

### References

No references are yet available for forthcoming publications.

Goubitz, O., 1984. 'The Drawing and Registration of Archaeological Footwear', in *Studies in Conservation* 29 (1984), 187-196.

Goubitz, O., 1985 'Modeschoenen uit een Waddenwrak'; *Westerheem* jrg. XXXIV, 5, (1985), 223-228.

MacGregor, A., 1978. 'Industry and Commerce in Anglo-Scandinavian York', in Hall, R.A. (ed.), *Viking Age York and the North*. C.B.A. Res. Rep. 27, London, (1978), 54.

Schia, E., 1977. 'Skomaterialet fra "Mindets tomt"', *De arkeologiske utgravninger i Gamlebyen, Oslo I*. Universitetsforlaget, Oslo-Bergen-Tromsø, (1977), 121-201.

Wilson, E., 1969. *A History of Shoe Fashions*. London, Pitman, 1969.

# Practicalities and pitfalls in the application of a standardised system of conventions to the drawing of Romano-British footwear

A. D. Hooley

To researchers and compilers of reports on archaeological leatherwork it is self-evident that the methods of recording footwear are of central importance. Thus, one must welcome the emphasis given by Olaf Goubitz, in his recent article on this subject (Goubitz, 1984, 187), to the point that as the drawn record is the mode of communication of excavated data to other researchers, then these drawings must enable others to interpret, or possibly re-interpret, them. There is a clear relationship between the quality of the basic record and that of the research built upon it, and this is as valid for the study of leatherwork as it is for the individual site record where the point is usually taken for granted. It is, perhaps, an indication of the relatively slow, or, maybe, late development of serious studies of leatherwork, and particularly footwear, that we are only now discussing the adoption of a conventional system of representation of a form that has been practised for decades in the recording of certain other material, though usually retaining some variation in styles.

Given this general welcome for a move which must be in the right direction, there are a number of points which need stressing concerning the use of Goubitz's system of conventions for Roman footwear.

We must beware that in standardising the mode of representing features to ease communication by the adoption of conventions for stitch-holes and seams, we may be ignoring the representation of the fine details upon which much useful research may depend.

Uniformity of expression is a vital aim. Besides the beneficial effects of improved communication having a direct stimulus on research, there is also an indirect promotion of research by accelerating publication of a good corpus of footwear so essential to provide the broad base needed for future work, as Michael Rhodes made clear in the Billingsgate Buildings report (Rhodes, 1980, 102). To achieve this uniformity, we must not apply conventions so symbolic as to mask subtle differences vital in building a picture of, for instance, whether footwear was produced on small-scale domestic level, or in larger-scale shoe-making centres, or how the manufacturing processes were split between different workers, and whether such features varied according to differing contexts in one society. With such questions as these still unresolved for Roman footwear, certainly in Britain, any recording method must be flexible enough to permit registration of such fine details as stitch-hole form, and variation of spacing-length within one seam rather than just between seams the Goubitz system allows. Otherwise, we may risk pre-judging the uniformity of the basic data of Romano-British footwear while we are still trying to determine its scale, mode of manufacture and distribution, and

their development through time, features which are better known for the Dutch medieval footwear industry for whose products I feel Olaf Goubitz's system of conventions is most suited.

These problems would be largely overcome by the adoption of essentially the same forms of conventions but employed on a more detailed scale, with the stitch-hole (not the seam) forming the primary unit within which the convention is applied. Of course, it will remain the seam-type that must still determine the stitch-hole convention used. This would permit the flexibility referred to above, and is essentially the method used for the primary recording of stitch-forms on leather prior to conservation processing at the York Archaeological Trust. There is the further advantage that recording may still be undertaken by relatively untrained, but supervised staff. Obviously, all drawing is interpretation, but an over-symbolic, or over-extensive convention can lead to confusion and the danger of misrepresentation by such workers. Clearly, close supervision will minimise this risk, but the more closely-related the convention is to the naturalistic form of the seam, the greater is the likelihood of accurate recording.

A related point concerns the deliberate omission of information, in particular, Olaf Goubitz's point about disregarding 'accidental pleats and other deformities', such as 'creases, folds and other deformities which are not original' (Goubitz, 1984, 191 and 193). Obviously, the greatest of care should always be taken in the essentially subjective decision of what are 'accidental' or post-depositional features, but where personnel not specifically trained in leatherwork research play a large part in producing record or publication drawings, then close supervision and clear instructions are absolutely vital. On the whole, such omissions might be justified when such features are unambiguous and on well-known types of leatherwork, as may be argued for many footwear types. However, we are back on dangerously subjective ground if this principle is applied to less well-researched forms of leatherwork, in particular fragments not necessarily from shops.

It is clear that with the exception of shading to demarcate particular phenomena, then this should be left out as it is time-consuming, unnecessary and often masks constructional detail, as many published drawings will testify. At the same time, it seems sensible that the range of conventions to be used should be extended to include the representation of wear-marks; wear-creases; lacing-impressions where not part of a seam-line; damage-marks relating to the original use of the shoe; lasting-margin impressions, and reconstructed missing parts. The use of different colours can be considered for noting areas of wear and reconstruction, but are rarely practicable for publication. In many respects, the features listed above are more universally found among footwear

finds of different periods than are some of the stitch-hole and seam-types, and must surely be included in the explicitly-stated range of conventions.

Also to be considered for inclusion on this list is some representation of any original, natural creasing of the skins or hides from which the original leather artefact was cut. Clearly, a high degree of skill and experience is required to distinguish which features can be termed 'original creases', and it is probably preferable that such decisions are referred to staff trained in leather science and tanning.

The information to be gained from supplying this fuller range of conventions to footwear items is considerable, but it can also be extended to assemblages of what are usually termed 'leather workers' waste', many of which must relate to footwear manufacture. By studying parts of the hide consistently represented by particular off-cut shapes, the forms of frequently recurring off-cut types, and, if possible, their orientations on the hide, the conclusions should provide clues to the patterns of packing of soles and other shoe-part shapes on the hide for cutting purposes. The results of such a study could produce patterns rather akin to those shown by John Thornton (1964, figs 68a-69b, and 111-114) relating to the modern cutting of hides, and these would give yet another strand of information about the mode of footwear manufacture. Such work is in its early stages, but is mentioned particularly as an appeal for a careful regard to be made of off-cuts, which can often receive cursory treatment in reports, yet may yield much useful information. There is a danger, in this period of increasing pressure on funding for extensive conservation, recording, research and/or publication, that the off-cuts will be early victims of this trend. For the reasons outlined above, this should be resisted until at least some record and quantification has been made of these pieces.

Returning from this small digression to the point of the paper, there are several points made by Olaf Goubitz which can and should be implemented for Romano-British footwear recording, without needing modification. In particular, where the evidence is good enough, the inclusion of all features of his drawn record of a shoe, i.e. comprising the components in plan form in constructional relationship; the transverse section (and any other section needed to clarify a constructional point) and the three-dimensional drawing (Goubitz, 1984, Fig. 2). Admittedly, there is insufficient material surviving from many sites producing Roman footwear to permit the whole of such a record for even one shoe represented, but it should still remain the ideal to be approached as far as is possible, with the principles consistently adhered to. One only has to think how far the value of the Hardknott report was enhanced by its drawings, reconstructions and sections to understand the potential of this approach, even though it did not employ all of the principles and conventions suggested by Goubitz (Charlesworth & Thornton, 1973).

A further feature which would quickly produce benefits for Romano-British footwear studies is the production of actual reconstructed specimens of shoe-types made according to the methods claimed in the theoretical reconstructions which are usually found in the current literature on the subject. Such physical reconstructions of 'typical' examples would be a useful aid in producing the three-dimensional draw record referred to above. As Goubitz states in his paper relating to medieval footwear (this volume), they provide a useful test-bed for ideas, with the provisos applicable to all experimental archaeology, that the most likely benefits will be in the rejection of unworkable possibilities, while the determination of which practicable idea was the one that was actually used remains intractable. Again, as always, account must also be made of our loss of the skill of the shoemakers who produced the footwear we are trying to replicate.

One potential pitfall that may arise in both drawn and physical reconstructions is where we may infer the complete absence of certain layers, as suggested in the description of the nailed shoes with inferred 'caliga-type' uppers from the Billingsgate Buildings site (Rhodes, 1980, 107-9). Care must be taken that such inferences are included on the reconstructions.

This last point serves to underline another feature of this recording system, namely that the composite record drawings suggested by Goubitz combine the primary data record, which should be as free as possible from interpretative manipulation to allow potential re-interpretation, with the highly interpretative transverse-section and reconstruction drawings. There should be no danger of misinterpretation arising from this provided that the details involved in the interpretation are made clear both on the drawn record and in the accompanying text.

On the subject of drawing the component parts, we enter the problem of shrinkage. Jim Spriggs has said more on this in his contribution to this conference, but here, I should like to back-up Goubitz's point (1984, 187) that the leather parts should be drawn whilst wet, prior to conservation, to minimise the effects of shrinkage, and in particular, the differential shrinkage among pieces cut to differing lengths and from differing areas and orientations on the hide, which would produce distortions when reconstructions are attempted.

Finally, I wish to reiterate my welcome and support for the direction in which the recording of footwear is being taken by Olaf Goubitz's suggested methods, and it is hoped that the points made here are not taken as a general criticism of his approach.

In summary, it is clear that while Goubitz's recording system is adequate for later medieval footwear, the same conventions need some modification and addition before being applied to Roman footwear. Then, however, they can be employed without any confusion resulting from this duality in the form of application — it merely reflects the differing states of knowledge, degrees of preservation and the intrinsic features of the

shoes and their manufacturing and distribution processes.

### References

- Charlesworth, D. & Thornton, J. H. (1973). Leather found in *Mediobogdum*, the Roman fort of Hardknott. *Britannia*, IV, 141-152.
- Goubitz, O. (1984). The Drawing and Registration of Archaeological Footwear. *Studies in Conservation*, 29, 187-96.
- Rhodes, M. (1980). Leather Footwear, in: D. H. Jones, Excavations at Billingsgate Buildings, Lower Thames Street, London, 1974. *London and Middlesex Arc. Soc. Special Paper No. 4*.
- Thornton, J. H. (ed) (1964). *Textbook of Footwear Manufacture*. 3rd edn: London Temple Press.

# Roman Footwear: a mirror of fashion and society

*C. van Driel-Murray*<sup>1</sup>

Although I appreciate that it is essential to preserve excavated footwear for future study and especially to display it to the public, my starting point is that conservation of objects can never be an end in itself. It is the conservation of information provided by these objects — and its presentation in a form which will be of use to others who may be without access to the finds — which differentiates the archaeologist from the collector. Encapsulated in this single item of clothing is a vast potential of technological, chronological and social information, and our task is not only to exploit this ourselves, but also to enable others, who may have more knowledge, better techniques or simply a better group of finds, to make use of our observations. The social analysis of footwear from archaeological contexts is a relatively recent development (Groenman-van Waateringe 1975, Schia 1977) and it is only by building upon each others' work that any progress can be made.

Here I want to look beyond excavation and restoration to what shoes can tell us about the people who made and wore them. I will be concerned with Roman footwear, spanning a period from the second decade of the first century A.D. to the fourth century, but of necessity limited geographically to the North-Western provinces of the Empire, which have produced most of the surviving and published leatherwork.

My title immediately raises the question of whether the concept of 'fashion' is at all relevant to the Roman period. It is perhaps difficult to recognize our idea of fashion — with its annual and drastic changes — in the slower developments and more restrained dress of the ancient — and, indeed, the medieval — world. But fashion is a relative concept, inseparable from the social and economic system in which it exists. Although analysts of this field of human behaviour offer widely differing definitions of the concept 'fashion', each according to their own historical or social perspectives, the identification of 'fashion' is generally seen in terms of an antithesis to the concept of 'costume'.

'Costume' may be defined as corporate dress, it is the expression of group identity, often with a deliberate attempt to create a demarcation or barrier with other, neighbouring, groups. In Africa, this is tribal (Hodder, 1982, p.15, fig.3, pp.75-83), in Holland, costume until very recently expressed not only regional — indeed, village — identity, but also religious affiliation within that region (Bakker-Stijkel, 1982, pp.109-110, Bogatyrev, 1937, p.56). Costume is a code to others of like mind. Fashion on the other hand, is a mode of dress held in common by people on the same information circuit, thus cutting across geographical boundaries. It is the time specific development of existing clothing to express the status of leading individuals (who therefore have

an interest in maintaining a degree of change), and is copied by aspiring groups. It is the expression of individual economic and political affiliation rather than of corporate identity.

Polhemus & Procter (1978, p.13-14) would go so far as to see fashion as both a reflection and as an expression of situations of change and social mobility, while costume (which they refer to as 'anti-fashion') belongs to societies with a static conception of themselves.

If we apply this underlying dichotomy of 'fashion' and 'costume' to the evidence available for the Roman period, I think it is possible to trace both elements, always remembering that when garments are simple, consisting essentially of untailed lengths of cloth (Wild, 1968), 'fashion' is of necessity largely confined to the draping of different layers of cloth around the body and the arrangement of the fibulae which are necessary to hold these pieces in place. Consequently, before about 1300 A.D. (when the introduction of horizontal looms led to narrower cloth widths and the adoption of tailored clothing. Drs. S. Y. Vons-Comis, pers. comm.; Houston, 1939, p.72ff) most of the spirit of fashion change must have been channelled into the accessories, such as hairstyles, fibulae, jewellery and footwear, rather than into any fundamental change to the shape, style or silhouette of the robe itself.

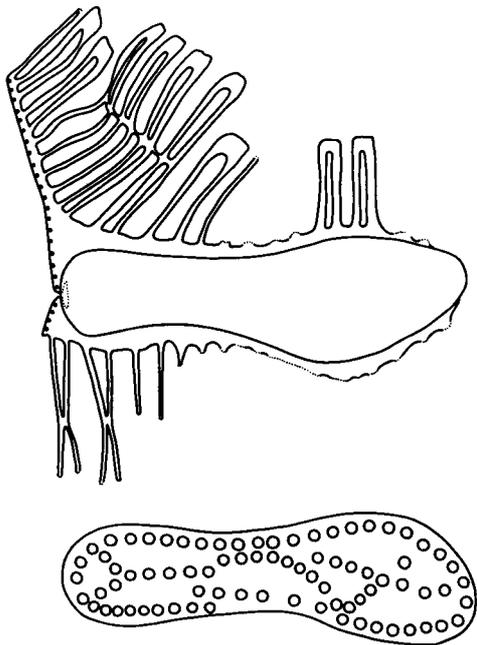
Something akin to what we have defined as 'costume' can be identified in the Roman period in a few well-favoured regions. In a brilliant study, combining an exceptionally rich corpus of sculptured grave stones with finds of brooches and belt plates in graves, Jochen Garbsch (1965) was able to isolate an extremely distinctive regional costume in Noricum and Pannonia (modern Austria and Hungary). This has many of the features of more modern folk costume in the same area, with variations between small regions and dress differing according to life stages — unmarried girls, married women and, probably, widows. Especially interesting here are the slow changes observable through time, the way in which costume lingers longest in remote valleys and the way in which women cling to the costume of their youth (cf. Bogatyrev, 1937, and similar conservatism in Dutch costume development in the 20th century). Equally well-defined, if less spectacular, regional costumes have been identified by J. P. Wild (1968) for several individual localities in Germania Inferior. The imperialistic and urban culture of Rome, however, overshadows and eventually engulfs these regional costumes, in a manner suggestive of the more recent displacement of folk costume in Europe by the urban, Parisian dominated fashions.

In Italy itself, the various hair styles adopted by women in the Imperial period answer almost any definition of the concept of fashion. They are overt signs of wealth and luxury, current for a brief

period in aristocratic circles (Wegner, 1938; Boucher, 1965, p.124). Information about them reached the provinces through the circulation of coinage bearing depictions of the leaders of fashion, and they were avidly copied (Bianchi Bandinelli, 1969, pp.347-351). Even the toga, that epitome of Romanization, and so much to blame for our conception of uniformity in Roman clothing in general, in fact undergoes considerable changes in shape and drapery through time (Wilson, 1924).

In contrast to the minor changes of folk costume, which are usually associated with the passing of the generation in which the style first attained popularity, fashion changes, followed by young and old alike, are of great use to the historian in dating works of art (Bianchi Bandinelli, 1969, pp.71 ff). But this is of little assistance to the archaeologist, whose evidence for clothing is all too often restricted to incoherent rags and a handful of pins. This is of course where footwear comes in. Preserved in large quantities at numerous sites, it offers us the best tangible evidence for trends in clothing habits as reflected in a single important and in itself complete item of dress. Once these trends have been placed in a chronological framework, we can not only reconstruct exactly what a person was wearing at a particular point in time, but we can also begin to say something about that person's occupation, and, very tentatively, about his social affiliations. Furthermore, archaeological levels can be actually dated by the time specific changes which occur of footwear styles.

When the Roman armies arrived in our regions, they brought with them their own, very distinctive method of shoemaking, and their unmistakable military boots have been found at a large number of early military sites. Characteristic are the nailed construction, the separate insole and outer sole with a latticework upper cut in one with the middle sole (*fig.1*). These boots are highly standardized,



*Fig. 1. Roman military boot (from Groenman-van Waateringe, 1967, fig. 47). 1:4*

and from the finds themselves and from contemporary texts we can see that they were made in camp workplaces, by the soldiers themselves, working under the supervision of a skilled shoemaker, who probably did the cutting out. The standardization, even in details of nailing, is remarkable and the suspicion arises that standard models were issued, rather as they were to the Dutch army workshops in the early 19th century (van Driel-Murray, 1985). However, shortly after about 100 A.D. these boots disappear completely and it seems as though shoemaking passed to civilian shoemakers, perhaps working on contract. So, though it is possible to identify the presence of soldiers by their boots in the 1st century, by the 2nd their footwear becomes indistinguishable from that of the rest of the population and only an imbalance in size distribution will characterize military communities (Robertson et al. 1975, p.82).

Even this, however, is of only limited value, for footwear from military sites in fact provides valuable evidence for the changing composition of the population in and around the forts between the 1st and the 3rd centuries. Each adult has his or her individual foot size, reached after a period of continuous growth throughout childhood. Although shoe sizes cannot tell us the age of the individual, differences in size distribution within large groups allow the identification of the relative proportions of men, women and children present in the population which discarded the footwear. Differential shrinkage of the leather means that absolute lengths can never be directly compared between sites; all we can do is compare the overall patterns (Groenman-van Waateringe, 1978). *Fig. 2.* shows the size distribution of footwear from 5 different sites. The two 1st century military sites — Valkenburg and Vindonissa — stand out with a marked imbalance in footwear sizes. Both represent a population composed entirely of adult males. The footwear from the 2nd century military sites, however, show an increasing presence of women and children in and around the camps (see also the situation at Bar Hill, Robertson et al, 1975 pp.80-82), and even in the legionary workshops on the Bonner Berg, where civilians seem also to have been involved in manufacture (van Driel-Murray, 1985, p.56). Large, adult male sizes do predominate in these complexes, but by the early 3rd century, the size distribution is what one would expect for a normal balanced population. The footwear shows that the traditional view of the all-male military communities is quite false<sup>(2)</sup>. Needless to say, such comparison for the purposes of population analysis can only be carried out with large, well defined and well dated find complexes.

In Northern Europe, the Romans introduced nailed footwear which is completely different in technology and concept to the relatively simple, single piece shoes of the native type (Hald, 1972, pp.34ff). As people tend to cling to their native clothing traditions even after conquest, the rapidity of acceptance of this footwear should provide a good clue as to the thoroughness of Romanization in general. Here, however, the lack of leather finds from early rural sites hampers any

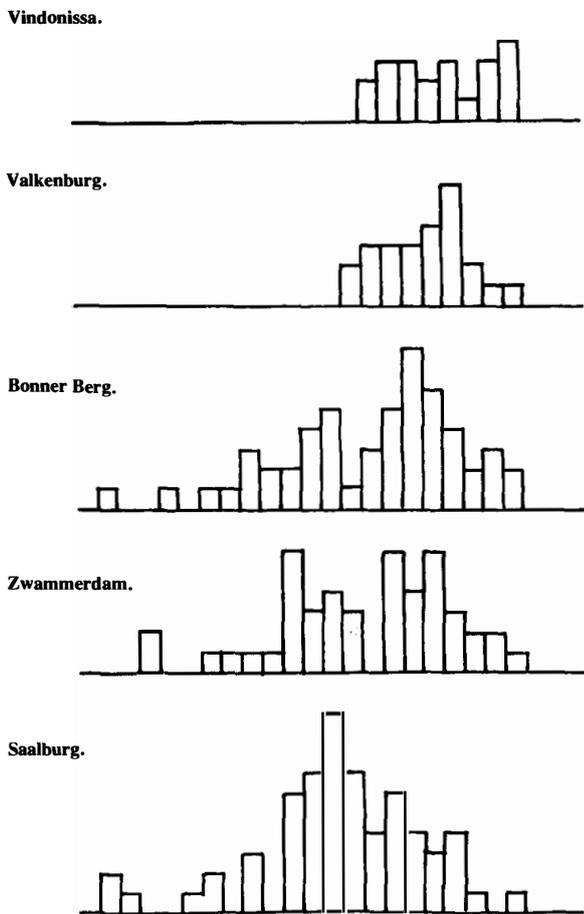


Fig. 2. Size distribution of footwear from 5 military sites.

filling out of detail, but it is an aspect to be borne in mind when looking at early find complexes and in assessing the sort of population concerned. In the absence of shoes, finds of hobnails could be of considerable importance in the whole problem of the penetration of Roman ideas, so it is worth giving them a bit more attention than they usually receive in site reports.

Single piece shoes from civilian settlements around military sites and also from the early urban settlements such as Cologne and London, seem already to incorporate considerable Roman influence in both shape and decoration (Rhodes, 1980, fig. 68; Schleiermacher, 1982, fig. 15) and it may be questioned whether these can be regarded as survivals of native costume at all. The Roman military boot is, after all, no more than a one piece shoe with an insole and an outer sole attached, so Roman civilians may also have used footwear of this general type. The major stumbling block to tracing the early growth of Roman influence in clothing is the total lack of comparative material from Italy and Gaul. What is strange is that single piece footwear becomes increasingly popular once more in the 3rd century.

Particularly interesting is the wide variety of treatment within what might be regarded as a very basic pattern. Regional preferences can be distinguished (fig. 3), and these may, in time, form a basis for the differentiation of regional costume. It must, however, be emphasised that far more evidence from a greater range of sites is required before an increase in one piece footwear can be

used to fuel speculation on a resurgence of tribalism or to identify influxes of Germanic settlers. Again, however, the potential of footwear in studies on regional differentiation as well as Romanization, far exceeds that of other surviving elements of dress in its immediacy, its quantity and its wide distribution. A further, rather curious feature is that shoes recovered from the bogs of Denmark and N. Germany can be exactly paralleled in 3rd century military settlements within the Empire, while Roman features such as nails (or studs), cusping between straps or inside lace holes and incised or impressed decoration occur in native contexts (fig. 4)<sup>(3)</sup>. Whether these are Germans entering the Empire with their own costume, evidence of Roman influence on native dress in the north, or simply the result of general cross-contacts and mutual influences, it is too early to say. A marked improvement in textile quality at about the same time in N. Germany and Denmark has been associated with an intensification of links with the Roman Empire (Hald, 1980, p.192; Bender Jørgensen, 1977, 1984),<sup>(4)</sup> but here too, the direction of the influences is difficult to establish with certainty. Most of the bog finds are undated and the contexts are, in many cases, unusual. Indeed, since Roman metal work is sometimes included, some of the clothing too may have come from within the Empire.<sup>(5)</sup>

The single piece shoes are perhaps the 'costume' end of Roman clothing. For the 'fashion' component, we must turn to the obviously foreign, imported shoe types, which are also technologically more advanced and require more equipment to make. Not only is nailed footwear specifically Roman, but its diffusion throughout the Empire is due entirely to Rome's political domination. Where sufficient evidence survives, it is clear that individual styles, as well as the progress of change, run parallel in all the different provinces. The wide distribution, based on a conceptual political unity, and the — for ancient times at least — relatively rapid, contemporary changes in style, make it possible to speak of 'fashion' in a fully modern sense. Sandals are the most obvious of the fashion imports (their unsuitability to northern climates emphasises their fashionable status). They undergo a classic cycle of fashion development over some 200 years, and also form the best illustration of the potential of footwear in the actual dating of archaeological layers.

Beginning as the footwear of women and children, with fairly naturally shaped soles (Rhodes, 1980, fig. 66), sandals become acceptable dress for men towards the last quarter of the 2nd century. At this point, divergent male and female styles come into being, each with its own further development. Women's sandals become narrower and more pointed, with only a single notch to mark off the big toe, while men's sandals become rounder and blunter at the front. From the late 2nd century onwards there is a tendency for the widest part of the sole to move forward from its natural position across the toe joints until an exaggerated, almost triangular shape is achieved in the later 3rd century (fig. 5). These excessively wide sandals occur in both military and

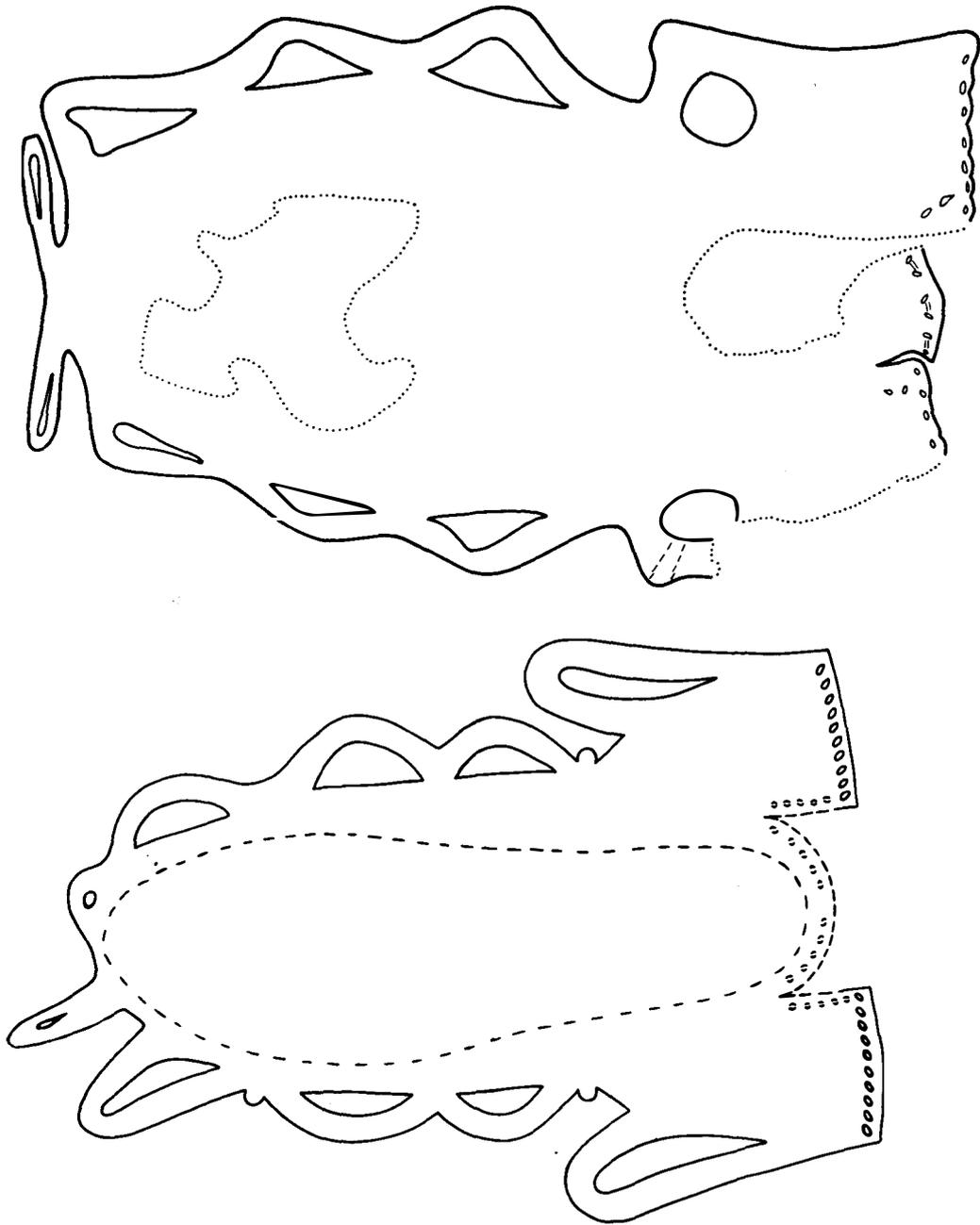


Fig. 3. One piece shoes typical of a) Saalburg (from Busch, 1965, Taf. 1 no 6), b) Welzheim (after Planck, 1979). 1:3.

civilian sites,<sup>(6)</sup> in large adult's and in children's (presumably boy's) sizes. Impressions on the sole show that they were worn by perfectly normal feet, and in the end they must have become so uncomfortable that the entire shoe type was apparently abandoned in the north, probably by the early 4th century. These broad sandals represent the culmination of a typical fashion cycle, which exploits the potential inherent in a particular style until the extreme is reached, whereupon the style is abandoned altogether or is radically altered. They invite comparison to the duck-bill or *Kuhmaul* shoes of the early 16th century which were affected by Swiss mercenaries and later the German *Lansknecchte* (free-booting mercenaries). This excessively masculine dress, product of a bellicose society (Post, 1960, pp.23,25), with its exaggerated slashings, costly materials, garish colours and wide fronted

footwear, heavily influenced contemporary civilian costume. In the wide sandals of the 3rd century we may discern an analogous reflection of the political dominance of military groups and the relatively favoured position of soldiers. The form of the footwear might be seen as the expression of a militaristic society. Like the *Kuhmaul* shoes, the wide sandals disappear abruptly, though this is not to say that the form of society changed at the same time: elements of the *Landsknecht* dress remained in vogue for almost a century (Post, 1960, p.25). Technical differences accompany the fashion development in Roman sandals. Earlier examples consist of several layers of leather thonged and nailed together around the edge. Towards the end of the 2nd century, the thonging moves in from the edge and becomes more closely spaced. It was obviously regarded as a decorative feature as well, for a further 3rd century development is its

replacement by stamped or incised lines which merely imitate the pattern of slits originally left by the thonging on the insole. Mid to late 3rd century sandals often consist of only a single layer of leather, without any thonging or nailing whatsoever (van Driel-Murray, 1977, fig. 3a; van Driel-Murray, forthcoming, a; Thornton, 1977, fig. 22, no. 510).

Such a direct evolution is less easy to follow in other types of footwear, in part because relatively few shoe uppers survive complete, but it is possible to trace the rise and decline in popularity of a number of styles within the technologically identical group of hobnailed footwear. Together

with other clothing accessories such as hair styles and brooches, these form precise, datable fashion assemblages. For example, the elaborate, fish-net openwork upper is popular, if uncommon (due no doubt to its expense), in both military and civilian settlements from the last quarter of the 1st century to about the 130's, when it seems to go out of favour (fig. 6)<sup>(7)</sup>. It is replaced by an equally widespread, but far more common, latchet shoe, which is worn by men, women and children from the Antonine Wall to central Germany (there is simply no evidence available from further east) and which survives until the 180's if not longer (fig. 7)<sup>(8)</sup>.

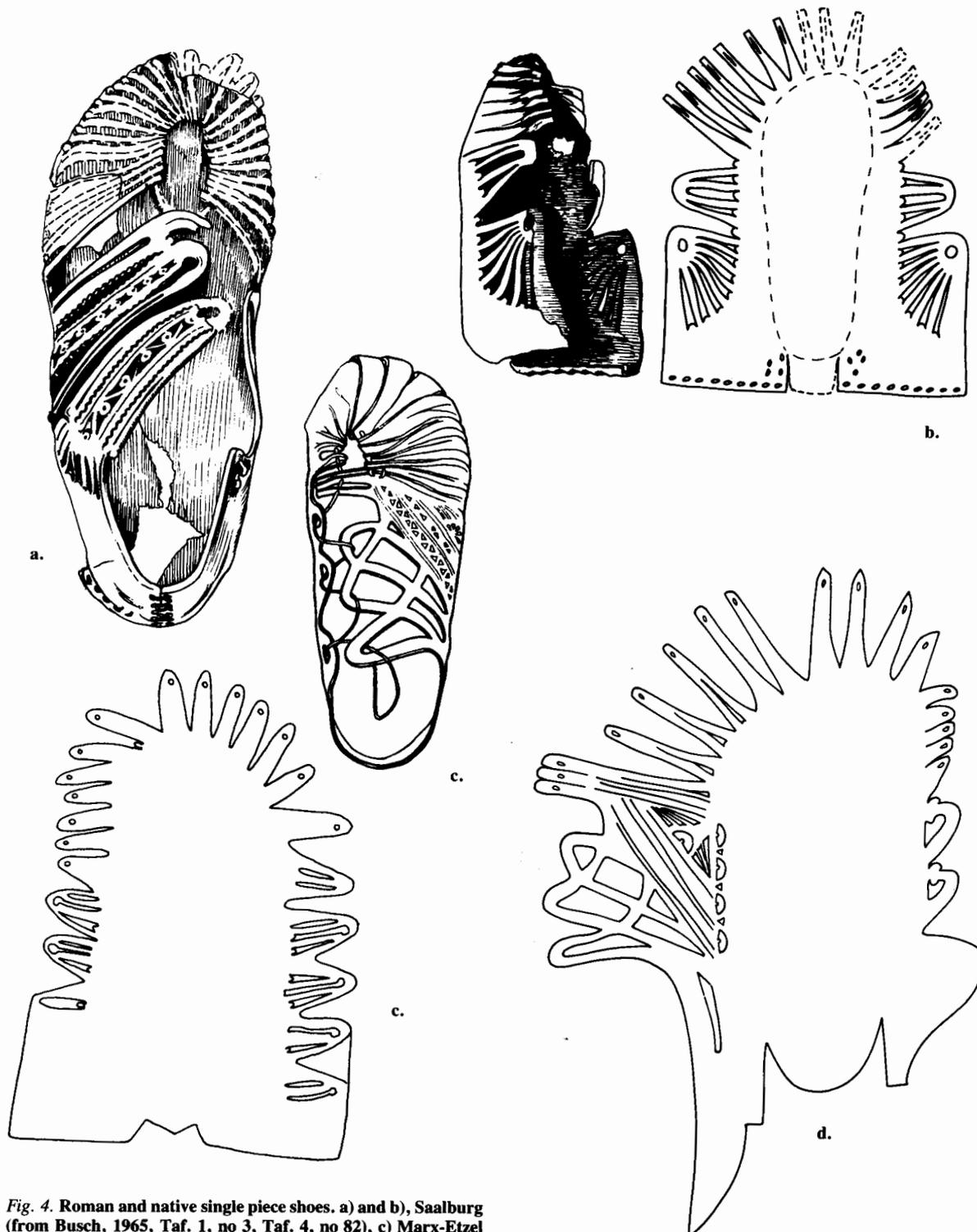
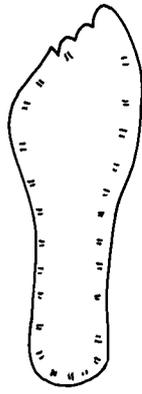


Fig. 4. Roman and native single piece shoes. a) and b), Saalburg (from Busch, 1965, Taf. 1, no 3, Taf. 4, no 82), c) Marx-Etzel (after Hahne, 1915-20, Taf. IV, Abb. 3 & 4), d) Paradiek (after Hahne, 1915-20, Taf. XIII, Abb 4). Scale c. 1:3

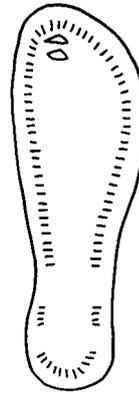
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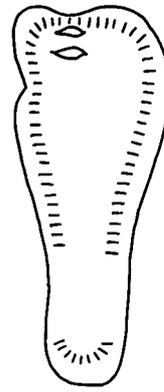
London



Bar Hill



Woerden

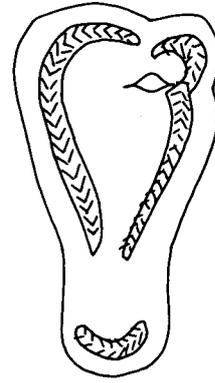


Zugmantel

III B



Xanten



London

Fig. 5. Sandal development 1st-3rd century (not to scale).

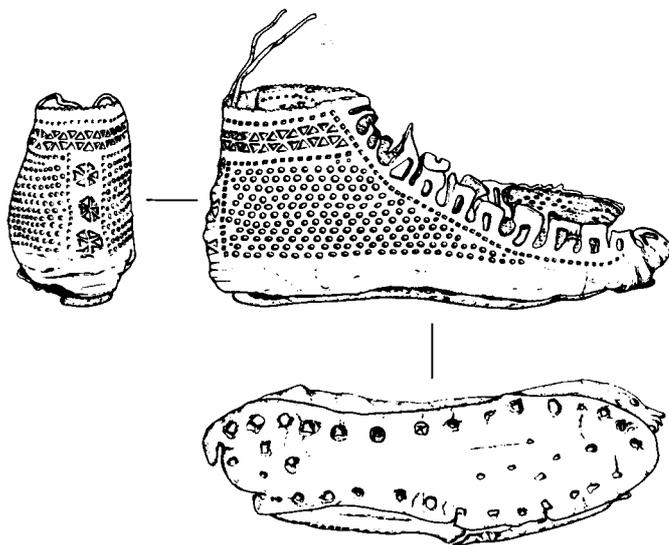


Fig. 6. Openwork upper (from Schleiermacher, 1982, Abb. 12).  
1:3.

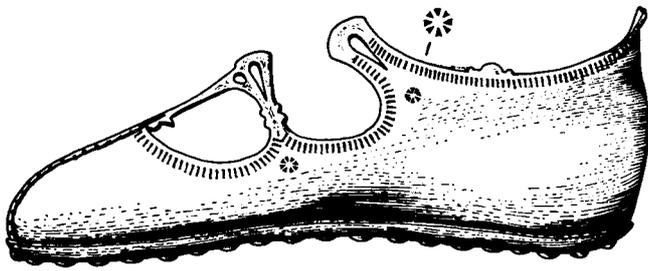


Fig. 7. Latchet shoe (from Charlesworth & Thornton, 1973, fig. 1). 1:3.

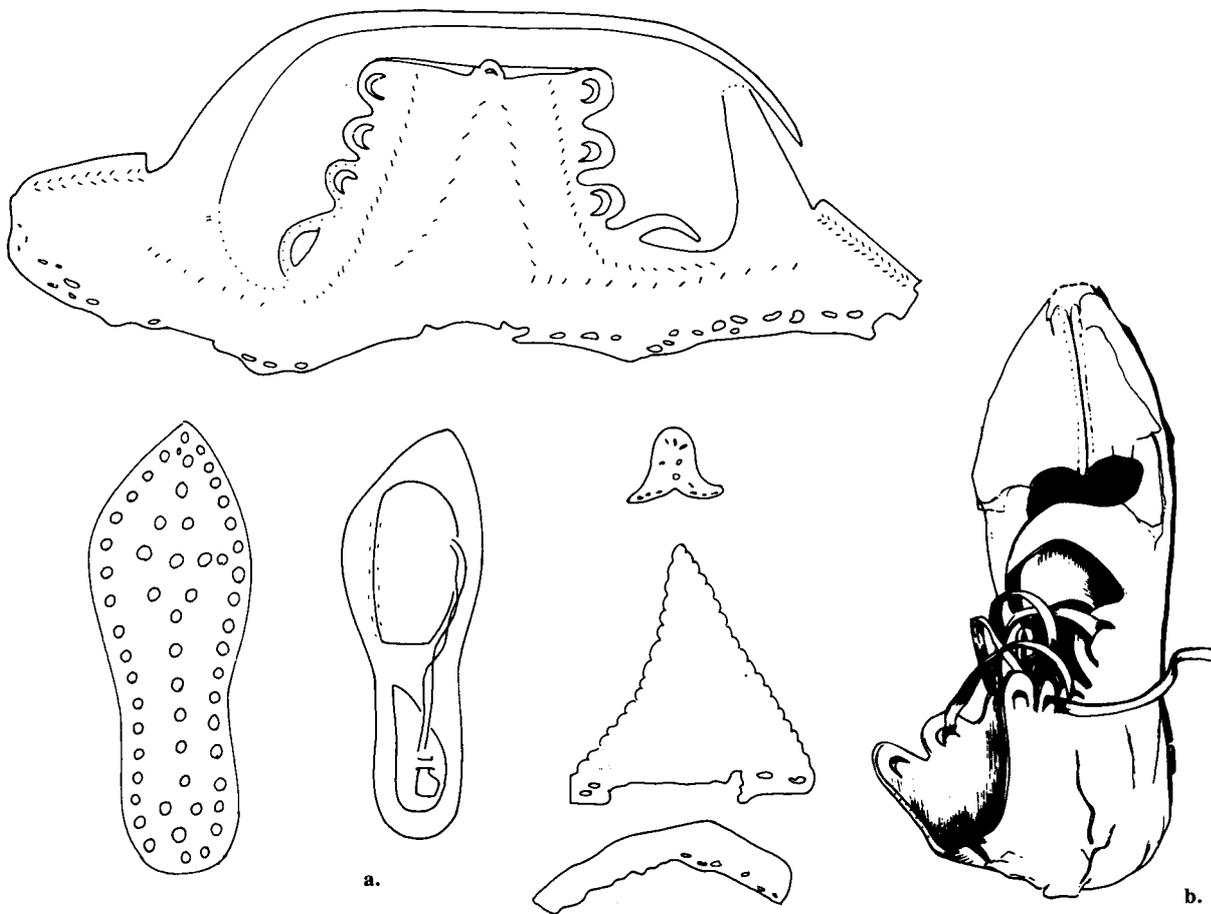


Fig. 8. Third century boot from a) Zwammerdam, b) Saalburg (from Busch, 1965, Taf. 10, no. 199) 1:4.

An exceptionally well documented instance of the pan-Empire spread of fashions in footwear is provided by a distinctive, front fastening boot with integrally cut laces (fig. 8), which is securely dated to the 3rd century (on present evidence c. 230-275). Actual examples come from both military and civilian sites scattered between Syria in the east and Wales in the west, while contemporary representations fill out the picture for Egypt, Gaul and the Moselle region of Germany<sup>(9)</sup>. Frequently associated with this type of boot is nailing in a tendril pattern, and though this occasionally appears in earlier complexes, the pattern's chief popularity falls in the 3rd century.<sup>(10)</sup>

Many of the most remarkable developments in footwear seem to have occurred in the 3rd century — a time usually portrayed as one of anarchy and decline<sup>(11)</sup>. Yet in footwear, the 3rd century seems to form a watershed, with change and development in technology, style, outward appearance and, indeed, the entire concept of footwear manufacture. It may come as a surprise to find certain of the features characteristic of medieval footwear (sewn construction, turnshoes, butted seams, single-layer sole) already appearing — albeit rarely — in the 3rd century. Roman shoemakers almost invariably employ lap or plain seams to join pieces of the upper (cf. the vamp

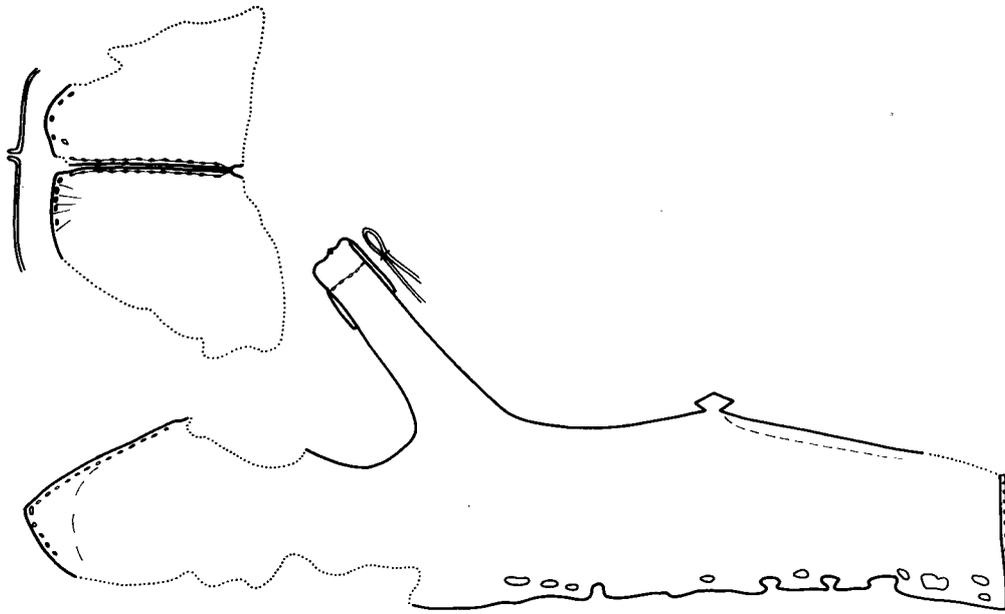


Fig. 9. Strap shoe from Welzheim. 1:3.

seam on *fig. 9*), but a butted seam already occurs at Welzheim in the 230's (the side seam on the shoe *fig. 9*) and also, more frequently, at Dura Europos, Syria, which was destroyed around 259. Also from Dura Europos come slippers apparently made with a randed turnshoe construction<sup>(12)</sup>. At the same time, there is considerable innovation in the shapes of shoes, an increasing popularity of boots and also experiment with fastenings (*fig. 9*) as well as the use of more decorative techniques such as staining and gilding<sup>(13)</sup>.

The cutting pattern of Roman footwear is essentially symmetrical: there is of course allowance for left and right, but basically both sides of the upper are alike. In 3rd century complexes, however, both inside and outside the Empire, we suddenly begin to find pronounced asymmetry, at first in single piece shoes of the familiar type (*fig. 4, a and b*), but later also in sewn footwear which is cut to a different pattern and which is totally alien in concept to the earlier single piece shoes. These are really a sole folded up around the edge (*fig. 3*), but the asymmetrical cutting pattern transforms this into a sole and an upper cunningly cut out in one and then folded and sewn into a shoe covering most of the foot (*fig. 10*). In design, this looks forward to the sewn footwear of the Dark Ages and the Early Middle Ages (Hald, 1972, p72ff). Shoes, like those from the Skeldergate well, York (MacGregor, 1978, nos 353,354), Portchester (Ambrose, 1975, fig. 133, no. 266), Deurne (Braat, 1973, Abb. 12) and Low Ham (*fig. 10*)<sup>(14)</sup>, illustrate the salient features of Late Roman footwear — low vamp, open top, ankle strap or latches, in both nailed and sewn versions; the nailed looking back to Roman traditions, the sewn heralding the future techniques<sup>(15)</sup>. By this time too, the rate of fashion change was slowing down, frozen into hierarchical costume, and this type goes on into the 7th century. A sewn version is worn by Justinian and his court as portrayed on the Ravenna mosaics (Boucher, 1965, p.151), which in no way differs from the shoes worn by

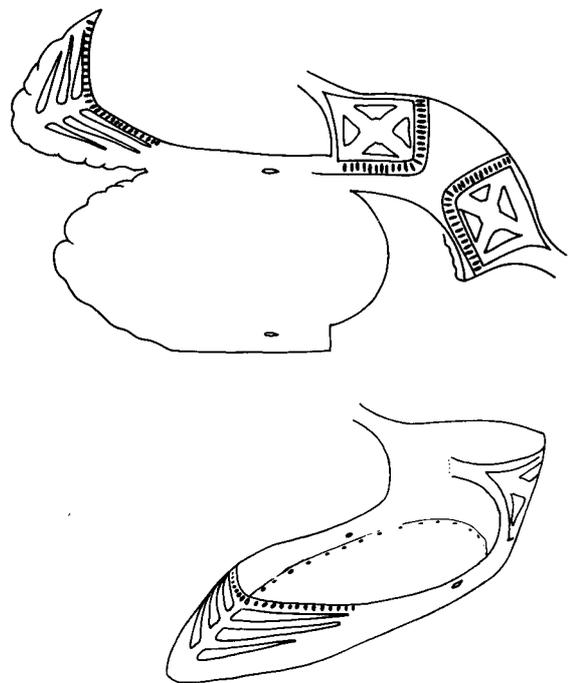


Fig. 10. Sewn shoe, Low Ham. 1:3.

Stilicho (c. 400) on an ivory diptych in the Cathedral treasury of Monza (Boucher, 1965, p.146), or for that matter from the Low Ham shoe of c. 300-350. Furthermore, like the 3rd century single piece footwear, this style crosses the cultural frontiers. Rare finds of shoes from Ireland (Lucas, 1956, fig.3), Iona (Groenman-van Waateringe, 1981) and Egypt (Frauberger, 1896, Taf. XVI) are closely comparable. These are suggestive of a common pool of cultural traditions in dress at this time which spans much of Europe and the Mediterranean, aided perhaps by the mobile and volatile society outside the Empire and the communications network within it<sup>16</sup>.

Although disappearing fast, nailing certainly continues at least to the end of the 4th century, and

even occurs in graves with 'Germanic' equipment in the Rhineland<sup>(17)</sup>. But the distinction between 'nailed' and 'sewn' is no longer as clear cut as it was at the beginning of the Roman period. Even in early 3rd century complexes we come across shoes of the same outward appearance made in single piece and nailed versions. This always reminds me of the laces and eyelets painted onto Dutch wooden clogs to make them look like 'real' shoes. But it is yet another pointer to a far more fluid situation in the 3rd century than in previous periods. Although these technological changes may be related to the absorption of populations from outside the Empire, we must not forget that single piece shoes are very much simpler to make, requiring few tools other than a knife, twine and an awl, and above all, incorporate no iron. The dense nailing of the 1st to 3rd century shoes uses up to 250 gr of iron per pair, which, on the known allowance of 3 pairs of boots per soldier per year, comes out at some 750 kg of iron per year for each legion in hobnails alone! Later 3rd century shoes do seem to be rather more sparsely nailed and the saving on iron may play an important role in the technological development to entirely sewn footwear. In addition, we must remember that the manufacture of single piece shoes and of nailed footwear were separate, specialized branches of shoemaking right from the beginning, as is shown by the clearly defined waste products from the workshop of a single piece shoemaker at Maastricht, in the Netherlands (van Driel-Murray, 1985, pp.48-49). So the increasing use of sewn shoes represents only a shift of emphasis and an expansion of an existing specialization, not the implantation of an entirely new branch of trade or the compulsion to change working practices. The use of randed turnshoe construction at Dura Europos has already been mentioned. Other early turnshoes occur in Egypt (Frauberger, 1896, p.8), and in the west, in Iona (Groenman-van Waateringe, 1981, p.319) and in a Frankish royal grave under Cologne Cathedral (Doppelfeld, 1980, p.284, no.23). This particular shoe, with its gold embroidered side spiral, is exactly paralleled in Haithabu (Groenman-van Waateringe, 1984, Taf.6, no.5) and Staraja Ladoga, U.S.S.R. (Hald, 1972, fig.161, no.3), though neither of these can be earlier than the 7th or 8th century. However, these examples do open up some very interesting possibilities, with the hint of an eastern or central Asian origin for the turnshoe technique, with a slow diffusion by various routes, not all of them contemporary, westwards, as the Roman tradition of nailing was declining and other solutions to the problems of shoe construction were being sought.<sup>(18)</sup>

All this is highly speculative, but it does show that there is a foundation for both continuity and for change within the main body of Roman shoemaking traditions of the 1st and 2nd century. To regard the early medieval turnshoe technique as something new, introduced by whichever invaders are most convenient, is a gross oversimplification. The idea that post-Roman footwear is so radically different stems in part from the erroneous perception of 'Roman dress' as an

unchanging entity, remaining static and identical throughout four centuries of Roman rule. But as we chart the changes in garments, accessories and footwear during this period in greater detail, development and continuity of form become increasingly obvious and we see shifts in emphasis rather than abrupt transitions.

However attractive it may be, footwear is not just a pretty display in a museum case; it is, in its implications, one of the keys to past society. It can locate 1st century Roman soldiers in unlikely places — we can literally follow their footsteps in the imprints left on clay tiles (Muller, 1979, Abb. 7), it can help us to identify population imbalances and it provides tangible proof that Roman soldiers had families like everyone else, despite official disapproval. Above all, footwear, as one of the only items of Roman dress to survive intact, has an enormous potential in tracing the speed and extent of Romanization and, in later periods, in the assessment of tribal and cultural origins. But to unlock this potential, a form of recording and publication is required which clarifies details of shape and construction, thus enabling the complex influences and relationships to be unravelled. As is already the case with textile reports (Hald, 1980; Bender Jørgensen, 1979) and garment description (Houston, 1939), the cutting pattern and the use of conventions to represent seams, stitching etc. must form the basis of any analysis. More than 20 years ago, Margaretha Hald, Anna Lisa Busch and Willy Groenman-van Waateringe were acutely aware of the difficulties of presentation: all attempted to find a balance between the inherent appeal of the surviving object and the publication of the necessary technical information in a manner which allows objective comparison between finds from different sites as well as enabling the construction of replicas or models. Their solutions have been followed on the Continent ever since, but have only recently become formalized in the work of O. Goubitz (1984 and this seminar). That it is easier to understand the form and the construction of the shoes from *fig. 8a* than from *fig. 8b*, needs no further comment.

In recording leather, the minimum requirement is a clear and accurate drawing of the flat object (i.e. as it was cut out by the leather worker), not a drawing obscured by post-depositional folding, tearing or surface flaking. The evidence of shape, cutting pattern and stitching is basic to the identification of all leatherwork, whether shoes or other items. A piece of crumpled leather may be an artistic masterpiece, but it does not tell us anything about its original function. And leather has far too much to tell us about the past for it to be obscured by modern shading.

#### NOTES

<sup>1</sup> I would like to thank the organizers of the seminar for their invitation for me to participate and for their efforts in effecting the publication of the proceedings. I am grateful to Prof. W. Groenman-van Waateringe and many others for their comments on the text and to the Netherlands Organization for the Advancement of Pure Research (ZWO) for financing museum research

in Britain in 1981, which laid the foundations for some of the ideas presented here. An outline of the possibilities of dating Roman footwear was read at the 13th Congress of Roman Frontier Studies at Aalen, W. Germany, 1983, the proceedings of which are as yet unpublished.

<sup>2</sup> Recently restated in McWhirr et al. 1982, p.195. The regulations against the marriage of soldiers should probably be interpreted as the authorities evading responsibility for the families. Similarly, during the 19th century in the Dutch army, an officer's widow was only entitled to a pension if the marriage had been sanctioned by the appropriate authority.

<sup>3</sup> Examples of asymmetrical single piece shoes within the Empire occur at the Saalburg (Busch, 1965, Taf.1 no.3), Zugmantel (id. Taf.32 no.717), Welzheim (unpublished) and London (Rhodes & MacConnoran, forthcoming). Outside, it occurs in bog finds, such as Thorsberg (Hald, 1972, fig. 48), Marx Etzel and Obenaltendorf (Hahne, 1915-20, Taf. IV-VI, XVIII-XIX). The cutting pattern of certain shoes from the Saalburg is almost identical to that of shoes from bogs at Uetersen and Paradiék (Hahne, 1915-20, Taf. XI-XIII).

<sup>4</sup> Also reflected in other material goods, (cf. Eggers, 1951, pp.52 ff, map 5).

<sup>5</sup> As suggested by Bender Jørgensen (1984) for a group of textiles, amongst them the Thorsberg tunic.

<sup>6</sup> For example, Zugmantel (Busch, 1965, Taf.32, no.722), Cologne (Fremersdorf, 1926, Abb.7).

<sup>7</sup> e.g. Cologne (Schleiermacher, 1982, Abb. 12-14), Saalburg (Busch, 1965, Taf. 15, no. 221).

<sup>8</sup> e.g. Bar Hill (Robertson et al. 1975, fig.22), Saalburg (Busch, 1965, Taf.14, nos.218,219).

<sup>9</sup> Detailed references in van Driel-Murray, forthcoming a. To date, the sites are: Alexandria, Dura Europos, Welzheim, Saalburg, Zugmantel, Reims, Trier, Xanten, Vechten, Zwammerdam, London (Rhodes & MacConnoran, forthcoming), Usk.

<sup>10</sup> Busch, 1965, Taf.15, nos.223,224.

<sup>11</sup> In the view of Polhemus & Procter (1978), however, such a time is perhaps the most likely to stimulate major fashion changes, with mobility, opportunism and social turmoil providing an opening for new elites and also for new influences.

<sup>12</sup> A. Gansser-Burckhardt, unpublished manuscript on the Dura Europos finds. I am deeply indebted to Mrs S. Matheson, Assistant Curator of the Yale University Museum and Art Gallery for the provision of this manuscript as well as photographs and further information on these shoes.

<sup>13</sup> e.g. Busch, 1965, Taf.6, no.122, Taf.15, no.222; Planck, 1979, Taf.73.3 (centre); Rhodes & MacConnoran, forthcoming.

<sup>14</sup> My thanks to Miss E. Dyer, former curator at the Clarks Shoe Museum, Street, Somerset, for supplying the drawing of this shoe, and to Mr. N. MacDonald, the curator, for additional information and for permission to reproduce this shoe.

<sup>15</sup> In descriptions, the term 'single-' or 'whole-cut upper' is confusing since it does not distinguish between the two alternative constructions used at

this period, a single piece upper cut separately from the sole and the entire shoe cut in one (this may be a Low Ham type shoe with an insole and an outer sole attached).

<sup>16</sup> A similar situation with regard to textiles at this period is distinguished by V. Gevers (1983). The uniformity of footwear fashion all over Europe in the later Middle Ages is an equivalent phenomenon.

<sup>17</sup> M. Gechter, Rheinisches Landesmuseum Bonn, pers. comm. The presence of hobnails in late contexts is just as significant as in early ones, cf. Winchester (Clarke, 1979, pp.178-180) where the decline in the use of hobnailed shoes seems to set in in earnest after c. 390 A.D. although women and children had been making less use of nailed footwear for some time. Here the total absence of hobnails in burials distinguished on other features as 'foreign' seems to emphasise the 'Roman-ness' of hobnails rather than the 'German-ness' of non-nailed footwear (id. p.377).

<sup>18</sup> Amongst these being the thonged construction which already occurs in several 4th century contexts, as, for example, Usk (van Driel-Murray, forthcoming, b).

#### Bibliography

- Ambrose, T. (1975). 'The Leather'. in B. Cunliffe, *Excavations at Portchester Castle*, Vol. I, Roman. London 1975, pp. 247-261.
- Bakker-Stijkel, D. G. (1982). *Wie 't breed heeft laat 't breed hangen*. Arnhem 1982.
- Bender-Jørgensen, L. (1979). 'Cloth of the Roman Iron Age in Denmark'. *Acta Archaeologica* 50, 1979, pp. 1-60.
- Bender-Jørgensen, L. (1984). 'North European textile production and trade in the 1st Millennium AD — a research project'. *Journal of Danish Archaeology* 3, 1984, pp. 124-134.
- Bianchi Bandinelli, R. (1969). *Rome, Le Centre du Pouvoir*. Paris 1969.
- Bogatyrev, P. (1937). *The Functions of Folk Costume in Moravian Slovakia*. Reprint, The Hague 1971.
- Boucher, F. (1965). *Histoire du Costume*. Paris 1965.
- Braat, W. C. (1973). 'Der Funde von Deurne'. in H. Klumbach, *Spätromische Gardehelme*. München 1973, pp. 72-80.
- Busch, A. L. (1965). 'Die römerzeitlichen Schuh- und Lederfunde der Kastele Saalburg, Zugmantel und Kleiner Feldberg.' *Saalburg Jahrbuch* 22, 1965, pp. 158-210.
- Charlesworth, D. & Thornton, J. H. (1973). 'Leather found in Mediobogdum, the Roman fort of Hardknott'. *Britannia* 4, 1973, pp. 141-152.
- Clarke, G. (1979). *The Roman Cemetery at Lankhills. Pre-Roman and Roman Winchester, part II*. Oxford, 1979.
- Doppelfeld, O. (1980). 'Das fränkische Frauengrab unter dem Chor des Kölner Domes'. in O. Doppelfeld & W. Weyres, *Die Ausgrabungen im Dom zu Köln*. Mainz 1980, pp. 264-308.
- Driel-Murray, C. van (1977). 'Stamped leather from Zwammerdam' in B. L. van Beek, R. W. Brandt & W. Groenman-van Waateringe, *Ex Horreo (IPP 1951-1976)*. Amsterdam 1977, pp. 151-164.

- Driel-Murray, C. van (1985). 'The production and supply of military leatherwork in the first and second centuries A.D.', in M. C. Bishop (ed), *The Production and Distribution of Roman Military Equipment*. British Archaeological Reports, International Series 275, 1985, pp. 43-81.
- Driel-Murray, C. van (forthcoming a). 'Shoes in Perspective'. *Proceedings of the 13th International Congress of Roman Frontier Studies Aalen, 1983*.
- Driel-Murray, C. van (forthcoming b). 'Roman and Medieval leather from Usk'. in *Report on the Excavations at Usk, 1965-76*.
- Eggers, H. J. (1951). *Der römische Import im Freien Germanien*. Hamburg 1951.
- Frauberger, H. (1896). *Antike und fruhmittelalterliche Fussbekleidungen aus Achmin-Panopolis*. Dusseldorf 1896.
- Fremersdorf, F. (1926). 'Ein Funde römischer Ledersachen in Köln'. *Germania* 10, 1926, pp. 44-56.
- Garbsch, J. (1965). *Die Norisch-Pannonische Frauentracht im 1 und 2 Jahrhundert*. München 1965.
- Gervers, V. (1983). 'Medieval garments in the Mediterranean world'. in N. B. Harle & K. G. Ponting (eds), *Cloth and Clothing in Medieval Europe*. London 1983, pp. 279-315.
- Goubitz, O. (1984). 'The drawing and registration of archaeological footwear'. *Studies in Conservation* 29, 1984, pp. 187-196.
- Groenman-Van Waateringe, W. (1967). *Romeins lederwerk uit Valkenburg Z. H.* Groningen 1967.
- Groenman-Van Waateringe, W. (1975). 'Society . . . rests on leather', in J. G. N. Renaud (ed), *Rotterdam Papers II*, 1975, pp. 23-34.
- Groenman-Van Waateringe, W. (1978). 'Shoe sizes and paleodemography?'. *Helinium* 28, 1978, pp. 184-189.
- Groenman-Van Waateringe, W. (1981). 'The leather from Ditch I', in J. W. Barber, 'Excavations on Iona 1979'. *Proceedings of the Soc. of Antiq. of Scotland* 111, 1981, pp. 318-325.
- Groenman-Van Waateringe, W. (1984). 'Die Lederfunde von Haithabu'. *Ausgrabungen in Haithabu* 21, 1984.
- Hahne, H. (1915-20). *Moorleichenfunde aus Niedersachsen*. Hildesheim 1915-20.
- Hald, M. (1972). *Primitive Shoes*. Copenhagen 1972.
- Hald, M. (1980). *Ancient Danish Textiles from Bogs and Burials*. Copenhagen 1980.
- Hodder, I. (1982). *Symbols in Action*. Cambridge 1982.
- Houston, M. G. (1939). *Medieval Costume in England and France*. London 1939 (reprint 1965).
- Lucas, A. T. (1956). 'Footwear in Ireland'. *Journal of the County Louth Arch. Soc.* 13, 1956, pp. 309-394.
- MacGregor, A. (1978). 'Roman finds from Skeldergate and Bishophill'. *The Archaeology of York. The Small Finds* 17/2, 1978, pp. 50-54.
- McWhirr, A., Viner, L. & Wells, C. (1982). *Romano-British Cemeteries at Cirencester*. Cirencester Excavations II. Cirencester 1982.
- Muller, G. (1979). *Durnomagus. Das römische Dormagen*. Bonn 1979.
- Planck, D. (1979). 'Ausgrabungen im Ostkastell von Welzheim, Rems-Murr-Kreis (Baden-Württemberg)'. *Archäologisches Korrespondenzblatt* 9, 1979, pp. 411-417.
- Polhemus, T. & Procter, L.: (1978). *Fashion and Anti-fashion. An Anthropology of Clothing and Adornment*. London 1978.
- Post, P. (1960). 'Das Kostum der Deutschen Renaissance 1480-1550'. *Anzeiger des Germanischen National-Museums 1954-1959 (1960)*, pp. 21-42.
- Rhodes, M. (1980). 'The leather', in D. M. Jones & M. Rhodes, 'Excavations at Billingsgate Buildings 'Triangle', Lower Thames Street 1974'. *London & Middlesex Arch. Soc. Special Papers* no. 4, 1980, pp. 99-128.
- Rhodes, M. & MacConnoran, P. (forthcoming). 'Leather objects and footwear', in L. Millar & M. Rhodes, 'The Roman Quay at St Magnus House (New Fresh Wharf) London'. *London & Middlesex Arch. Soc. Special Paper*, forthcoming.
- Robertson, A., Scott, M. & Keppie, L. (1975). *Bar Hill: a Roman Fort and its Finds*. British Archaeological Reports 16, 1975.
- Schia, E. (1977). 'Sko som arkeologisk kil-demateriale'. *Hikuin* 3, 1977, pp. 303-324.
- Schleiermacher, M. (1982). 'Römische Leder und Textilfunde aus Köln'. *Archäologisches Korrespondenzblatt* 12, 1982, pp. 205-216.
- Thornton, J. H. (1977). 'The leather', in T. Richard Blurton, 'Excavations at Angel Court, Walbrook, 1974'. *Trans. London & Middlesex Arch. Soc.* 28, 1977, pp. 67-75.
- Wegner, M. (1938). 'Datierung römischer Haartrachten'. *Archäologische Anzeiger* 1938, pp. 257-327.
- Wild, J. P. (1968). 'Clothing in the North West Provinces of the Roman Empire'. *Bonner Jahrbucher* 168, 1968, pp. 166-240.
- Wilson, L. M. (1924). *The Roman Toga*. Baltimore 1924.

# Aspects of Leather Conservation at York

James A. Spriggs

## Introduction

Since many of the deeper archaeological deposits under the City of York are waterlogged, the discovery of preserved leather has become a regular feature of excavations undertaken by the York Archaeological Trust. Our conservation laboratory has become accustomed to the problem of storing quantities of wet leather prior to treatment (Spriggs, J. A. 1980), cleaning and stabilizing it, using a variety of techniques (Spriggs, J. A. 1982 and Spriggs, J. A. 1981), and reconstructing leather items for display purposes (Peacock, E. E. 1983). This paper describes the current policies and techniques for recording leather prior to conservation treatment, and describes recent work on a number of leather shoes which presented us with a variety of conservation problems.

## Recording

Although all excavated leather at York undergoes conservation treatment and is preserved for study, practical considerations do not normally permit the full recording of every piece during the conservation process. Excavated leather can be divided into three categories: objects and parts of objects; offcuts and manufacturing debris; and scraps.

We fully appreciate the potential value of offcuts and scraps as a source of information about the various processes of leather goods manufacture, but we tend only to make drawings and photographs of objects and parts of objects prior to conservation treatment. Offcuts and scraps may sometimes be drawn, if they exhibit unusual or interesting features.

## Drawing

The main method in use at York for recording leatherwork is by making a drawing at a scale of 1:1. The drawings are made after the leather has been washed free of loose dirt, but before any kind of chemical pre-treatment or dehydration. The leather to be drawn is mopped free of surplus water, laid out flat on a sheet of plastic drafting film and the outline traced off in pencil. The main features are then drawn in, either by eye or measured in with dividers. Many of the features of an object which one may wish to record are more easily represented using conventions, rather than by employing a naturalistic technique. As well as producing a more clearly understood drawing, the use of conventions also overcomes the problems of differing degrees of artistic skill amongst laboratory staff. The conventions we use at York are as follows:

Cut edge

pencil line

Stitched edge

pencil line, stitching being drawn in as realistically as possible, and stitch type (e.g. edge/flesh) noted in the drawing.

Torn edge

indicated by overdrawing the pencil line with red crayon.

Folds and creases

indicated by dot-and-dash lines.

Delamination

if both halves present, note fact of delamination alongside the drawing. If grain surface of delamination missing, area hatched in red crayon. If flesh layer missing, area hatched in pencil.

All other features

(stitching, decoration, mark-out lines, thonging etc.)

drawn in as realistically as possible, notes being made on and around the drawing as necessary.

Complete objects, or items that are too fragile to flatten out and be traced around, are drawn as realistically as possible, with an accompanying diagram or cross sectional view, to further demonstrate their shape. Drawings are always annotated as to which side — flesh or grain — is uppermost as the leather is being drawn. One normally chooses the side which exhibits the most information.

We find these drawings valuable for a number of reasons: firstly, as a record of the size and shape of an object prior to dehydration, from which a shrinkage determination can be made later on, if required. Secondly, as a record of the condition of the object prior to conservation. If a particularly delicate item suffers any further damage either during the conservation process, or subsequent research, storage or display, then the drawing acts as a record of its 'as excavated' condition. Thirdly, as a record of the technology of the object: some features, such as setting-out lines, wear marks and stains can be of considerable relevance, and may be more obvious when the leather is still wet than after it has been dehydrated. The drawings are a valuable record of such detail. Finally, the drawings are a useful way of scanning the leatherwork from a particular site or context, thus avoiding unnecessary handling of the leatherwork by researchers. The researchers are at liberty to add to, but not change, the drawings while they are studying the leather, since it is inevitable that the conservator will have missed details of interest or relevance. The drawings therefore become 'primary records' for the researcher, which may also be referred to at a later stage by the illustrators, for producing finished drawings for publication.

Conservators cannot necessarily be expected to be experts in leather technology and their drawings will inevitably not contain all the information that the researcher might wish. But at York we are often fortunate to have the leather researcher working in the same building as the conservation laboratories, and the mutual benefits

of close liaison between conservator and researcher on matters of selection, recording and aspects of conservation, are considerable.

#### **Photography**

Photographs are not taken as a matter of course at York for recording objects prior to conservation, except in special cases. As far as leather is concerned, we would normally only photograph items which bear important features, such as embossed or incised decoration, which might show up more clearly while the leather was wet, than after dehydration. Composite items, such as multi-part shoes, which are likely to come apart during cleaning, owing to the degradation of stitching whilst buried, are also photographed while the pieces are still together in their correct positions.

#### **Radiography**

Radiography has proved very useful in recording shoes, in particular Roman hobnailed and studded soles. The radiograph will show the outline of the sole and the exact position of all the surviving nails and studs, or the holes, if they are missing. The amount of surviving metal will also be revealed, which will dictate whether chemical cleaning, to remove corrosion products, is permissible or not. Hobnails and studs are often loose in the sole and become detached during cleaning or later handling. Their relocation is a simple matter, by referring to the radiograph. If the nails and studs are very badly corroded, then the underside of the sole can be completely covered with corrosion products which may well be impossible to remove. Radiography may be the only way of recording the hobnail or stud pattern.

#### **Shrinkage determinations**

It is still debatable as to whether leather swells or shrinks in size as it becomes waterlogged. Either way, some importance is still attached to the knowledge of how much leather objects shrink during dehydration (e.g. Miller, L. M. B. and Rhodes, M. 1974). Published figures for percentage shrinkage rarely (if ever) state how the figures were arrived at, (e.g. Geniarsis, H., Keene, S., and Starling, K. 1982), which could well cause confusion if comparisons between figures from different people are to be made. Leather, like many other animal products, has certain directional qualities and one might therefore expect it to shrink by different amounts in different directions as it is dehydrated. For example, a piece of leather cut originally from the belly area of a cow or calf hide, might be expected to shrink laterally, rather than longitudinally, in relation to the beast. Therefore, a shrinkage determination based on a single dimension could not be expected to be typical of the whole object. A percentage shrinkage based on measurements of area would be of more use, but is tiresome to calculate. As an exercise, we measured a medieval shoe sole before and after dehydration, to assess shrinkage. The following differences in percentages illustrates the point, and would be particularly relevant to shoe size determinations.

Medieval shoe/sole shrinkages: Length - 7.7%  
Width: 4.2% Area: 7.8%

The length and width determinations were

made simply by measuring between the same two points on each of two tracings of the sole, before and after freeze-drying. The area shrinkage determination was made by placing 'before' and 'after' tracings over graph paper and counting the number of millimetre squares that lay within the area of the tracings. A simpler and faster method suggested to us would be to cut out the 'before' and 'after' tracings with scissors and compare the weights of the two cut-outs. It would be difficult (and tedious) to work out the comparative accuracy between the two techniques!

We would suggest that shrinkage measurements based on area are of most relevance to conservators, who are naturally trying to keep shrinkage during dehydration down to a minimum. Along the grain and across the grain, shrinkage determinations would, however, be of more value to researchers interested in the technology of ancient tanned hide.

#### **Leather iron composites**

We have been concerned for some time about conservation treatments applied to leather/iron composites, in particular, the various types of Roman shoe that have iron hobnails or studs. Freeze-drying is now the preferred dehydration technique at York, which requires a pre-treatment in a water soluble lubricant, which will make the leather soft and flexible after treatment. Glycerol is the lubricant used now for virtually all leather at York, but this material is hygroscopic (i.e. tends to attract water to itself, which renders it unsuitable for use on composites, since the iron hobnails are likely to be unstable and will corrode rapidly in the presence of moisture. There are leather dressings which are non-water soluble, Bavon for example, which can be applied to leather in the form of an emulsion, but we have found these oils to be unsatisfactory on thick leather or multiple-layer shoe soles. An alternative approach would be to dehydrate the leather through organic solvents, with a final application of a non-water soluble leather dressing, but we have also found this technique unsuccessful with multiple layer soles.

A possible solution has been suggested by Gratten (Gratten, D. 1984), who has been researching the problem in relation to wood/iron composites. Experiments with a water soluble synthetic, Pluracol 824, showed that it would give wood the desired stabilizing effect during freeze-drying and will, at the same time, have an inhibiting effect on the corrosion of iron. Recent tests of our own show that Pluracol 824 is probably just as efficient a lubricant as glycerol, though we have yet to show that the iron nails are any less vulnerable to post-conservation corrosion after contact with Pluracol, rather than with glycerol. There is currently some confusion about the composition of Pluracol, as the manufacturers' are reluctant to divulge detailed information. Until this has been resolved and further tests carried out on Pluracol 824 and a related product, Lupranol, in no way can one recommend the use of these products at the present.

#### **Re-treating archaeological leather**

We were recently asked to work on a number of shoes, most of which were required for display in



Fig. 1 Two Roman sandal soles — the upper one hobnailed, the lower with studs. Before conservation.

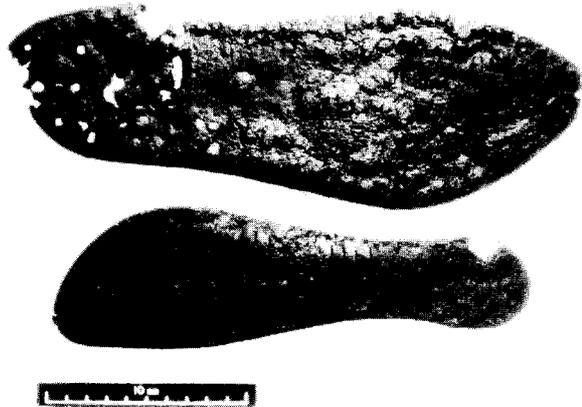


Fig. 2 Radiographs of the same two soles showing details of hobnails and studs.

the Yorkshire Museum. Some had never received any previous treatment, as far as we knew, but one or two had received earlier treatment but required re-treating, mainly for aesthetic reasons. Here are three examples to demonstrate some of the problems and their solutions.

a) A Medieval turnshoe from the Anglian Tower, York in 1956 (Lab Ref: Expt 38).

This shoe had had no previous treatment to our knowledge, was hard and stiff and the underside was covered with the remains of mould growth. The leather was cleaned thoroughly by swabbing with a 30% solution of Vulpex soap in white spirit. When clean, the shoe was soaked in white spirit to remove the soap and then put through two baths of industrial methylated spirits to replace the white spirit. Glycerol was then introduced into the leather as a lubricant, by soaking the leather for two days in a 25% glycerol/I.M.S. solution. The sandal was then allowed to air dry. This process resulted in a 6% gain in surface area of the sole, and left the leather clean and flexible.

b) A Roman 'carbatina' sandal, excavated at Catterick in 1959 (Lab ref: Expt 33)

This sandal appeared to have had no previous treatment, was stiff and hard, and completely flattened. The leather was cleaned and re-hydrated by soaking in cold tapwater with a little Lissapol non-ionic detergent for twelve hours. The leather was brushed clean of dirt and a second tracing of the sole made to compare with an original tracing made before rehydration. It was found that the sole had expanded by 14% in surface area. After soaking in changes of distilled water to remove detergent and other impurities, the shoe was put through a 25% glycerol/water solution for two days, deep frozen, and freeze dried. A third tracing of the sole was made, from

which the leather was seen to have shrunk by 13% in surface area, so producing a net gain of 1% in surface area. The leather after treatment was clean and supple, and capable of being re-shaped and mounted for display purposes.

c) Roman 'calceus', excavated from Skeldergate, York in 1974 (Lab ref: K1).

This sandal was originally treated by dehydrating through acetone and lubricating with Pliantine leather dressing diluted with Genklene (Spriggs, J. A. 1982). Since treatment in 1974, the leather had become black in colour, with a hard, shiny surface, and the leather seemed brittle. It was recently decided to retreat the sandal for display, both to improve its appearance, and to soften it to allow reshaping. The original dressing, and adherent dirt, were removed by passing the sandal through changes of white spirit, until the baths of white spirit no longer became discoloured. The leather lightened in colour appreciably and became more flexible after this process. The white spirit was then replaced with Industrial Methylated Spirits and this exchanged for a 25% glycerol/I.M.S. solution, as in (a), above. The sandal was then allowed to air dry. Although no measurements were made to note any change in size, the leather was very much lighter in colour, softer and much more supple, allowing reshaping, padding and mounting for display.

Our work on these three items demonstrates that leather that has received no previous treatment, or has received treatment in the past, using old techniques producing inadequate results, can be retreated successfully using alternative materials and techniques currently thought to be more appropriate for leather.

### **Acknowledgement**

I am grateful to the following for their recent work on leather conservation at the York Archaeological Trust: B. Duckett, G. Walker, T. Aleuropoulos, K. Wardley.

### **References**

- Geniarsis, H., Keene, S. and Starling, K., 1982 'A Comparison of Some Treatments for Excavated Leather'. *The Conservator* 6 (1982), 20.
- Gratten, D., 1984 'Experiments with Aqueous Treatments for Waterlogged — Metal Objects'. *Proceedings of the 2nd ICOM Waterlogged Wood Working Group Conference*. ICOM (1984), 149.
- Miller, L.M.B. and Rhodes, M., 1974 Excavations at Billingsgate Buildings, Lower Thames Street, London, ed. Jones, D.M., *London and Middlesex Archaeological Society Special Paper* 4 (1980).
- Peacock, E. E., 1983 'The Conservation and Restoration of Some Anglo Scandinavian Leather Shoes'. *The Conservator* 7 (1983), 18-23.
- Spriggs, J. A., 1982 in MacGregor, A., *Anglo Scandinavian Finds from Lloyds Bank and Other Sites AY/73*, (1982), 155.
- Spriggs, J. A., 1981 'The Conservation of Timber Structures at York, a Progress Report', in Gratten, D. W. (ed.), *Proceedings of the ICOM Waterlogged Wood Working Group Conference*. ICOM (1981), 149.
- Spriggs, J. A., 1980 'The Recovery and Storage of Waterlogged Materials at York'. *The Conservator* 4 (1980), 21.

# Towards a Standard Shoe Glossary

June Swann

I was born in Northampton, the centre of the shoe trade then. But when I was a child, it was known as the boot and shoe trade, as boots were general for men, shoes for women. The weekly trade magazine, started in 1878, was *The Boot & Shoe Trades Journal*. Footwear is an American term going back to the 1880's. It started to become popular in the U.K. in 1919, with the *Footwear Organiser*. The first textbook to use the term was not until 1953, J. H. Thornton's *Textbook of Footwear Manufacture*. In other words, language does not stand still. We are all old enough to have noticed that slang can become accepted English and find its way into dictionaries. Anything we propose will seem dated in fifty years and will be modified. We can only work with the language we have, and it will change, just as surely as the shoes we wear.

I began working in Northampton Museum in 1950. One of my first jobs was cataloguing the shoe collection. I naturally used the terms I had grown up with (and subsequently, more I have acquired reading the trade and other literature in my research to identify shoes, e.g. drawbridge for the 17th century shoes with large open sides, and its 19th century version, the fenelon, with tiered bow. I joined the ICOM Costume Committee in the 1970's when it was working under Anne Buck on the *Vocabulary of Basic Terms for Cataloguing Costume*, eventually published in *Waffen und Kostumkunde* 2, 1982. It was incorporated in the Handbook accompanying the M.D.A. Costume Card, published in 1979. (I was also a member of that committee). It was while working on these with costume colleagues that I discovered how lucky shoe men are, for while there is no standard terminology for dress, shoe terms first began to be defined in the first issue of *The Shoeman's Guide*, which included a 'Dictionary of Technical and Commercial Terms', issued in 1913 at the end of the mechanisation of the industry. It was enlarged in 1916 during the War, presumably because it was essential for everyone to understand Service Footwear Specifications. There has always been individualism in the trade because of its small workshops (there are different names for one tool, for example, from one end of Northampton to the other), and this still survives. Clarks of Street, for instance make "stitch-downs", known as "veldtschoens" in Northampton. These trade terms were reproduced through the 1920's and 30's: I used the 1921 illustrated section in my book *Shoes* (Batsford, 1982), and Thornton updated them periodically e.g. in Frederick H. Hardy's *Modern Shoe Retailing*, 1954, and in the weekly trade press. He helped with the O.E.C.D.'s five language *Footwear Industry Technical Vocabulary* 1969. The most recent is the rather short glossary by Baynes in the current *Shoe Trades Directory*. All this is to say that there is a rich body of material to build on.

In 1973 the first shoe day with John Thornton was held at the Institute of Archaeology, with the papers published in Museum Assistants' Group *Transactions* 12. Thornton was Head of the Boot & Shoe Dept., Northampton College of Technology, and dominated the trade from soon after he joined it in 1933 to his retirement in 1974. His interests were in training and education, preaching new technology and research, with an interest in its past history to build on. You are all here because he stressed the importance of research on shoes (this is the first shoe day since his death). M.A.G.12 included a Glossary. As you can understand with all the preparations for that day, I have since wished we could have spent longer preparing it. John brought what he had published commercially, and we discussed what should be modified to fit shoes before 1600 and what to include for the later historic shoes I deal with regularly. More were added in 1976 for the Costume Society Shoe Symposium, Northampton, published in *Costume* 11, 1977 and by Northampton Museum (*Glossary of Shoe Terms*). Its weaknesses have emerged while I have been working since 1981 with Bata Shoe Museum, Toronto, preparing their Glossary (angled for North America, of course). Thornton joined us in 1982, and we are now on the 9th edition, and it is almost ready. I am pressing for it to be published, but see no immediate prospect.

The hope is that if every aspect of a shoe can be defined clearly, with illustrations, any clerical assistant will be able to do cataloguing. I seriously doubt this, as even after 35 years, I see something fresh almost every day. Shoes are as diverse as the human beings who make and wear them.

I begin with the term shoe, with the ICOM system using parts of the body. So shoe is 1. currently a generic term for any type of footwear, including boots, sandals, slippers, clogs, pattens, overshoes etc. (excluding hosiery). 2. an external covering for the human foot ending at or below the outside ankle. As the OED gives the various meanings of a word, I do not think we can, or need to, avoid this. I remember Thornton and I being somewhat horrified to read in an otherwise excellent report the term anvil used for a shoe last: the object on which a shoe is made and repaired, currently two different objects for the two operations: one a stylised footshape mould for making, the other a stylised sole for repairing. The word last is used thus daily by thousands in the trade, and I would counsel very strongly against our trying to differ. If you wish to differentiate, you have only to use consistently last (for making) and repair last, or I suppose anvil last would be acceptable. The word goes back to 1,000 A.D.

The real problem of linking words with objects, as I have hinted, is that the object changes. This year's shoe is not the same as last year's. Currently, young women are wearing a low cut

slip-on shoe with heel, known all my lifetime as a court shoe. The young know them as "just a shoe", which is what it was called when the style was invented in the late 1780's. The term *court* starts in 1882. Strictly speaking, being a slip-on shoe, it is a *slipper*. But the latter has for many years meant something cheaper, worn indoors and cannot now be used in its strict meaning. In Northampton Museum's cataloguing, I restrict its use to this indoor meaning.

So we are talking of agreeing a set of conventions. Perhaps we could devise a set of conventional uses of terms for national/international use, English being one of the accepted ICOM languages. It should be based on Thornton's and the trade's terms, and I hesitate to suggest, the usage evolved at Northampton for dealing with shoe parts with no modern equivalent, as we have the largest collection of shoes. The Museum could act as a clearing house for ideas, so that when you cannot find a term and want to invent one, we could discuss this, perhaps with a committee? before it goes into print or computer.

Following my system for Cataloguing Shoes (published *Costume* 11), first we have types of footwear. See *shoe* above. *Boot* is footwear, the leg of which extends above the ankle joint, and may be an ankle boot (as today's "bovver" boot), calf, knee or thigh boot. A term I find useful is *ankle shoe*, where the top is approximately on the joint.

Overshoes today are usually rubber goloshes. *Golosh* was also a Medieval term, as was *clog* and *patten*, some of which were interchangeable and used loosely. So it is safer to use *overshoe*. There is a problem with styles like the chopine, which was worn as a shoe, an indoor slipper or as an overshoe. The term *clog overshoe* can be used for those with wooden sole held on by straps. All you can be certain of when finding the term *clog* in the past, is that there will be wood in it somewhere. I restrict *patten* to an overshoe with iron underneath, and use *wooden soled shoe* for North Country clogs. The shoe made entirely of wood does not seem to be indigenous to Britain: I have only seen one possible illustration (on a 15th century Nottingham alabaster), which should be called a *clog*.

*Sandal* is a Roman and Arab word. It was worn in Britain in Roman times, brought by invaders from somewhere warmer, our climate being rarely suitable. The word survived for imperial and royal wear for shoes and boots with a hint of cut-outs at the top. The true sandal (a sole with straps to keep it on) was not revived until the coronation sandals of James II under the returning classical influence. It was not until the 1930's that ordinary women start to wear something similar, and men post Second World War.

Materials: *hide* is the pelt of the larger animals: cattle, horse, buffalo. *Skin* comes from the smaller animals: calf, goat, sheep, deer. *Upper* is everything above the sole, and should be no problem, except with the *moccasin* construction (sole and part of upper of one piece). The upper then is counted from the *imprint line*.

Toe shapes are rarely footshape, defined as having straight inside line with gentle taper to the outside joint. They range from needlepoint, through pointed, blunt point, oval, round, square rounded off to square, forked, flared, eared (or horned), and may be shallow or American (alias Boston, bulldog, bump). There are also peep and open toes.

The outside reinforcement is known as a *cap*, and may be straight, peaked or winged. On early shoes it is usually a repair *veldtschoen* stitched (i.e. not lasted in), or an extension for a shoe too small.

The *heel* is the component added to the rear end of the sole. The material which goes round the human heel constitutes the *quarters*. The term has been used since 1532, while the pattern goes back to c.1490, i.e. a vamp and pair of quarters with 2 side seams and a *back seam* (Not a *heel seam*: you need that for the seam at the centre back of the heel cover). The change in toe shape c.1485 has been stressed for a hundred years, but there was also a fundamental change in upper pattern from the medieval one-piece wrapround with one side seam. For these, the area now known as quarters should be termed *backpart* (inside or outside backpart): the indeterminate area from the waist backwards. Incidentally, I have seen the term *one piece* used for a moccasin. While apparently logical, it is better to use *moccasin*, which the trade has used all this century (and indeed it is possible a Gaelic speaking Highlander recognised the Indian word), as it uses *one piece* for uppers with only a back seam. The hard soled version of moccasin is called *opanke*.

*Lifts* are the pieces (complete) making a stacked heel, while *jumps* were used for pieced fragments. Heels are stacked, covered Louis or wedge, the front surface being known as the heel breast.

The *sole* may consist of sole, insole and mid sole(s), all constituting a *bottom unit*, which is also useful for defining that part of moccasins and opankes. Some soles were made pieced, or later half sole repaired.

Constructions. See illustrations in MAG 12. The word *welt* is known from at least 1425, though this construction is generally post 1500. Look out for folded welts in the 17th-18th centuries. The medieval method was turnshoe. Rivetting was used in Roman times, briefly c.1810-15 and then mass produced from 1853. Beware of assuming that every hob nail is a rivet. The white rand is a 17th-18th century method. Pegs were used for stacked heels from the beginning, but not for attaching soles until the 19th century, except for repairs. Dressmakers will be familiar with the term *welt* used for the narrow strip of material inserted in seams, as in shoe uppers. Shoemakers call this a *bead*.

As for the uppers, the extra layer on the outside of quarters is termed an *outside counter*. Counter is used in some areas for *stiffener*, but the latter should be used for the internal reinforcement. Note that edges of leather are frequently pared down at joins, the shoemaking term being *skived*.

Fastenings. Ankle straps are those which go round the ankle. An instep strap is more common,

known as a *bar*. Higher cut practical shoes are made either *open* or *closed tab*, the latter with partly open seam being the more casual, informal working wear. They fasten through *lace holes* or *eyelets*. I restrict the word eyelet to those with metal (or plastic) binding. *Blind eyelets* have metal on the unseen, inner side only. All are usually described as so many pairs. More rarely there will be odd numbers, which should be specified. *Tie slots* are used for the pairs of holes round ankles and legs of boots and shoes. The lining at the tab is known as the *facing*. And of course, shoes may be *lined*: 18th century shoes are not of linen covered in silk, but of silk lined with linen, and what holds them together along the *top edge* is the *binding*. Medieval etc. leather shoes had a leather binding. Early 16th century shoes were mostly so sturdy as to need no binding. But later 16th-18th century leather often had one, or more usually two rows of *tunnel stitching* round the edges for reinforcement, to stop stretching and splitting. Some medieval shoes had cord whip-stitched inside for the same purpose. Both may also be decorative.

Back seams may be cut with a *V-dip*, to avoid the weak point. There are also *V-back* soles on Viking etc. shoes.

The tongue can be made waterproof by stitching each side, forming a *bellows* or *half bellows tongue*. And its top edge may be decorative, cut into vandyks, or cupid's bow shapes. Other decoration of the upper includes *pinking*, a term which was used for both zigzag edges and the cut-out patterns done in Tudor times. The modern term for zigzags is *gimping*.

Northampton Museum has been making Thornton's glossary available for years, and it is gradually being used by writers of reports unfamiliar with the shoe trade. The main thing is to ensure that everyone can understand the descriptions. Please, if you use words in an idiosyncratic way, make sure you include a glossary with definitions in a conspicuous place where busy people can easily find it.

Should you need leather terms, there is already a B.S.I. *Glossary of Leather Terms* BS 2780:1983 which should be your starting point.

#### Reference

The fourth edition of *A Glossary of Shoe terms* (now by J.H. Thornton & J.M. Swann) has since been published by Northampton Museum.