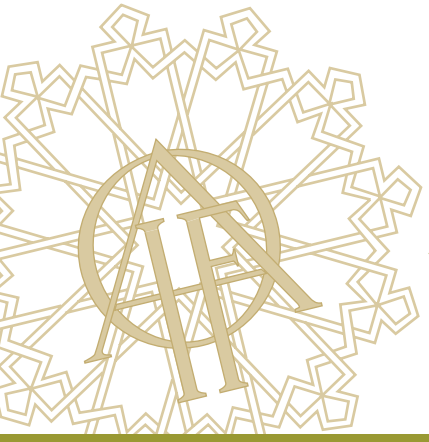
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Fāṭimid Filters; Archaeology and Olmer's Typology.

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FĀṬIMID FILTERS:
ARCHAEOLOGY AND OLMER'S TYPOLOGY [1]

BY

GEORGE T. SCANLON

During excavations carried out in Fusṭāṭ (under the auspices of the American Research Center in Egypt) in 1964, 1965 and 1966 a large number of water-bottle filters came to light. A good number were found in the unstratified rubbish heaps, but quite a few were *in situ* in more datable contexts, particularly in sanitation pits (some estopped in periods of re-building), in the fill beneath stone floorings, associated with various levels of street *dakkah,* or within clearly undisturbed portions of *sibākh* (earth and rubble which had gone through many centuries of the nitrogen cycle). By association with coins and/or glass weights or with other objets datable on stylistic grounds (*e.g.*, Samarra lustre wares, Ṭūlūnid stucco, Fāṭimid bronzes, glass and pottery), a scientifically firm dating sequence was established for these filters [2].

[1] For the research and composition of this paper, the author was supported by a grant from the Center for Middle Eastern Studies of Harvard University, which is not responsible for the opinions herein stated.

[2] The tentative result of these excavations, including the relevance of the filters, can be found in :

a) George T. Scanlon, «Preliminary Report : Excavations at Fusṭāṭ, 1964», *Journal of the American Research Center in Egypt,* IV (1965) pp. 7-30 and Pls. I-XV. Hereinafter referred to as *Fusṭāṭ '64.*

b) George T. Scanlon, «Fusṭāṭ Expedition : Preliminary Report 1965. Part I», *Journal of the American Research Center in Egypt,* V (1966) pp. 83-112 and Pls. XXIX-XXXVII (plus errata). Hereinafter referred to as *Fusṭāṭ '65-I.*

c) George T. Scanlon, «Fusṭāṭ Expedition : Preliminary Report 1965. Part II», *Journal of the American Research Center in Egypt,* VI (1967) pp. 65-84 and Pls. I-X Hereinafter referred to as *Fusṭāṭ '65-II.*

d) Wladyslaw Kubiak and George T. Scanlon, «Fusṭāṭ Expedition : Preliminary Report 1966», *Journal of the American Research Center in Egypt,* VIII (1969), in preparation.

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The archaeological relevance of these filters does more than justify the masterly typology published by Pierre Olmer in 1932 [1]. His analysis was based almost entirely on styles (for example, Aly Bahgat provided very little stratigraphical evidence for the filters he discovered at Fusṭāṭ in excavations he carried out between the wars and deposited in the Arab (presently Islamic) Museum ; these were about half of those examined by Olmer), and to a lesser extent on modes of execution. It remains simply to indicate from the more recent work the archaeological strengthening of Olmer's hypotheses, where his assumptions were erroneous, and where his work can be amplified with examples of telling (even transitional) interest. Elsewhere this has been done for the very earliest period and the transition to and through the Ṭūlūnid epoch [2]. It is our purpose here to carry the discussion to the Fāṭimid context, possibly beyond.

During the 1965 season, two sanitation pits with undisturbed fills proved upon excavation to contain a large number of stylistically related filters. The first (hereinafter Pit 1) also contained three glass weights : one of al-Ḥākim (996-1020 A.D.) and two of al-Mustanṣir (1035-1094 A.D.). Thus, the eleven water-bottle filters, either whole or in such condition that their designs could be elucidated, contained therein were clearly Fāṭimid. From the other pit (hereinafter Pit 2) came twelve more filters encompassing the same range of styles and mode of execution as those from the first pit [3], and associated with a green-glazed bowl of a type now established as «Fusṭāṭ-Fāṭimid sgraffito» [4]. These twenty-three filters, demonstrably Fāṭimid, become dating devices for proving, correcting, emending and/or expanding Olmer's Fāṭimid ascriptions ; simultaneously permitting the excavator to date stylistically relevant samples from less exactly datable contexts.

[1] Pierre Olmer, *Les Filtres de Gargoulettes,* Catalogue Général du Musée Arabe du Caire (Cairo : 1932). Hereinafter referred to as *Olmer*.

[2] George T. Scanlon, «Ancillary Dating Materials From Fusṭāṭ», paper delivered to the XXVII Congress of Orientalists at Ann Arbor in August 1967. An abstract will appear in the *Proceedings* of the Congress and the article has been accepted for publication in the forthcoming (1968) volume of *Ars Orientalis*. Part C deals with «Water-bottle Filters».

Additional information can be gleaned from *Fusṭāṭ '65-I,* pp. 87 ff. and 103 f. (but most particularly p. 100-1, n. 15); *Fusṭāṭ '65-II,* p. 81 (particularly the discussion in n. 27) ; and *Fusṭāṭ '64 ;* p. 26 and n. 23.

[3] The matter is fully discussed from the archaeological point of view in Part B («Stratigraphical Evidence») of *Fusṭāṭ '65-II, passim.*

[4] Cf. *Fusṭāṭ '65-II,* IV («The Glass Factory»), *passim* and Fig. 7 *b*.

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A. — THE SIMPLE SLASH-PATTERN (WITH OR WITHOUT «PSEUDO-WRITING»).

Two examples of this type were found in Pit 1. One has been published in *Fusṭāṭ '65-I* (Fig. 3 *c*), and the other can be seen in Fig. 1 *a*. Five more of this general type were found in the 1965 season : two (Fig. 1 *b* and *c*) were surface finds ; one (Fig. 1 *e*) in a sanitation canal associated with a Fāṭimid domestic complex [1] ; another (Fig. 1 *d*) at the base of a pit which also contained a Fayyūmī glazed bowl, clearly of the 10th century ; and finally a filter bottle (Fig. 2) almost intact (only the handle is missing) from the fill of the long sanitation canal, probably hewn in the Ṭūlūnid period, but serving to connect three distinct complexes which were thrown together in the Fāṭimid period [2].

Four examples came from the 1964 season when, because of the low-lying terrain and the high water table, it was difficult to excavate beneath the latest structure or to any significant depth in the sanitation systems [3]. One (Fig. 1 *f*) was found on the surface and had either a central opening or a «button» missing ; another (Fig. 3 *a*) came from a Fāṭimid re-building phase ; a third adds three incised cross-hatched surfaces to the overall triangular slash design (Fig. 3 *b*), it came from the same gutter which yielded paper-thin glass containers thought to be Fāṭimid [4], but which on the analogues of glass found in the subsequent seasons could be mid-10th century, possibly earlier ; the fourth is the one illustrated in *Fusṭāṭ '64*, Fig. 3 *c*, found in the fill of a pavement of the secondary construction. It shows the maximum «slash» pattern of those we have studied up to this point, and exhibits the most pronounced attempt at «pseudo-writing».

The excavations in 1966 continued those of 1965 geographically, and duplicated the results stratigraphically and chronologically. Four filters of the type

[1] *Fusṭāṭ '65-II* V. («The Domestic Complex with a Radial Plan»), *passim*. However, it should be noted that the Fāṭimid structure represented a re-building.

[2] *Fusṭāṭ '65-I*, pp. 87-100.

[3] *Fusṭāṭ '64*, p. 13 *f* and Pl. V fig. 11, Pl. VII fig. 15 and Pl. IX fig. 21. This made all dating highly tentative ; though it is now possible to correlate the results of '65 and '66 to '64 and achieve a firmer chronology.

[4] *Ibid.*, p. 26 and Pl. IX fig. 21 for the gutter, and Pl. XV fig. 41 for a sample of the glass.

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under discussion came to light, two from definite Fāṭimid contexts (one from the fill of the basin in the courtyard of a Fāṭimid domestic complex, the other from a pit which contained three other Fāṭimid filters, to be cited below) and demonstrating but slight variations on those illustrated in *Fusṭāṭ '65-II,* Fig. 3 *c* and our Fig. 1 *a*, both of which, as we have seen, came from a pit dated by Fāṭimid coin-weights. The other two derive from a pit in an earlier (but not much earlier) chronological context and are but slight variants of those in Fig. 1 *d* and *e,* and Fig. 2.

To sum up the evidence of these fifteen filters :

3 were surface finds
5 came from provable Fāṭimid contexts
3 came from doubtful Fāṭimid contexts
4 came from pre-Fāṭimid contexts.

Olmer gives three examples of this over-all stylistic category : Pl. XLIV-B, which has two quarters of ruching and two of slashed «pseudo-writing» ; Pl. XLVII-B, which has an over-all hexagonal slash design with «pseudo-lettering» in each of the achieved sections ; and the trinity of highly developed models in Pl. LXXVIII A-C. On the basis of the attempted script he gives these a Ṭūlūnid dating, relating the «writing» to the «pseudo-Kufic» he saw incised on the rim of a Persian bowl with a *champlevé* central design, assigned by Koechlin and Migeon to «Rhages (Persian) X-XIII Century» [1]. But this type of «fake» script, used entirely for decorative purposes, can be found on Byzantine sgraffito wares and those designated «Fusṭāṭ-Fāṭimid sgraffito». As a decorative device it was used throughout the Mamlūk ascendancy. For our purposes it is best to see the mode of execution as Ṭūlūnid in origin but continuing as a potter's expression well into the Fāṭimid period, though hardly beyond, as the paucity of surface samples would indicate. During its earlier period it was more highly elaborated, and, as Fāṭimid modes of filter design began to dominate, this style became simple and rather common, far easier to execute on a mass scale [2].

[1] *Cent planches d'art musulman* (Paris : n.d.), Pl. XIV.

[2] Cf. «Ancillary Dating Materials from Fusṭāṭ», Part C, *passim,* for description of «continuing Ṭūlūnid» stylistics. It should be noted that all filters discussed in the present article vary but slightly from the norms therein described : no external decoration, single rib on neck or none at all, filter placed at base of neck or no higher than mid-way, profile of section through filter generally convex.

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B. — CENTRAL «KNITTING» PATTERN.

Olmer puts this type under the general category of «Motifs Fleuronnés», but the example which interests us he describes more succinctly as «... des sortes de fleurs imbriquées l'une dans l'autre, d'où sortent de part et d'autre de la bande, trois grosses barrettes figurant des sortes de tiges» [1]. He has no trouble dating this as Fāṭimid because of its relation to a filter with external lustre decoration, clearly Fāṭimid (*Olmer,* Planche A, no. 8577/157).

An exact congener was found in 1965 in Pit 2. Further, it was glazed externally with a typical Fāṭimid turquoise, one of the four colours associated with «Fusṭāṭ-Fāṭimid sgraffito» ware. Another of exactly the same type came from a pit whose undisturbed fill gave proof of Fāṭimid use [2]. A third one (Fig. 3 *c*), also from a clearly defined Fāṭimid context, is slightly smaller and the «knitting» is not so deftly executed, but it is demonstrably of the same type.

Three filters from 1966 show a wonderful development of the «knitting» towards the true «fleuronné». The first (Fig. 3 *d*) is almost a failure, but the «grosses barrettes» are quite clear ; it comes from a *sibākh* layer directly above a Fāṭimid flooring and has the distinctive external turquoise glaze. The second (Fig. 3 *e*) came from the same pit which contained filters of types A and C (*supra* p. 39, *infra* p. 42, and Fig. 4 *d*) ; the set of «barrettes» has been replaced by one of ruching and the «knitting» is more *florally* dispersed [3]. The third (Fig. 3 *f*) is a beautiful example of the integration of «knitting», «barrettes» and ruching, truly the «fleuronné» incipient in all our models. It was discovered associated with what appear to be Fāṭimid foundations, but which could be earlier [4].

Thus five out of six of our filters corroborate Olmer's Fāṭimid dating for this type. Further, two of them are glazed externally, a corollary of his lustred sample (*Olmer,* Planche A of Introduction, no. 8577/157).

[1] *Olmer,* p. 58 no. 3856/31 and Pl. XLIV-A.

[2] *Fusṭāṭ '65-II,* p. 65, but most particularly n. 2, where the pit herein referred to is M (XII-21).

[3] This has the same feeling as *Olmer,* Pl. XLIII-B, but without the striated zig-zag borders.

[4] Again this has the feeling of *Olmer,* Pl. XLIII-D, but without the striated zig-zag border. Yet our Fig. 3 *f* had either an open central portion or a «button» which it has since lost. These two characteristics *may* define the piece as immediately pre-Fāṭimid.

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C. — «FLEURONNÉ» WITHIN A STRIATED ZIG-ZAG BORDER.

All the examples in *Olmer,* Pl. XLIII, are of this type. By analogy with the lustred sample in his Introduction (Planche A, no. 8577/157, discussed above) he put them, and that of Pl. XLIV-A, in his Fāṭimid chronology, though, strictly speaking, the latter and the lustred sample lack the striated zig-zag border.

However, he was quite right, for from Pit 1 came two examples, the most simple and direct expression of the type. (One is shown in Fig. 4 *a*, the second was only two-thirds complete but identical in execution.) Three others were found in 1965, one a surface find exactly like that of Fig. 4 *a*; another surface find executed in the same style but with the filter area much smaller than in any of our examples heretofore (Fig. 4 *b*) [1]; and the third either poorly executed or an imprecise attempt to exfoliate a central «knitting» within the typical striated zig-zag border (Fig. 4 *c*). The latter filter was found in the fill *above* the flooring of the room seen in *Fusṭāṭ '65-I,* Pl. XXXIV fig. 18, allowing it a Fāṭimid provenance.

Three filters found in 1966 again illustrate development of a theme. The one in Fig. 4 *d* was found in the same pit as that in Fig. 3 *e*; it is a simple hexagonal «flower» within the usual border; the second (Fig. 4 *e*) came from a trenched area whose stratigraphy was most inconclusive — it shows the opening-out of the flower, seven pointed with knots at the interstices, very much in the style of *Olmer,* Pl. XLIII-E but with a more distinct and developed center. The third (Fig. 4*f*) is a very clear development from the preceding model, only this time the flower is nine-pointed. It came from the somewhat disturbed upper layer of a cess-pool, whose undisturbed strata yielded only Ṭūlūnid artifacts. However, it is clearly Fāṭimid in style and execution.

Of the ten filters of this type from three seasons' controlled excavation, seven were from provable Fāṭimid contexts and three were so associative in theme and

[1] This is very much like *Olmer,* Pl. IX-B, except that the latter contains a group of six evenly spaced circles separating the two borders. A similar one found in 1964 has the circles but lacks the second border (*Fusṭāṭ '64,* Fig. 2 *c*), while its central motif is more like that of *Olmer,* Pl. VII-E or VIII-E. It was found within a cistern in a provable Fāṭimid context, as was also the center of a filter, with a motif exactly like the center of our Fig. 4 *b* and *Olmer,* Pl. IX-B.

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execution as to leave no doubt that they, too, were Fāṭimid. As such, they give credence to Olmer's analysis of his samples, with the interesting variation of the nine-pointed, knotted «flower». None of our filters of this type was glazed or lustred.

D. — OPEN «ÉTOILE ET FLEURONNÉ» WITHOUT BORDERS.

The general type can be seen in *Olmer,* Pl. XXIX. He was unsure how to date the type exactly, but constructed a long series whose end he placed in the Mamlūk period because of armorial bearings within the motif. He hazarded the hypothesis that the entire series (Pls. XXIX-XXXIV) might be within the Mamlūk period, or very slightly earlier.

But again Pit 2 establishes an early terminus for the style, one clearly within the Fāṭimid period. Two examples were found in this pit (Fig. 5 *a* and *b*); the first a redware (which is odd, because all of our examples have been of greyware with a few of buff clay; and the redware usually indicates an Ayyūbid or Mamlūk provenance) of a simple hexagonal flower without knots and without border (related to those in Fig. 4 *a* and *b*); the other a seven-point development with the interior diamonds pierced, rather like *Olmer,* Pl. XXIX-D, except that the latter is six-pointed and the diamonds are solid.

Three more examples were uncovered in 1965. All were rough variants of the simple open-work hexagon (like Fig. 5 *a*) : one found on the surface had a typical Fāṭimid turquoise glaze; the second had a very lightly incised design externally (Fig. 4 *c*), an 8-9 th century detail [1]; and the third (Fig. 5 *d*) had what almost looks like a border device of seven curved slits, three with punctuation at each end, the rest with points at one end only : clearly a transitional design.

Five filters of this type were found in 1966. Two were found on the surface, one the usual roughly lined hexagon, the other (Fig. 5 *e*) a very sharply cut one, very reminiscent of the outer portions of *Olmer,* Pl. XXIX-E. The third came from the same pit as those in Fig. 3 *e* and 4 *d* and is a smaller duplicate of Olmer, Pl. XXIX-B; the fourth, a very beautifully cut simple quatrefoil (Fig. 5 *f*), came from the same pit as the one with the gazelle in lattice-work (see below in Fig. 6 *f*), a very clear Fāṭimid mode of execution; and the fifth a beautiful emendation of

[1] Cf. «Ancillary Dating Materials from Fusṭāṭ», Part C, *passim.*

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four leaves in a cruciform design with «barrettes» at the interstices, giving an eight-point effect (Fig. 6 *a*). It was found in a gutter beneath the flooring of a Fāṭimid domestic complex, and though the fill was somewhat disturbed, the Fāṭimid execution can hardly be denied [1].

In 1964 two examples were found : one a variant of the usual hexagon, except that here (Fig. 6 *b*) the point is composed of two «barrettes» rather than the usual three ; the other a surface find (Fig. 6 *c*), poorly executed, but indubitably of the same genre.

From these twelve examples we have adduced eight that are unquestionably Fāṭimid, and the four surface finds seem firmly related stylistically. Thus one can correct Olmer, proving that the type has a stroug Fāṭimid anchorage ; but was a type which no doubt continued well through the 12th century.

E. — ANIMALS (AGAINST A SIMPLE LATTICE MOTIF) WITHIN A STRIATED ZIG-ZAG BORDER.

In Pit 1 a portion of a filter with an effigy of an animal was found (Fig. 6 *d*). Its tail is erect and slopes over hunched shoulders, drawn against a simple latticed pattern, and bordered by the usual striated zig-zag. I take the figure to be a lion, not very well drawn, but a frequent motif of the Muslim artisan. In spirit and execution it is very much like *Olmer,* Pl. LIV-C, which he rightly surmised to be Fāṭimid.

Two other animal filters were found on the surface in 1965 : one of an elephant almost entirely like *Olmer,* Pl. LV-A (in that the trunk is straight rather than curled as in Pl. LV-C) ; the other of a gazelle, another familiar Muslim iconographic theme, which can be seen in Fig. 6 *e* to have been more fully drawn than that in Fig. 6 *f*, found in a trench-pit in 1966, a pit whose contents (including the filter in Fig. 5 *f*) point to a Fāṭimid dating. All are executed against a lattice-work background within a striated zig-zag border, a device which Olmer ascribes to the Fāṭimid period, an ascription proven archaeologically.

[1] It is true that the three dots on each of the four leaves are reminiscent of the filter described by *Olmer,* Planche B of his Introduction, as Ayyūbid, but there the design is eight-leaved, whereas the handling of the interstices of our filter is completely Fāṭimid. However, we may see here in the three-dot motif a carry-over from Fāṭimid to Ayyūbid.

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F. — THE TRIANGLE MOTIF WITHIN A STRIATED ZIG-ZAG BORDER.

In *Olmer,* Pls. IV and V-A, there are four treatments of the dominant triangular lozenge within borders or strap tracings of striated zig-zags. (The treatment of the triangle in Plate III-A is somewhat different, though the component elements are all present.) These he considered to be Fāṭimid.

From Pit 2 there came a filter with the theme in its simplest form : a lattice-work triangle (like the centers in *Olmer,* Pls. III-A and IV-A), bordered by striated zig-zags within parallel lines, the outer interstices being filled each with a trio of contiguous circles uniting the side of the large triangle, whose points already connect it, to the inner rim of the base of the neck (Fig. 7 *a*). Four more were found during the season, two on the surface exactly like that in Fig. 7 *a*; one in a cistern [M (XII-21)] (*supra,* p. 38 n. 4), which replaces the interstitial trio of circles with ruching (Fig. 7 *b*) ; and another surface find which maintains the ruching but surrounds the whole composition with an outer border of striated zig-zagging (Fig. 7 *c*).

The example in Fig. 7 *d* was found in 1966 on the surface ; it takes the design with the trio of circles and rounds off the whole with a border of striated zig-zagging. The single filter of this type found in 1964 (*Fusṭāṭ '64,* Fig. 3 *e*) came from a sanitation pit associated with a Fāṭimid domestic complex. It uses four circles to hitch the side of the triangle to the inner rim (like *Olmer,* Pls. IV and V-A), but abandons the lattice-work central motif in favour of one of three triangles and three diamonds created by incised lines, each of the former with three slash openings, each of the latter with one slash and three dot openings. It is also remarkable in that the original container had two handles (Fig. 7 *e*).

G. — GEOMETRICAL AND/OR «FLEURONNÉ» WITH STRIATED ZIG-ZAGGING.

Pit 1 provided a sample (Fig. 7 *f*) almost exactly like *Olmer,* Pl. X-B, *i.e.*, a trefoil laid over a triangle, both with central latticing and borders of striated zig-zagging. The interstices are decorated with single holes (except that in Olmer's example one of them has a trio of holes). Pit 2 yielded the example in Fig. 8 *a* : two fleurons bordered by striated zig-zagging, on a diamond lozenge of latticing bordered in

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the same manner, with single holes at the interstices and the entire composition bordered with striated zig-zagging. This is very much in the style of *Olmer,* Pl. XVIII-C, except that his fleurons are smaller and the interstices are holes and «barrettes», and Pl. XVIII-E, where the diamond lozenge has been replaced by a single line of striated zig-zagging. He deems the various combinations of these decorative elements to be Fāṭimid, and archaeology has corroborated him.

From a third Fāṭimid pit from which two other examples in this study have derived [M (XII-21)], see *supra,* p. 38 n. 4 and Fig. 7 *b*) came the filter in Fig. 8 *b:* a cross of striated zig-zagging superimposed on an octagonal star whose center is composed of four «barrettes», each twinned by two holes. Further holes are at the interstices of the outer composition. Though the elements are familiar from others in Olmer's Fāṭimid range, the combination here is original.

In 1966 two variants of the central four-sided figure were found: one (Fig. 8 *c*) had curving sides and enclosed a quatre-foil of striated zig-zagging, the interstices composed of single holes, while external to each of the curving sides of the central lozenge was a combination of two holes and two «barrettes»; this came from a trench whose other artifacts were too varied to allow a precise Fāṭimid dating. However, in theme and execution it is distinctly Fāṭimid, compounded of ideas to be seen in *Olmer,* Pls. VIII-A and IX-C. The other (Fig. 8 *d*) was a surface find and is almost a duplicate of *Olmer,* Pl. XIV-D, except that here the four sides lack striated zig-zagging, and externally two of the four sides have four contiguous holes rather than three.

The single example found in 1964 (*Fusṭāṭ '64,* Fig. 3 *d*), a five-sided curving border of a cinquefoil, is an exact duplicate of *Olmer,* Pl. IX-C, and was found beneath the secondary pavement of a Fatimid domestic complex. However, it does break with our rules for Fāṭimid construction of Fāṭimid filters, in that it has five ribs externally, a mode anterior to what we have termed «continuing Ṭūlūnid» (*supra,* p. 38 n. 2 and Fig. 8 *e*).

H. — SIMPLE PARALLEL PANELLING WITH STRIATED ZIG-ZAGGING.

Olmer, Pls. XV-XVIII-B, demonstrates the development and enrichment of parallel panels of elements we have discussed heretofore. With the exception of Pl. XVI-D, which he deems Ayyūbid because of the absence of any striation, he puts

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them all in the Fāṭimid category. Again our two datable pits confirm him. From Pit 1 came two examples : one (Fig. 8 *e*) extremely simple — a central lattice-work bounded by parallel borders of striated zig-zagging, which in turn are hinged to the inner rim of the neck by a set of three holes, elements which can be separately analyzed in *Olmer,* Pls. XV A-D for striation and hinge of three holes and XVI-C for central lattice ; the other (Fig. 9 *a*) exactly the same except that here the central lattice is replaced by a panel containing three small pierced diamond lozenges, like the central panel of *Olmer,* Pl. XVI-D, except that the latter has five lozenges.

Two duplicates of Fig. 8 *f, i.e.,* with a central lattice, came out of Pit 2. Still another of this type came from a latrine area of a Fāṭimid domestic complex, and a variant (Fig. 9 *b*), in which there are two parallel bands of striated zig-zagging on either side of a narrower central lattice, came from the surface of the excavation. Another surface find was a duplicate of the filter in Fig. 9 *a*. Other variants of the central panel came from the paved room behind the glass ingot factory [1], a clearly ascertainable Fāṭimid context, and is the exact duplicate of *Olmer,* Pl. XVII-D ; and from a Fāṭimid cistern where the central design of the preceding one was worked into four more «open» fleurons (Fig. 9 *c*, where the two inner fleurons have been lost).

Yet another variant, from the 1964 season (*Fusṭāṭ '64,* Fig. 3 *a*), has fleurons in the outermost panels, in the fashion of *Olmer,* Pl. XVI-C, except that the latter has two fleurons each in the outer panels and the entire composition is surrounded by a border of striated zig-zagging. This, too, was a surface find, but is clearly Fāṭimid. Since six of the ten of our examples came from clearly definable Fāṭimid contexts, and the remaining four are associative if not duplicates, it is safe to call Fāṭimid those filters using decorative elements herein described and as noted by Olmer.

I. — PARALLEL BORDER PANELS WITH DIFFERENTLY ORIENTED CENTRAL PANELLING.

Olmer, Pls. XV and XVIII-A and B, provides examples of the type, all of which he catalogues as Fāṭimid. Once more our dated pits bear him out. Pit 2 provides two examples (Fig. 8 *d* and *e*), both variants of *Olmer,* Pl. XV-A. Both have lattice-work rather than fleurons in the central panel, separated respectively by

[1] *Fusṭāṭ '65-II,* IV «The Glass Factory», *passim.*

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two and three parallel bands of striated zig-zagging, which run perpendicular to the parallel border bands of the same device, which are in turn hinged to the inner rim by two parallel rows of three holes each.

Duplicates of each of these types were found in 1965 : of Fig. 9 *d* from a Fāṭimid cistern in which the filter in Fig. 9 *c* was discovered (plus half of another filter of exactly the same composition from the basin of a Fāṭimid courtyard) ; of Fig. 9 *e* from the surface (however, the three hole motif has been replaced by ruching). An example from 1964 (*Fusṭāṭ '64,* Fig. 2 *b*), where *all* the parallel central panelling runs perpendicular to the border panels of striated zig-zagging and hinging row of four holes, is an exact duplicate of *Olmer,* Pl. VI-A. (The central motif in Olmer's type seems more «square» than does ours, but that may be a fault of execution). Like four of our five examples it came from a Fāṭimid context, and all confirm Olmer's dating for this type and its stylistic associates.

Three further filters in this category are of interest. Two were found in 1965 : the first (Fig. 9 *f*) came from Pit 1 and is a congener of *Olmer,* Pl. XV-C ; the other, a surface find, is a duplicate of *Olmer,* Pl. XV-D. The third from 1964 (*Fusṭāṭ '64,* Fig. 3 *b*) is of the same type, but with three rather than four sections of latticing in the central panel. It, too, came from a provable Fāṭimid context.

J. — RADIATING BAND OF STRIATED ZIG-ZAGGING.

Olmer illustrates this category in Pl. III and Pl. V-B and C. It represents the initial steps towards the «star» patterns. A very simple example (Fig. 10 *a*) was found in 1966 within a datable Fāṭimid context : a cruciform motif with «barrettes» in the interstices. The example in Fig. 10 *b* (from 1964 and again from a Fāṭimid context) shows another treatment of the interstices.

The more usual treatment of the interstices was lattice-work. Two examples emerged from Pit 1 both of the example shown in Fig. 10 *c*, similar to *Olmer,* Pl. III-C and D, except that the former has five radiating bands, and, whereas the latter has six, it has a «button» and an encircling band of striated zig-zagging which our examples lack. Pit 2 contained another example of the type in Fig. 10 *c*, and a fourth example came from the surface.

Pit 2 also yielded two examples of the type shown in Fig. 10 *d*, a clear development with radiating bands (four this time) superimposed on a four-pointed «star»,

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each of whose surfaces has a dot. A third example of this type from the 1965 season came from the fill of a cistern within a Fāṭimid context. A further development can be seen in the example shown in Fig. 10 *e*, found in 1964 alongside the foundation courses of a room in a Fāṭimid domestic complex. It is a less elegant example of the genre illustrated in *Olmer,* Pl. XLVI-B, which he quite rightly ascribes to the Fāṭimid period.

Through the medium of the twenty-three filters from the two datable pits excavated in 1965 at Fusṭāṭ, we have established by comparison and association an additional sixty-six within the Fāṭimid canon. As herein analyzed, these eighty-nine filters represent ten categories of design and provide substantive archaeological credence for the general Fāṭimid range of Olmer's typology. Type «A» constitutes a problem since it appears both in provable Ṭūlūnid and provable Fāṭimid contexts, and is the obvious link with the preceding era. Otherwise *Olmer* may be accepted as a sure guide for the chronology and stylistic development of Egyptian filters during the Fāṭimid period.

But yet a further group of filters from the three seasons under discussion are of a type whose design and execution are clearly Fāṭimid, but elements of which were carried over into the Ayyūbid period. It is an openwork model, characterized by Olmer as «jeux de fonds» and declared to be Ayyūbid (*Olmer,* Pls. XXI-XXIV). By association with the examples cited in our preceding categories (examples found not within the two datable pits, but in definite Fāṭimid contexts, from some of which came congeners of those filters in the two pits), it can be established that the type was manufactured in the Fāṭimid period, and the late reaches of its development should be deemed «continuing Fāṭimid».

K. — OPENWORK MESH WITHOUT BORDERING.

From the same pit which produced the filter in Fig. 9 *c* and a duplicate of the one in Fig. 9 *d* (both clearly Fāṭimid) came the filter in Fig. 10 *f*: a mesh of hexagonal and triangular openings. The filter in Fig. 11 *a*, a surface find, has a patterning of circles with very small holes so arranged as to provide a mesh of larger openings. The former is akin to *Olmer,* Pl. XXI-B and the latter to XXI-F, but much less successfully wrought. A third type, also a surface find, diamonds with small

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holes are linked in such fashion as to give a mesh of cruciform opening (Fig. 11 *b*), rather like the central portions of *Olmer,* Pl. XXIII-A, D, E and F.

Because of another filter (*Olmer,* Planche B of Introduction, nr. 8577/161) which carried a Naskhi inscription externally, he assigned the filter within (exactly like our Fig. 11 *b*) to the Ayyūbid period, and by extrapolation and association all the others within this range of design. However a filter discovered in 1964, in a Fāṭimid context (though definitely 12th century), with the same central design of a cruciform meshing (Fig. 11 *c*), is glazed a dark green, a phenomenon we have encountered heretofore only within the range of Fāṭimid filters. The context and the glazing would seem to indentify the filter as Fāṭimid, while the carved floral frieze on the shoulder could be either Fāṭimid or Ayyūbid. Thus it would seem that this design at least points towards a «continuing Fāṭimid» concept of filter design and execution.

L. — OPENWORK WITH VARIOUS BORDERS.

A filter similar to that in Fig. 11 *b* was found in a Fāṭimid foundation in 1965. There is a crude attempt (Fig. 11 *d*) at a cruciform design in the inner mesh, but a single thin circular line of clay divides it from the circlet of outer holes which hinge the entire filter to the inner rim, a duplicate of that in *Olmer,* Pl. XXII-C. A filter from 1964 (*Fusṭāṭ '64,* Fig. 2 *f*), found on the surface, takes this entire design, borders it with a second thin line of clay and attaches the total form by radiating bands, each of which is composed of three circles, each with pin-point central indentations.

The development of the thin border into one of striated zig-zagging can be seen in a filter from 1966 (Fig. 11 *e*), a surface find, but clearly Fāṭimid in its various design elements. Another example of the same treatment, but more crudely cut (Fig. 12), came from a water-bottle, almost complete, which was found at the bottom of a pit whose fill was undisturbed and whose context was clearly Fāṭimid. It was externally glazed in a typical Fāṭimid turquoise (except for the inside of the neck) and, though it lacks any handle, its general shape and the placement of the filter may be taken as typically Fāṭimid.

In Fig. 11 *f* we see the cumlination of the elements : inner cruciform mesh, circlet of holes, band of striated zig-zagging, radiating lines of simple punctures

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connecting central bordered design to inner rim. It was found in 1966 in exactly the same place as the filter in Fig. 10 *a* and is more than probably Fāṭimid. Finally three variations of the central motif, again all from the 1966 excavation, can be seen in Fig. 13 *a*, found in a sanitation canal hewn in the Fāṭimid period; in 13 *b*, found in the same context as that of Fig. 4 *f*; and in 13 *c*, a surface find, but whose finely cut central mesh (at present unique) and border of striated zig-zagging proclaim it as Fāṭimid.

These twelve filters, adding two more categories of design to our Fāṭimid typology, complete our work of archaeologically proving, amending and enlarging Olmer's Fāṭimid ascriptions [1]. The analysis of one hundred and one filters proves equally the vitality and penchant for variety which marked the work of the artisans of filter-bottles in the Fāṭimid period. When the examples herein discussed are added to the artistically far worthier samples to be found in *Olmer,* it becomes apparent that the «Fāṭimid Renaissance» was generously inclusive, for so simple and utilitarian a device as the filter was raised in its creation and decoration to the level of an art, almost unique as a developed metier in the *dār al-Islām*. To Olmer's concentration on their modes of execution and decorative styles, we can now add an archaeological significance from c. 700 to c. 1200 A.D. to the filters of Egypt. So considered they in turn give chronological significance to objects (and possibly architecture) of greater historical and aesthetic content.

[1] A more difficult type to include are those filters with ascertainable inscriptions. These can be seen in *Olmer,* Pls. LXXIV-LXXVII. Some are clearly Fāṭimid, particulary those containing striated zig-zagging, but others have Fāṭimid elements which continue into an Ayyūbid phase. Such would be those with clearly defined lattice-work backgrounds, an example of which can be seen in Fig. 13 *d*. It was found in 1966 in the gutter of a Fāṭimid domestic sanitation system, and is exactly like *Olmer,* Pl. LXXV-C, which he feels to be Fāṭimid. It is obvious that the manner of working the inscription here is analogous to that found in filters with striated zig-zagging. Hence it is more than possible that our type might represent an earlier phase than those with striated zig-zagging. The same would hold true for another of the type found in 1964 (*Fusṭāṭ '64,* Fig. 2 *e*), which is similar to *Olmer,* Pl. LXXVII-B but lacks the latter's striated zig-zag border.

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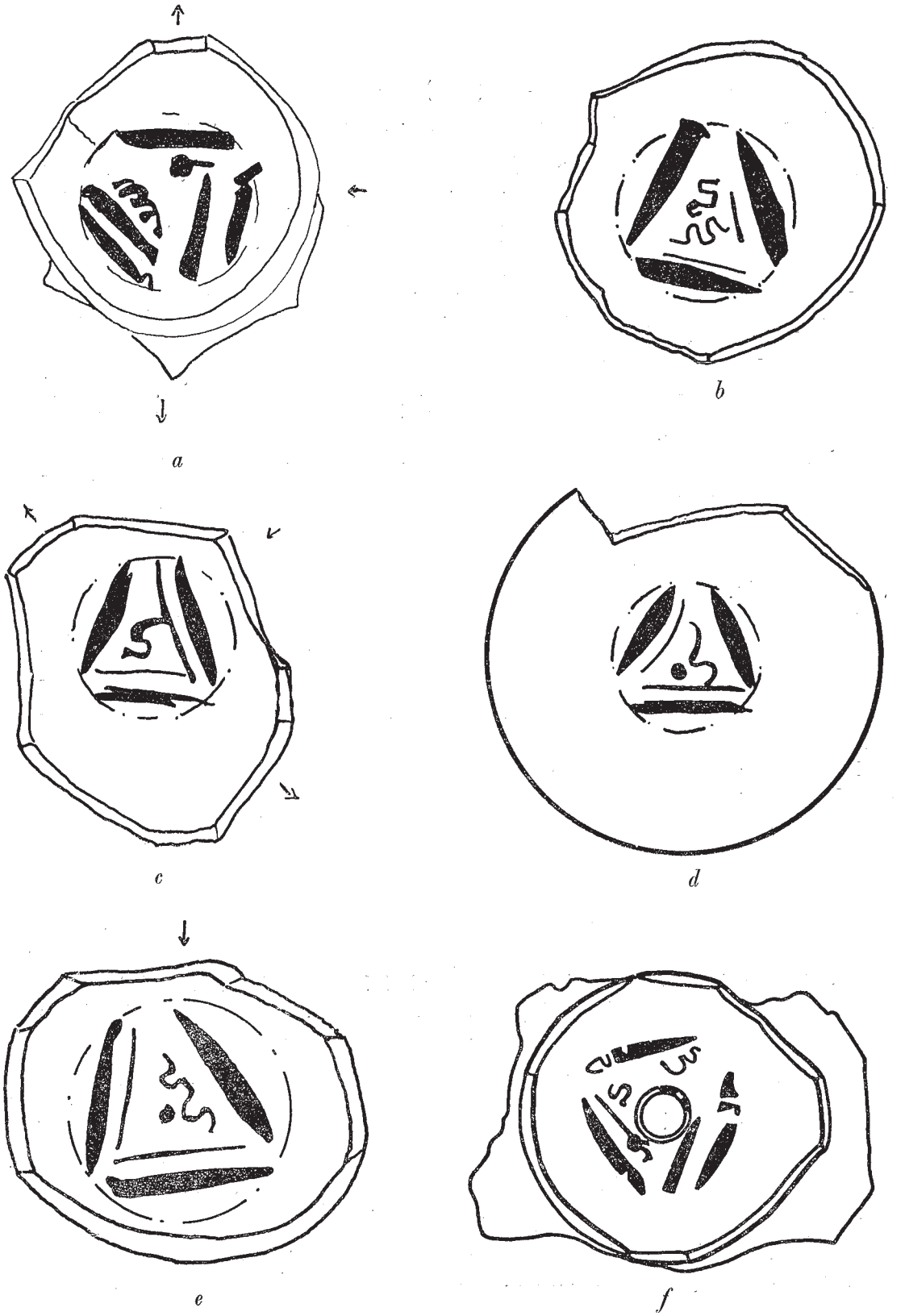


Fig. 1.

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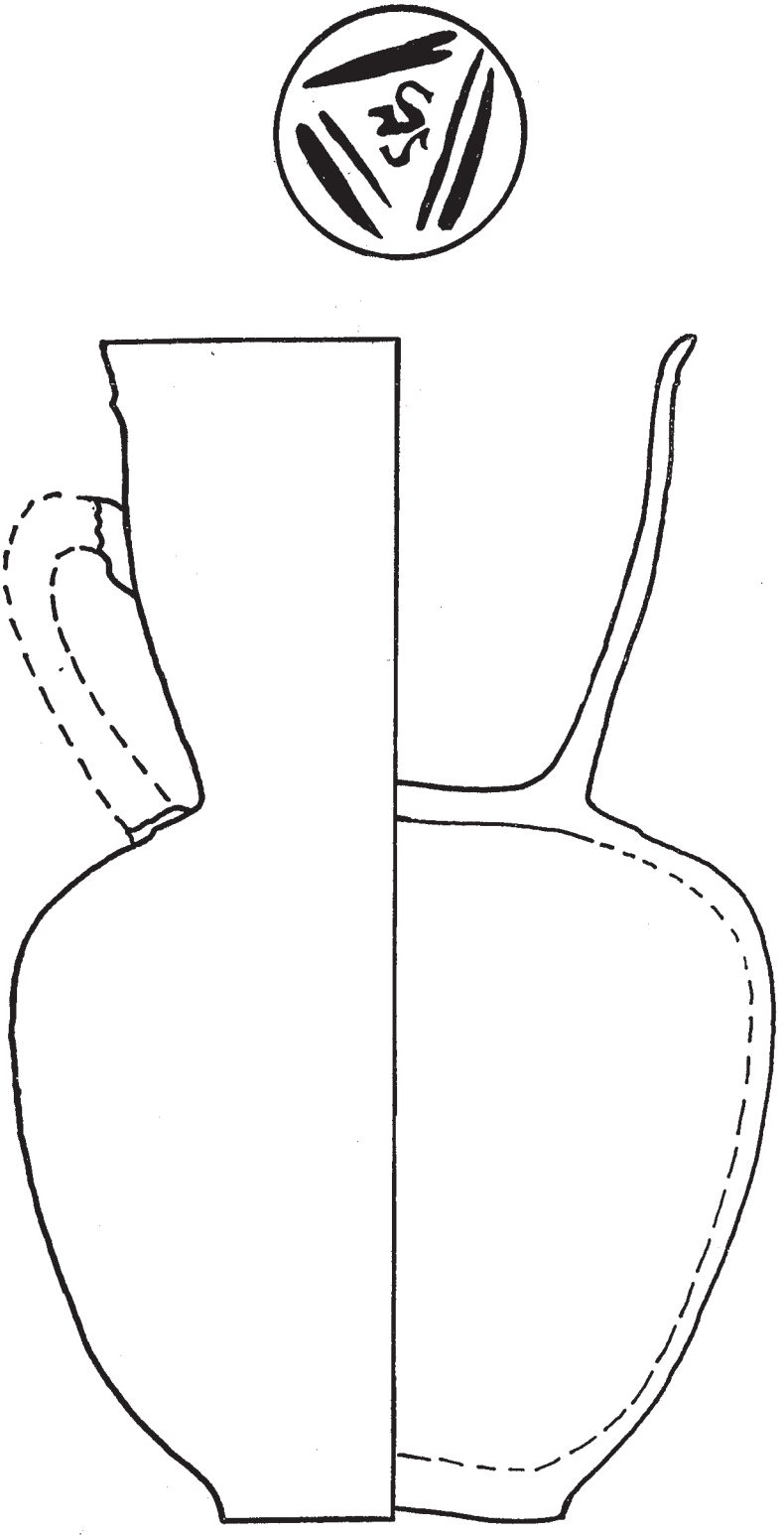
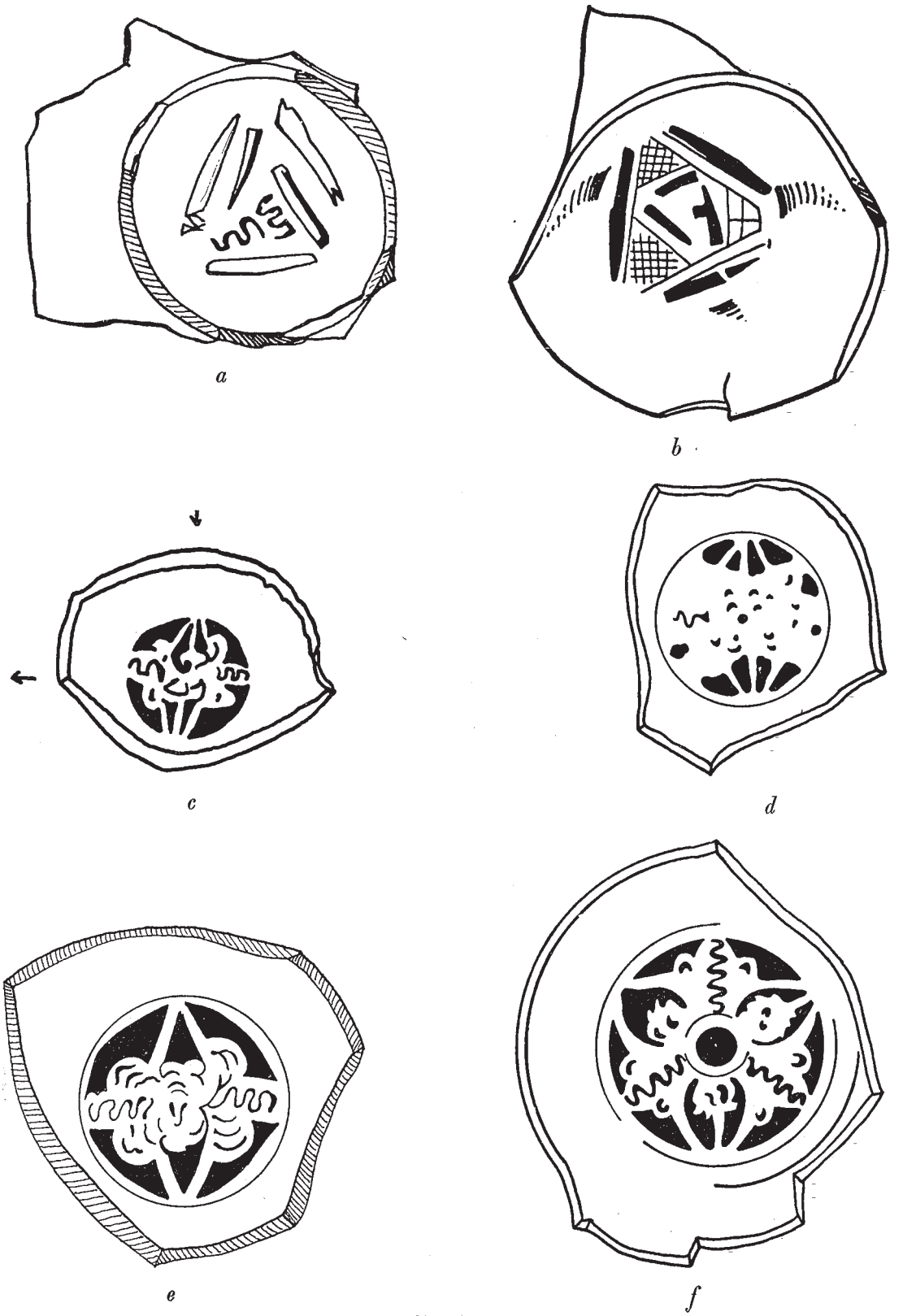


Fig. 2.

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a *b* *c* *d* *e* *f*

Fig. 3.

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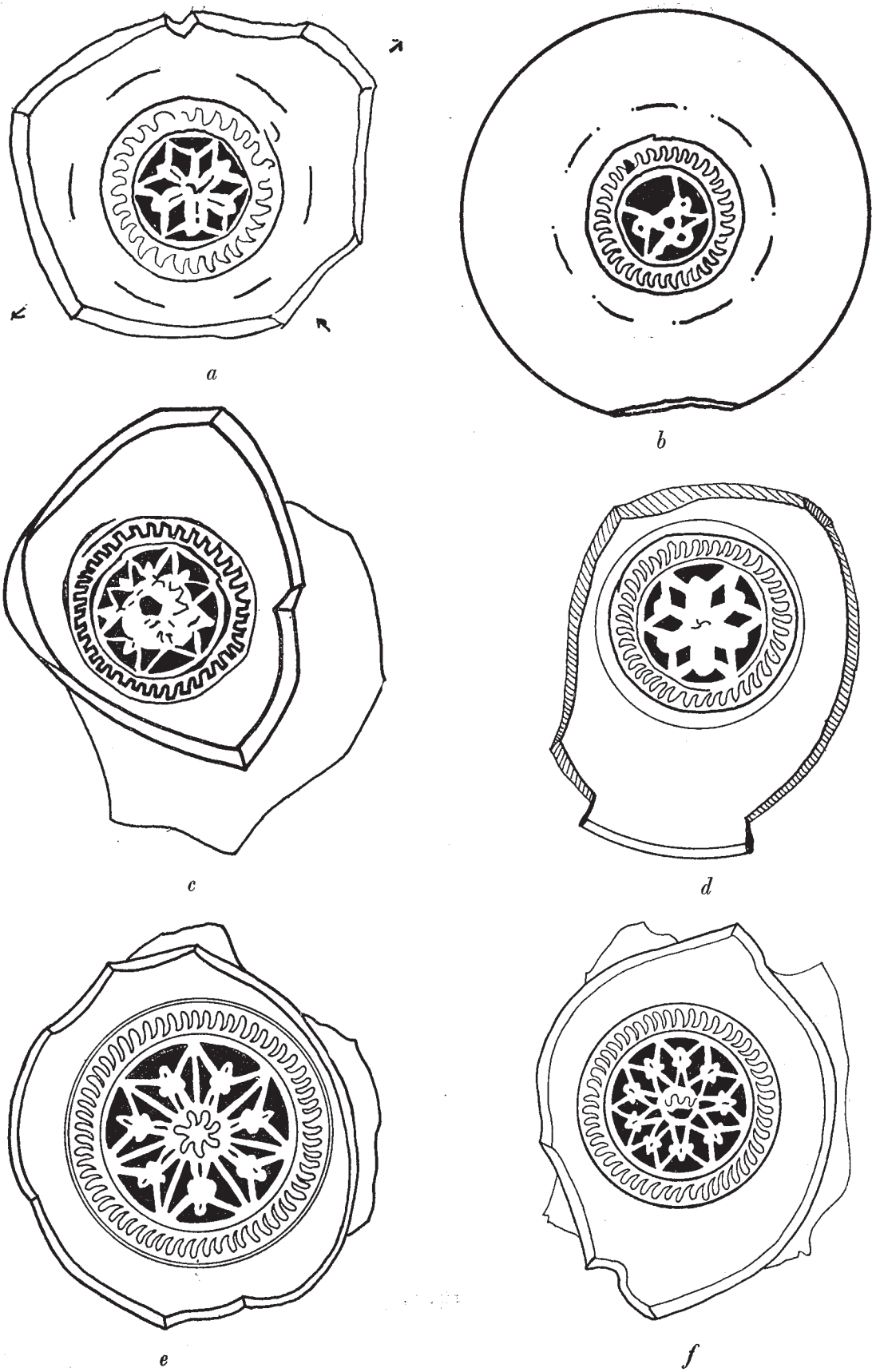


Fig. 4.

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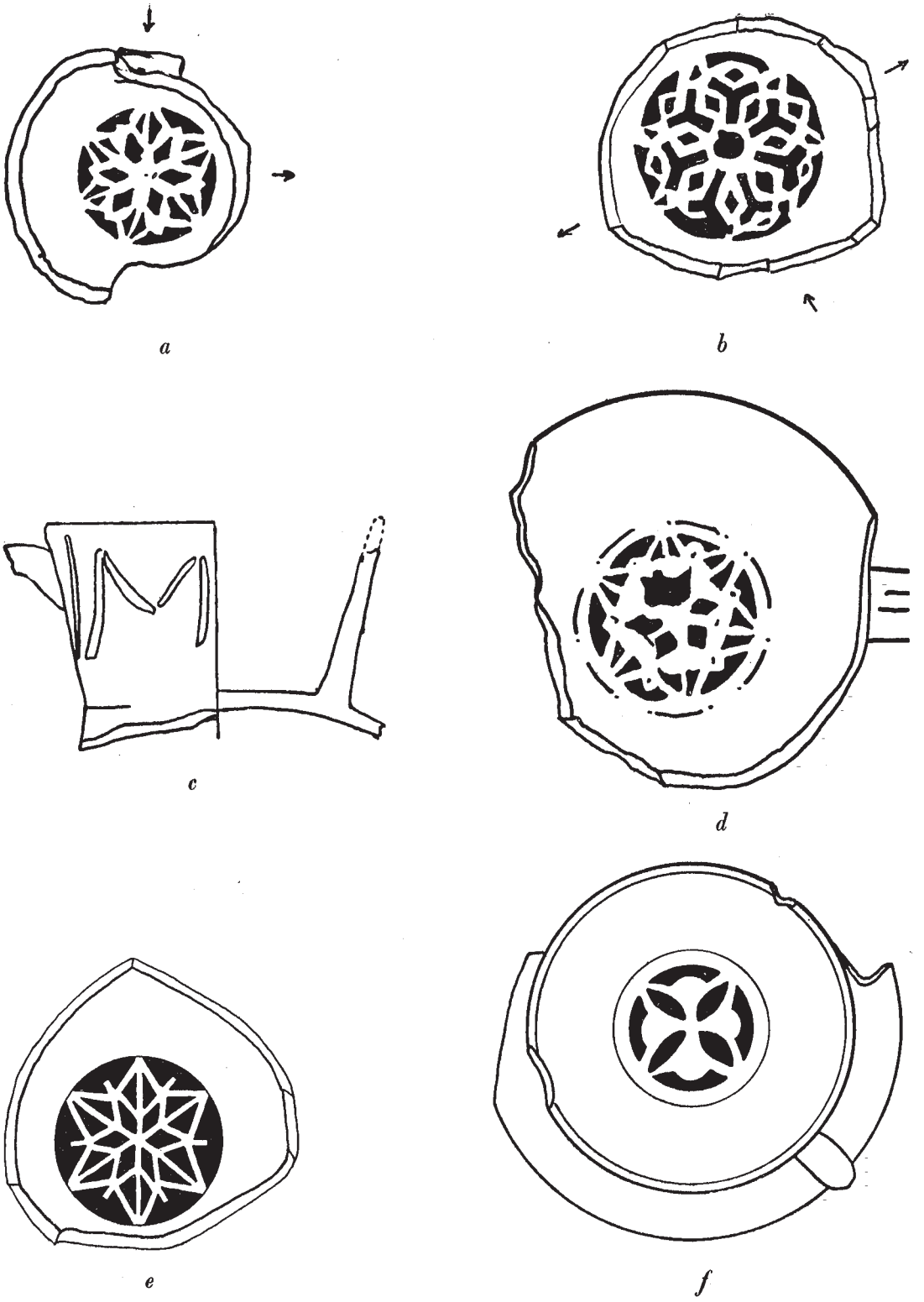


Fig. 5.

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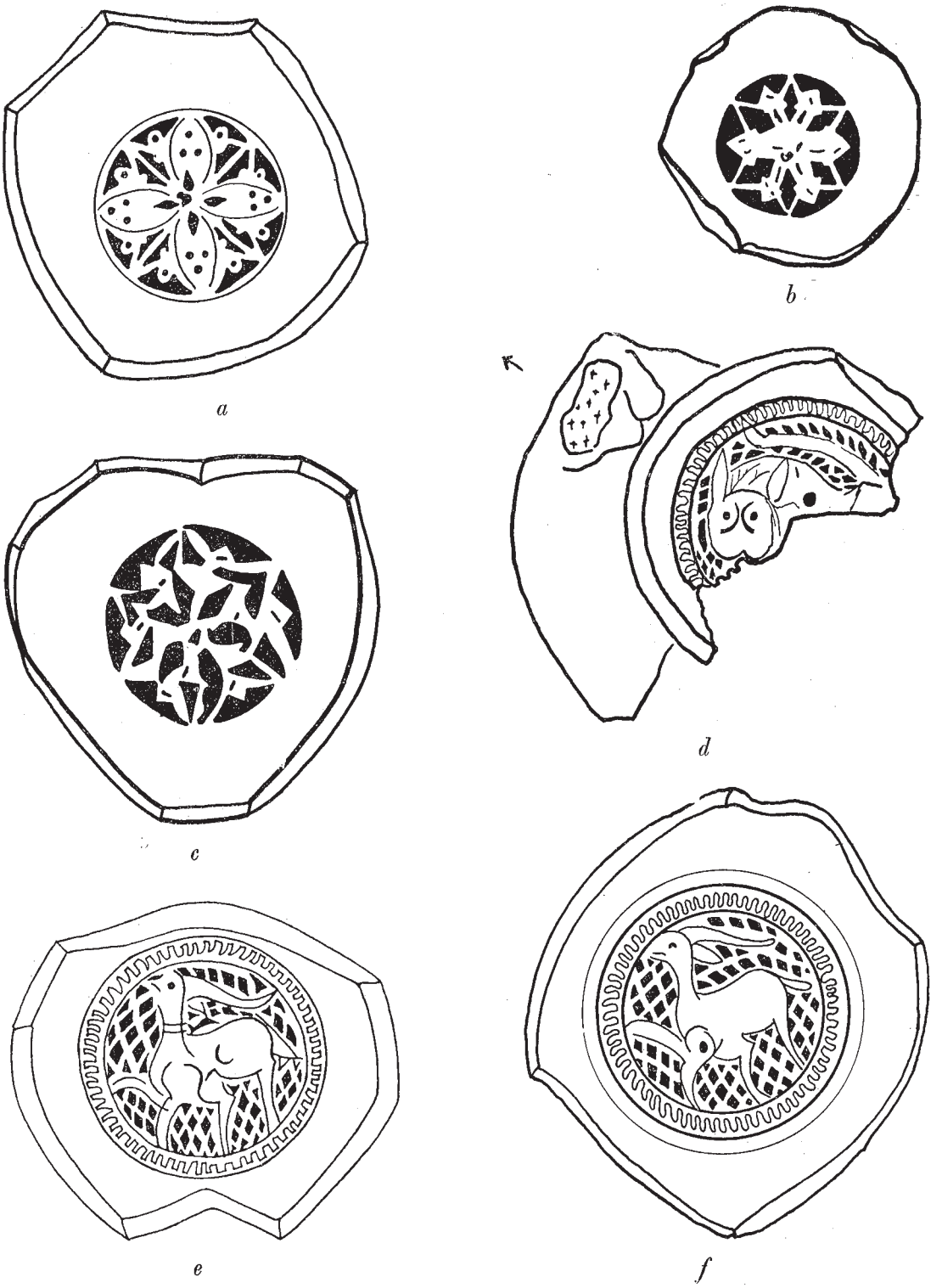


Fig. 6.

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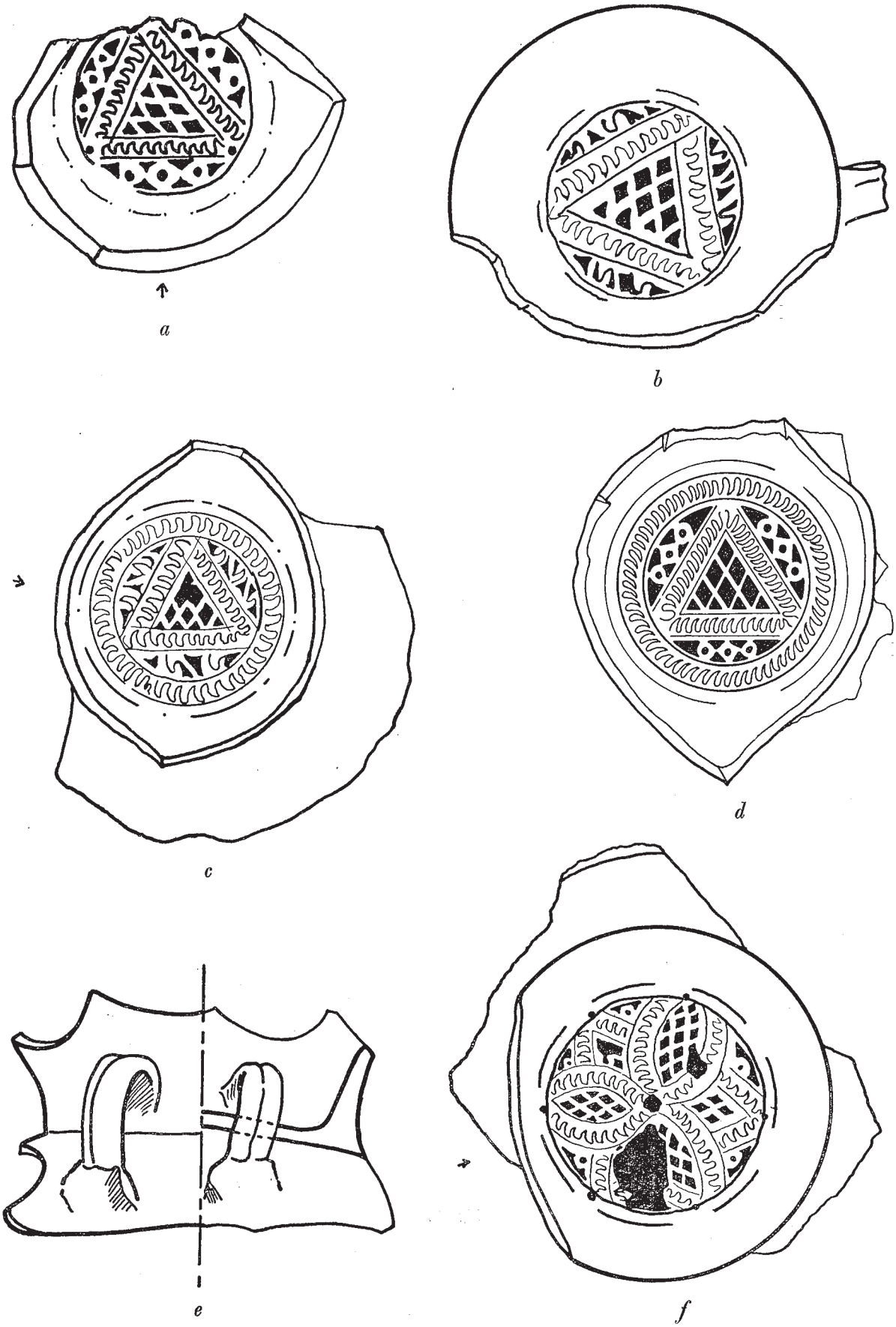


Fig. 7.

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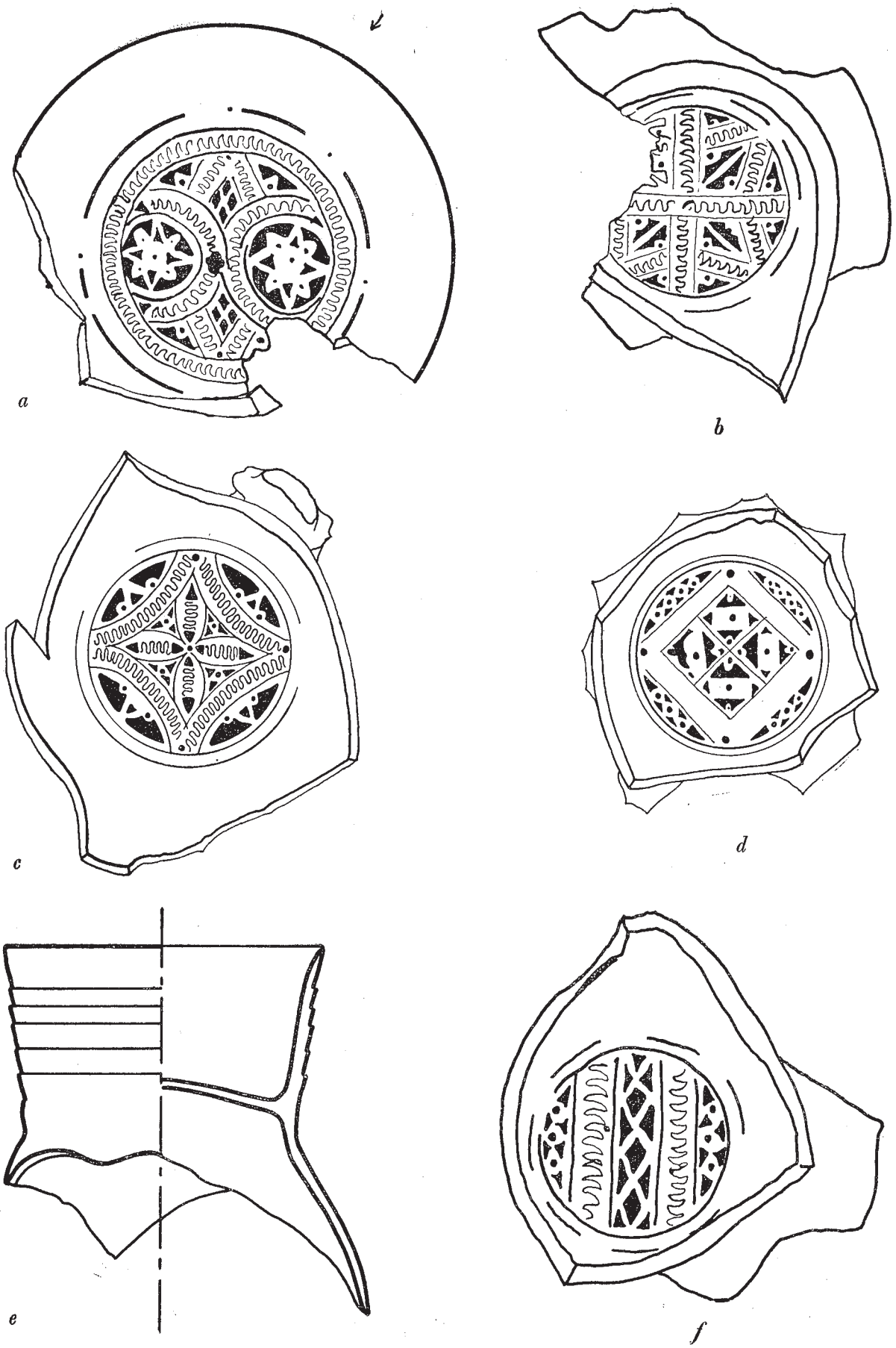


Fig. 8.

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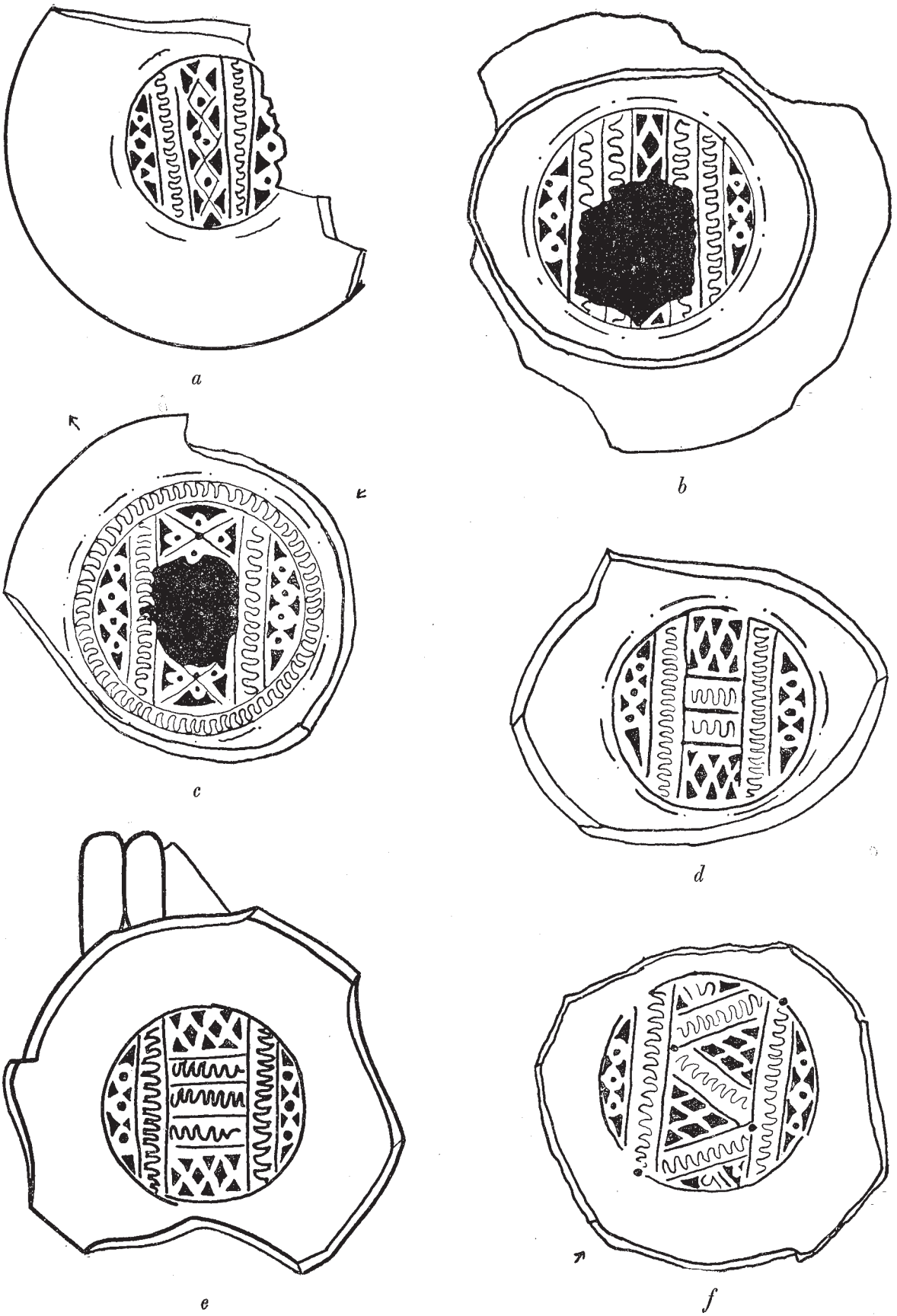


Fig. 9.

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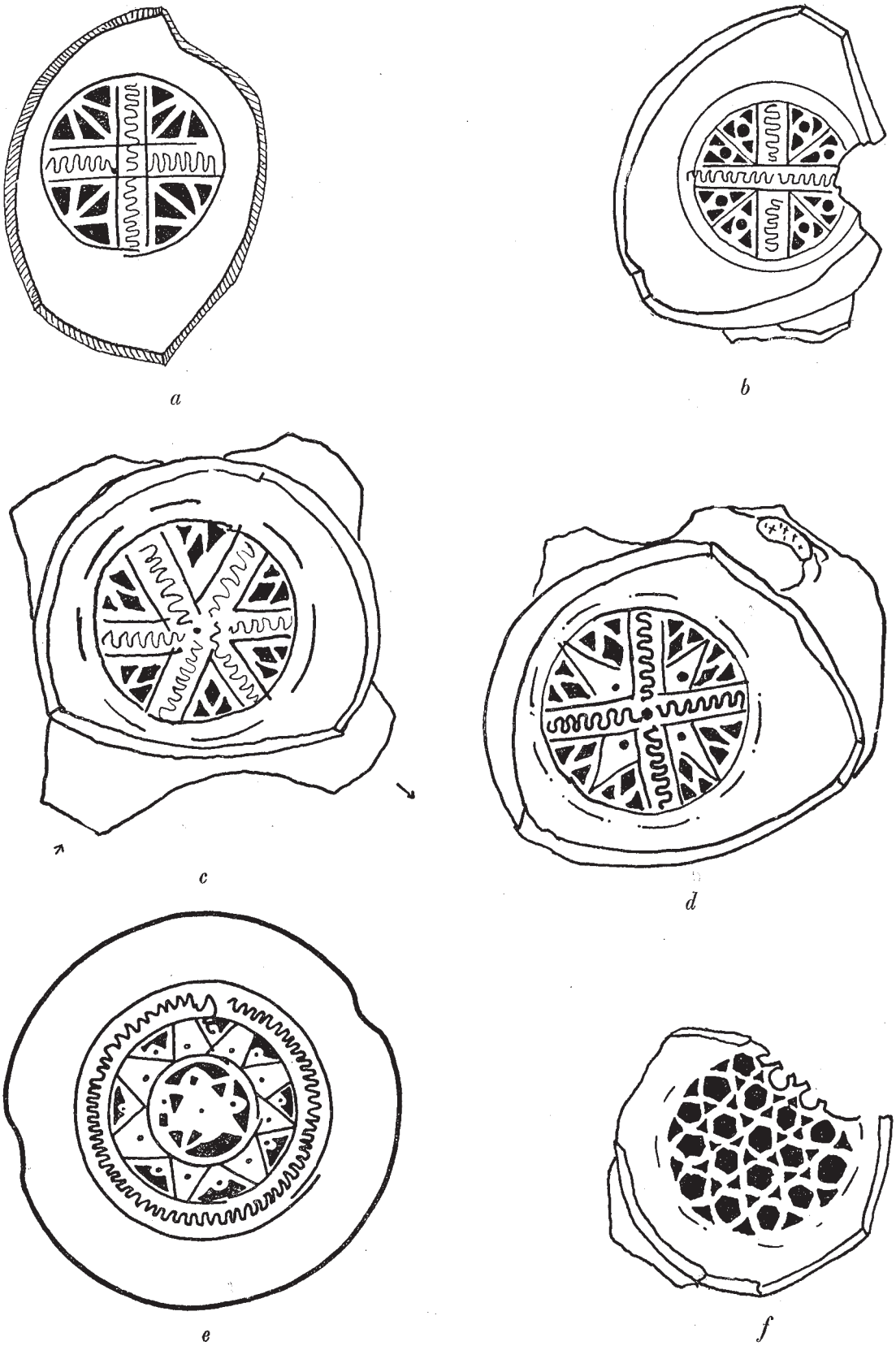


Fig. 10.

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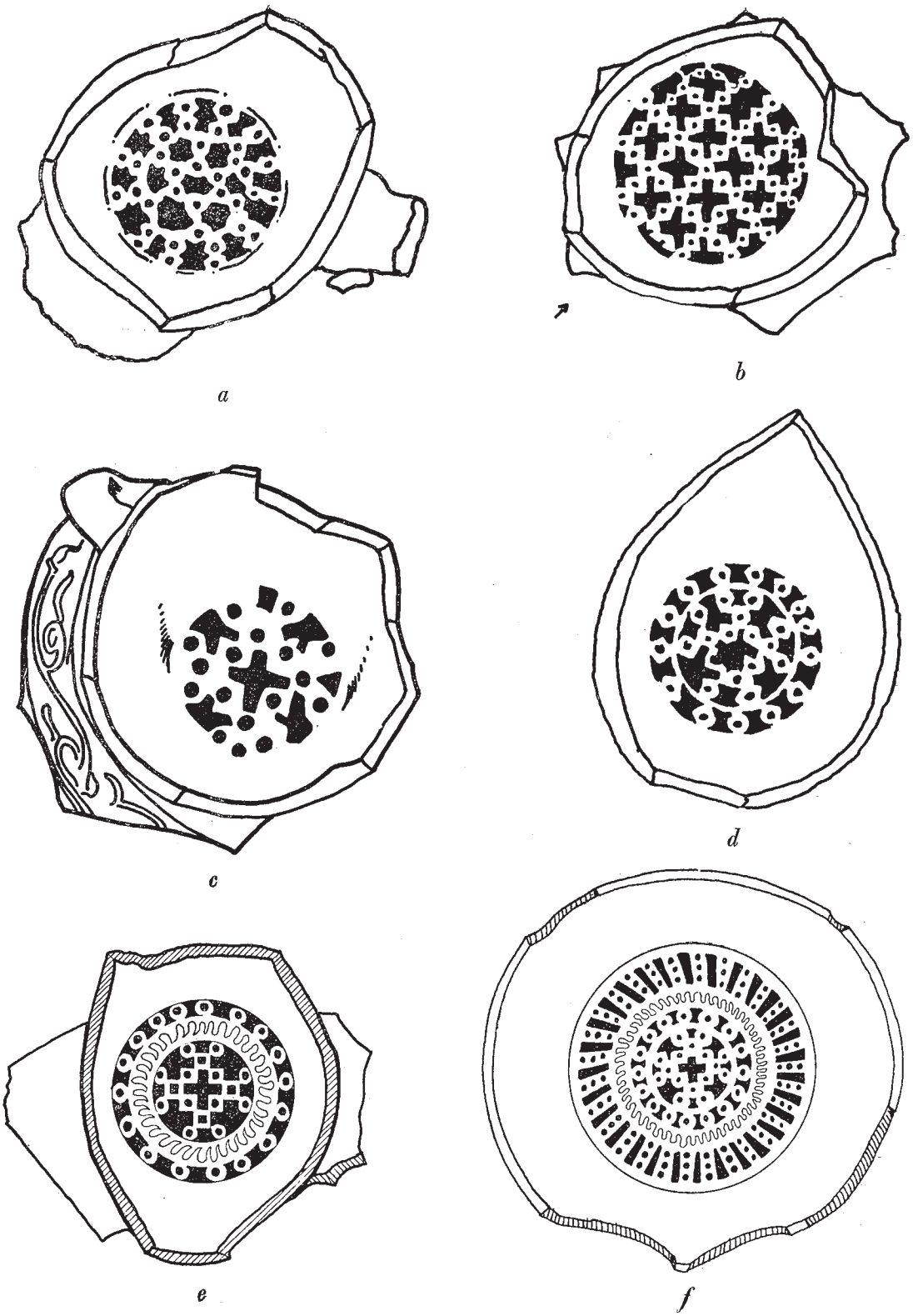


Fig. 11.

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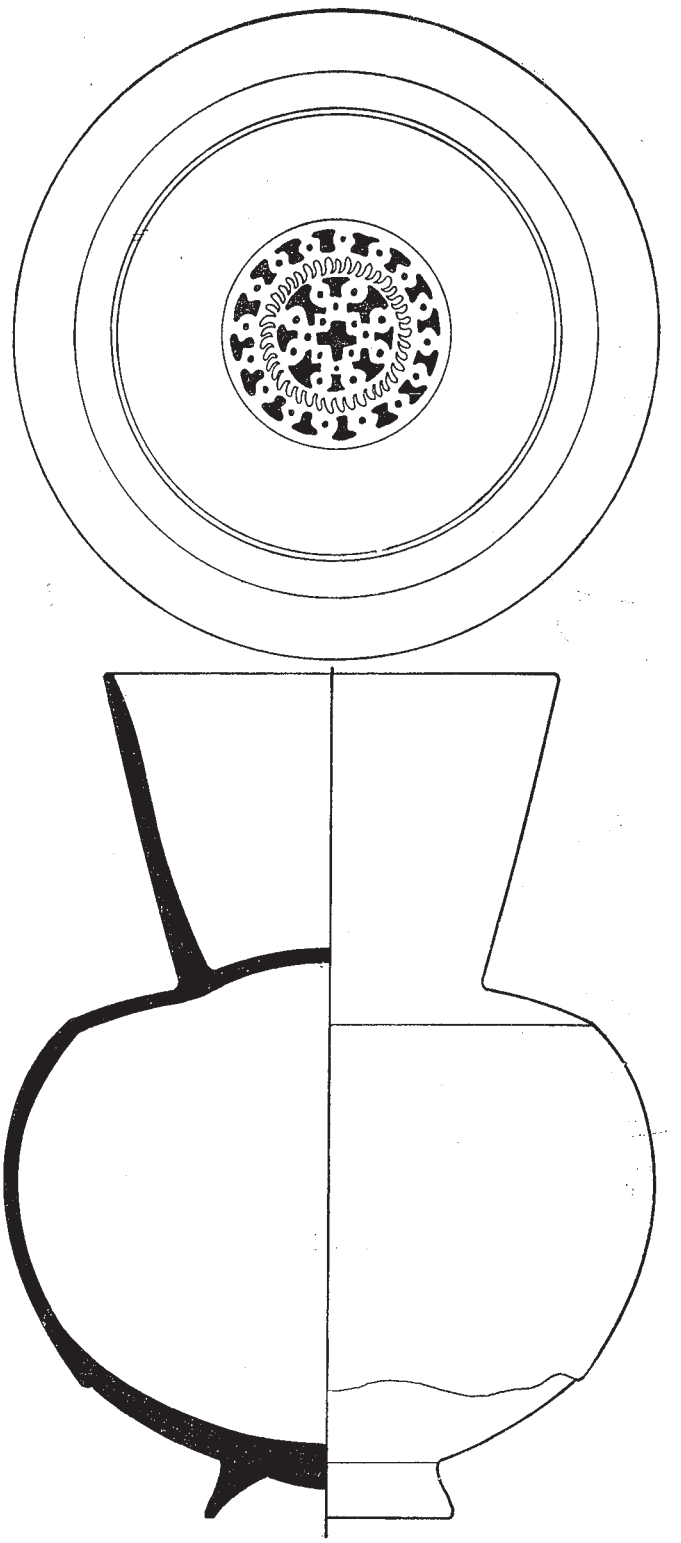


Fig. 12.

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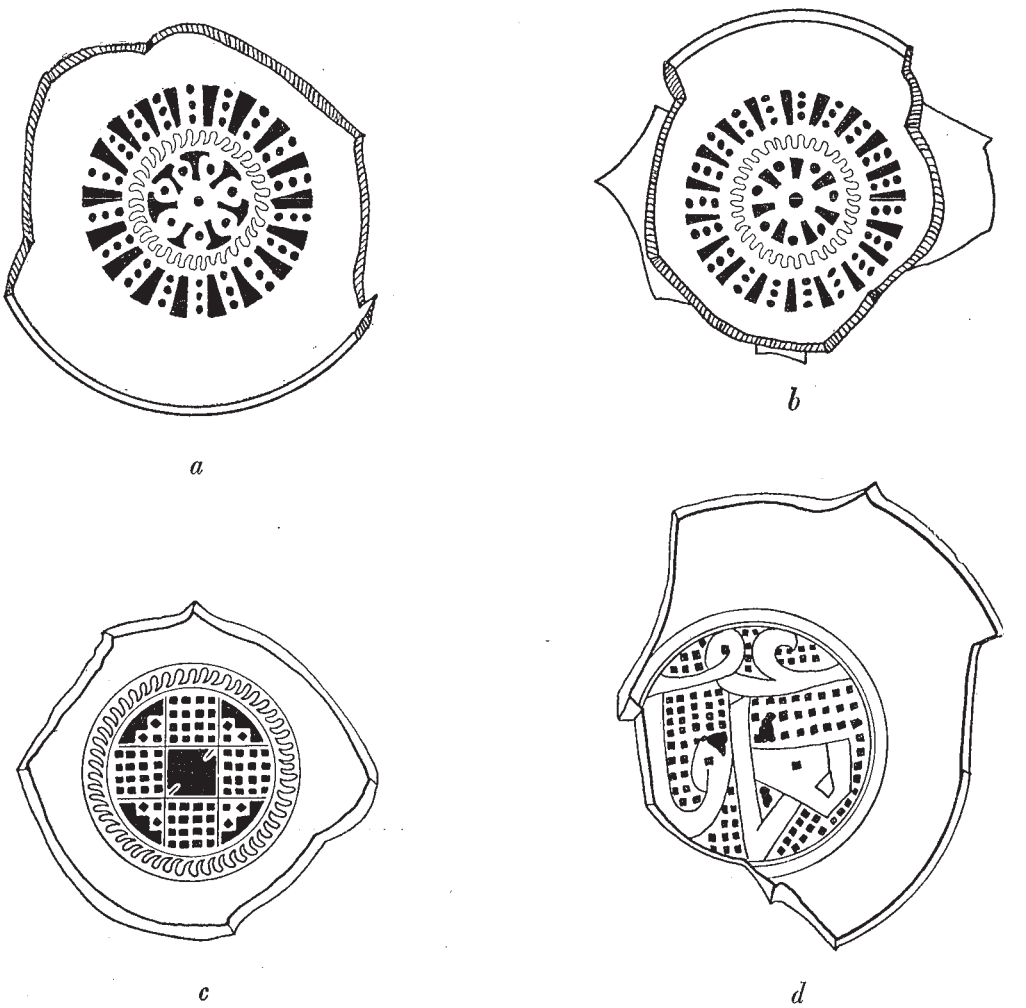


Fig. 13.

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