

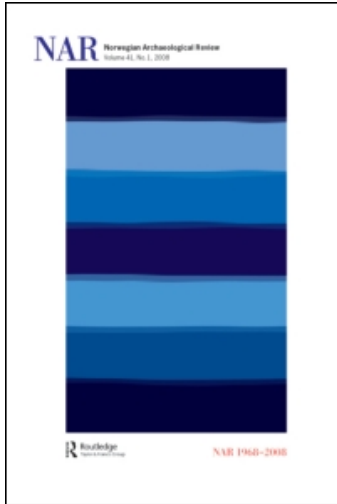
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'Figure it out!' Psychological Perspectives on Perception of Migration Period Animal Art

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In this article we explore some perceptual-psychological and semiotic aspects of the Migration Period 'animal art' from the northern Germanic cultural area. Primarily, it is suggested that this art, which has been described as using symmetry and 'split representations', is laden with 'ambiguous figures' (including 'embedded figures' and 'reversible figures'). The ambiguous quality of the art is suggested to be present on a perceptual level, but also on a compositional (structural) and iconographic level. Psychological (and neurological) processes involved in the perception of ambiguous figures and their effects are presented: Gestalt formation, unconscious processing, subliminal perception, motivated perception, and changed states of consciousness. It is suggested that this art instigated, or at least referred to such processes. In addition, on a semiotic level, the art is suggested to contain information-condensation ('hyper-texts'), cryptic information, and to have had other semiotic functions.

INTRODUCTION

The Migration Period animal art has inspired numerous archaeological analyses of the historical-cultural contexts of this art, its socioeconomic contexts, religious-symbolic content and references — not forgetting the many treatises on its content: interpretations of what the art depicts. However, from a psychological point of view, the immediate perceptual properties of the art seem largely to have been ignored, or at least excluded from analysis in its own right. This is intriguing for a psychologist, because it immediately strikes the eye that this art contains ambiguous figures, and the perception of such figures has been thoroughly studied in psychological research. For an archaeologist, this opens up a new perspective

on this kind of art — and consequently, our collaboration started.

Primarily, we sought to explore to what extent the term 'ambiguous figures' could be applied to the Migration Period animal art. Furthermore, the psychological processes connected to the perception of such figures fascinated us because they could have relevance for the social functions of this art. Therefore, we ended up by relating simple perception and neurology to complex semiotic and social functions, and to a particular cultural-political context. This span may seem pretentious, but it should be noted that this project is explorative and not conclusive.

Migration Period animal art

This paper focuses on the Migration Period

'animal art' from the northern Germanic cultural area. Norwegian relief brooches and scabbard mountings from the Migration Period represent some of the finest and most developed examples of Germanic animal art, the so-called Style I (Nissen Meyer 1934:86, Hougen 1936:8-14, Kristoffersen 1995:1-3). This style existed during the 5th and 6th centuries in the northern Germanic cultural area, which includes the northern part of the European continent, parts of England and Scandinavia (Salin 1935 [1904], Haseloff 1981). The development of this art took place within a particular and relatively short period, and rapidly grew into a highly sophisticated artistic expression. An important source of inspiration for the techniques and motifs which led to the development of the style was drawn from late imperial Roman and provincial Roman small-scale metal work, for example belt-clasps and other items of Roman military equipment (Böhme 1974, 1986). Initially, the art was produced with, at least, a touch of naturalism. Through the development of Style I, the animals underwent a process of abstraction and very quickly developed into a unique, Germanic, artistic expression that can still be traced in the portals of the Medieval Norwegian stave churches. The way in which the Roman and Germanic animal figures differ, and what this may mean, is an interesting area for investigation.

One of the most striking differences is the Germanic non-naturalism as opposed to the Roman naturalism. In Roman art the animal species are recognizable. Although muscles and sinews are no longer visible in the small-scale provincial Roman art, the limbs, at least, are in their proper place and organic position. The plasticity of the animals is also typical. The Germanic animals in Style I are, with a few exceptions (in the late brooches from Sogn), impossible to specify with regard to species. In addition, they are intricately mingled and entangled. Details are omitted, the limbs are often sketchily outlined, in awkward positions, or even detached from the

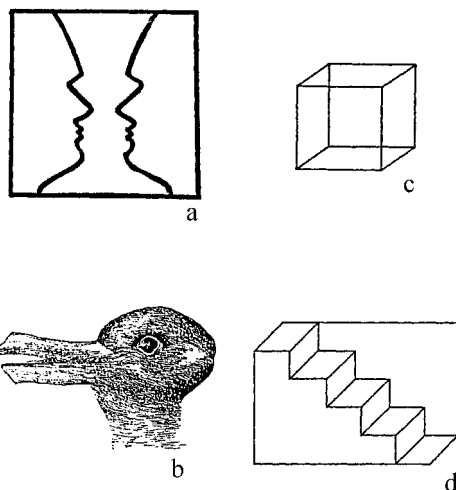


Fig. 1. *Ambiguous figures, here: reversible figures. (a) A vase/two profiles. (b) Duck/rabbit. (c) The 'Necker cube'. (d) The reversible staircase'. (a): Drawing by T. C. Lindstrøm; (c) & (d): from Krech, Crutchfield & Livson (1969: 166, fig. 11.1).*

animal forms altogether (Kristoffersen 1995:8). In short, the Roman animals are defined and easy to identify, whereas the Germanic animals are more 'hidden'. Put another way, one could say that the Roman animals stand out as a clear 'text', whereas the Germanic animals resemble a cryptic, hidden, perhaps secret 'text'. Cryptic functions of this art have been suggested before (Nissen Meyer 1934:87). We sought to elaborate on the possible functions and meanings of this 'cryptic' art.

Figures that are ambiguous, embedded, and reversible

As mentioned above, from a psychological point of view, it is obvious that the Migration Period animal art contains 'ambiguous figures'. The terms 'ambiguous figures', 'reversible figures', and 'embedded figures' are closely related concepts, the first two in particular often being used interchangeably (Krech et al. 1969:153, 166, 176). The terms come from the psychology of perception, and may need some explanation. 'Ambiguous

figures' generally means that the stimulus material is structured (or rather unstructured) in such a way that several interpretations are possible. In the 'reversible figures' the stimuli are seen as (usually) two objects, or sets of objects, which seem to alternate in the visual field. All the contours of one object are used to form the other(s). Typical examples of reversible figures are the vase/two profiles alternation (Fig. 1a) and the duck/rabbit alternation (Fig. 1b). Classical examples are also the 'Necker cube' (Fig. 1c) and 'the reversible staircase' (Fig. 1d). 'Embedded figures' are closely related to reversible figures in the sense that several discrete objects may be perceived within the same stimulus material and may seem to alternate as we focus on one or the other.¹ However, whereas all the contour lines are used in the 'reversible figures', in the 'embedded figures' just parts of, some of, or none of the lines may be used to make up the figures which are seen to be 'embedded' in the larger stimulus complex. This means that several figures may be seen within another one, sometimes using parts from another, and extending their forms beyond the boundaries of other figures (Fig. 2). In this article, because of the similarity between them, the term 'ambiguous figures' will be used for all 'ambiguous', 'reversible', and 'embedded' figures, except when 'reversible' or 'embedded' figures are treated separately. We demonstrate that the Migration Period animal art contains a considerable amount of ambiguous figures, in various ways and on several levels. Furthermore, we point to processes and effects that are connected to the perception of ambiguous figures, and discuss the possible functions of the art from this perspective. Yet, there is also another property of this art which is relevant: the presence of 'split representations' and their approximates (Kristoffersen



Fig. 2. Ambiguous figures, here: embedded figures. Within a landscape, a man with a cap and a rabbit are embedded. The faces of the man and the rabbit also function as reversible figures. (From Leeper 1935:53, fig. 1.)

1995). In addition to recognizing the symbolic functions of the split representation the discussion here will point to and focus on the visual properties of the split representations.

Split representations and Gestalt formations
 In so-called 'primitive art', ('primitive' according to Lévi-Strauss 1963), animals are often depicted as 'split representations'. Even though not all the 'splits' of the Migration Period art meet the criteria of 'split representations' as defined by Lévi-Strauss, the term fits to a large extent. This approximation of term usage has been discussed before by Kristoffersen (Kristoffersen 1995) and will not be elaborated upon here. A split representation looks as if the animal is cut open and flattened out, and thereby is shown from both sides simultaneously (Lévi-Strauss 1963:

¹The portraits, comprising fruits, vegetables etc., by the Dutch painter Hieronymus Bosch (1450-1516) represent examples of embedded figures.

246–247). Split representations give pictures that are ‘formally correct’ in the sense that all parts of the animal are presented. Young children also produce such formally correct representations when they make drawings. Children often meticulously draw all parts of the body that they know are ‘supposed to be there’, even when they are ‘hidden’ from the perspective of the drawer: a phenomenon called ‘intellectual realism’ (Piaget & Inhelder 1974:60). Such drawings and ‘split representations’ give pictures that are ‘logically correct’, but not ‘visually correct’, in the sense that they depict creatures as nobody has ever seen them. One could argue, however, that flayed skins and flayed animal carcasses may have provided the ‘primitive’ artist with the idea of making this kind of representation yet the pervasiveness of its use points to other associations, far beyond fur and food.

Lévi-Strauss interprets the split representations as expressions of transformations by which the decorated object ‘becomes’ or ‘merges’ with the creature/animal it is decorated with (Lévi-Strauss 1963:258–261). However, on a more immediate level of perceptual analysis, it is striking how symmetry is a typical characteristic of the split representations. As we see it, focusing on the symmetrical properties of this art yields other interpretative opportunities in addition to the concept of ‘split representations’ with its direct allegorical referral to transformations.

From a perceptual-psychological view, symmetrical figures may be visually perceived in a way that comprises the two halves into a Gestalt (a ‘whole’; German, pl.: *Gestalten*) (Köhler 1969). People are perhaps particularly prone to ‘see’ faces in ambiguous stimuli, for instance in clouds. The split representations, but also other symmetrical elements on the brooches, can readily be seen as faces or masks (human- or animal-like) (Fig. 3). More or less complete figures of animals or humans are in fact very latent interpretations of the patterning. Faces and

some other body forms are relatively clearly defined, obvious contents on the brooches. Still, our point is that, beyond the more overt figures, there are also latent figures that demand more of the observers’ Gestalt-forming processes to ‘see’. We suggest that this art, with its symmetrical and other visual properties, may contribute to instigate certain perceptual-cognitive processes, in particular creative cognitive processes connected to Gestalt formation.

Yet, symmetry may be relative. ‘Primitive art’ is often symmetrical in the overall composition, but may involve asymmetric details (Lévi-Strauss 1963:246–247). Symmetrical figures give an impression of order and balance that is often a vital aspect in what we call ‘aesthetics’. Aesthetics appeal to the senses, evokes positive emotional responses, and interest (Morphy 1996:181). However, also the small asymmetrical details, in this study called ‘broken symmetry’, may have had particular effects and functions. We seek to elaborate upon the effects and functions of these aesthetic objects, and to relate the discussion to their various forms of ambiguity.

Aims of this study

To sum up: Assuming that art may deal with issues that are connected to, or in some way related to, other aspects of a cultural situation, we explore what this particular art could express on a level beyond a description of its more overt characteristics. Considering the level of abstraction of the motifs, we do not regard identification of the depicted creatures in the Migration Period animal art as a project that would increase our understanding, at least not of Style I. In a sense, we want to do the opposite: we focus on the fact that the figures *are* ambiguous, mingled and hard to discern. With this in mind, we seek to discover what perceptual-cognitive and neurological processes these qualities might have evoked, and thereby have referred to. Possible semiotic functions of the art are suggested. Finally, we relate these qualities (perceptual-

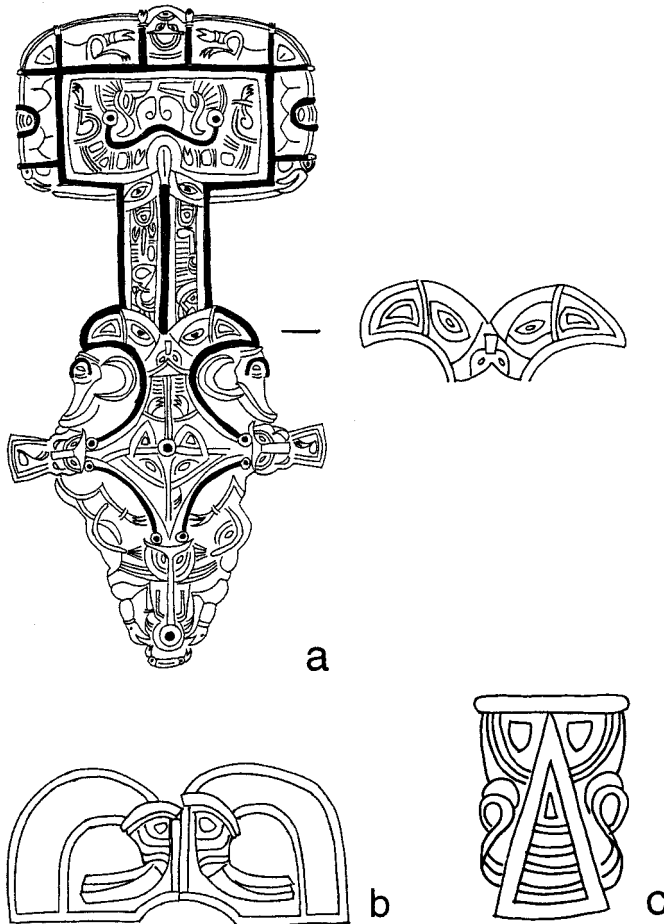


Fig. 3. Ambiguity within motifs, here: animal profiles in en-face masks. (a) Relief brooch with detail from Ågedal, Audnedal k., Vest-Agder (B3410). Scale 3/4, enlarged detail. (b) Detail of clasp from Melberg, Strand k., Rogaland (S7577). (c) Animal legs as beard-like parts of mask on end lobe of relief brooch from Syre, Karmøy k., Rogaland (S9269). Enlarged scales. Drawings by S. Kristoffersen.

cognitive and semiotic) to the demands of the particular political and cultural period in which the art developed.

**PRESENTATION OF MATERIAL:
MIGRATION PERIOD ART
CONTAINING AMBIGUOUS FIGURES**

Our presentation and discussion will concentrate on the relief brooches decorated with ornaments in Style I from the counties along the southern and western Norwegian coast, from Vestfold to Sogn & Fjordane. This

represents a main area concerning the distribution of Migration Period art and relief brooches. Although the quality varies, many works are of high quality, artistically as well as for workmanship. Of importance is the experimentation of form that seems to have taken place in the decoration of the brooches from this area, during the period in which Style I was developed; an experimentation which indicates that the style developed in small-scale metalwork such as the brooches. This means, as also suggested by Nissen Meyer (1934:86), that the art in these small

metal objects is not to be seen as a reflection of simultaneous or antecedent developments in larger objects or other materials.

Ambiguity is expressed in the art in various ways and on different levels — in the execution of the single motifs as well as in the overall composition and structure of each object. Even when it comes to interpretation and understanding of the motifs (the iconographical level), the art is pervaded by ambiguity. Next, we describe the different ways in which ambiguity is expressed, in order to connect the psychological concepts and the archaeological material. (For a more thorough description of the material, see Kristoffersen 2000a).

Ambiguity is expressed on the following three levels:

— *Ambiguity within motifs.* Figures are composed of elements that together can be seen as wholes (*Gestalten*). The elements can also be extracted from the whole and be perceived as separate figures, which are different from the figure presented by the whole.

— *Ambiguity on a compositional or structural level: Broken symmetry.* The brooches and the ornamentation have an overall symmetrical compositional scheme. This scheme, however, can be interrupted or broken by asymmetrical details or minor deviations in the composition.

— *Ambiguity on an iconographic level: Mingled species.* There are ambiguous relationships between figures with human, animal or bird-like characteristics. Motifs frequently occur in which elements of these species are mingled.

Ambiguity within motifs

Elements of, or whole animals, often depicted from different perspectives, may build up a head or face, human or animal. The figure can be perceived reversibly as a whole, as a face; or one can perceive the separate elements as an animal, an animal's head or an animal's leg (Figs. 3 and 5). Often, a head or face that

can be perceived en-face (French: 'full face') is built up of two profiles, and either motif can be perceived alternately. Examples are further presented in the 'split representations'. Well-executed split representations with such qualities are found in the golden 'scabbard mountings' (Kristoffersen 1995, with references).

A striking example of ambiguity within motifs is presented in the ornamentation on the Agedal brooch from the inner part of Vest-Agder (B3410) (Fig. 3a). On the upper part of the footplate, just below the bow, there are two eyes with a small en-face mask placed like a nose between them. The two eyes can also be seen as eyes belonging to two bird-like creatures in profile, with their beaks in the panels on either side of the eyes. In the clasp from Melberg, Rogaland (S7577), a similar effect is achieved (Fig. 3b). Here two profiles with beaks or beak-like jaws are joined in a mask, seen en-face. The beaks are changed to an element resembling a beard, in the mask. The effect is actually created in the act of closing the clasp. The motif is changed again, into two profiles, by opening the clasp. Further, in the brooch from Agedal, there is a motif of a similar ambiguous character in the headplate inner panel where two bird-like profiles constitute the eyes in an en-face mask with a nose resembling an animal's snout, and a wavy mouth (Fig. 3a). A similar, but more vague, motif is presented on the headplate of the closely related brooch from Fristad, Rogaland (S1969) (Kristoffersen 2000a, plate 22:5).

In a group of six brooches, Hovland (S2276) (Kristoffersen 2000a, plate 14:4) and Syre (S9269) (Fig. 3c), Rogaland and Nornes (B9688), Holum (B8045), Kvåle (B6516) and Sandal (B6656), Sogn og Fjordane (Kristoffersen 2000a, plate 34:1, 33:1, 35:1, 38:1), ambiguity within motifs is found in the masks in the footplate side and terminal lobes. In all these examples, animal legs with paws constitute beard-like elements of the masks.

We might add that a relation between

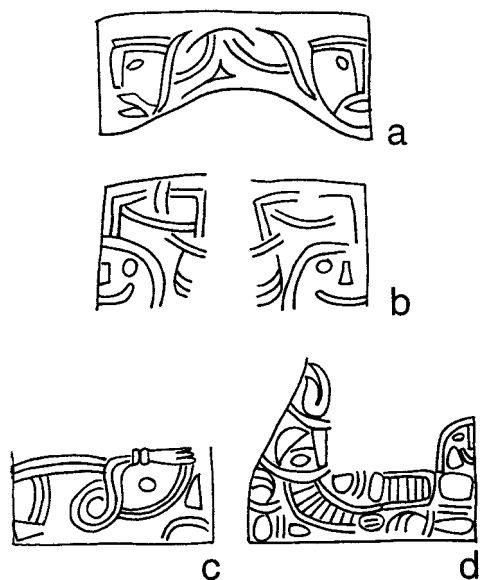


Fig. 4. Ambiguity in perspectives of profiles and en-faces, here: 'half en-faces' on headplates of relief brooches from (a) Høyland, Farsund k., Vest-Agder (B5037); (b) Nord-Braut, Klepp k., Rogaland (S2451); c–d) Trygsland, Marnardal k., Vest-Agder (KDCCCXXXIII and KDCCCXXXII). Various scales. Drawings by S. Kristoffersen.

profiles and en-face masks is often expressed in the art, in ambiguous figures, but also in the general use of motifs. Often, opposing heads or faces in the two perspectives (a profile and an en-face) create the composition. The en-faces are often human in character, but the profiles are more easily understood as animals. The motifs may be seen in connection with the human head opposed by two animals, a motif generally used on the Roman provincial belt buckles, like the one found in Fosse, Rogaland (S6697) (Kristoffersen 2000a, plate 17:2). The peculiar perspective of the 'half en-faces' underlines this relation expressed between en-faces and profiles. This is found, perhaps in its clearest expression, in the headplate inner panel of the small brooch from Høyland, Vest-Agder (B5037) (Fig. 4a), in the smiling faces on the brooches from Nord-Braut Rogaland, (S2451) (Fig. 4b), on the smaller brooch from Trygsland, Vest-Agder (KDCCCXXXIII) (Fig. 4c) as well as on the larger brooch from the same find (KDCCCXXXII) (Fig. 4d). Finally, this perspective is present in the ornaments of the large brooch from Hauge, Rogaland (B4000). This relation between profiles and

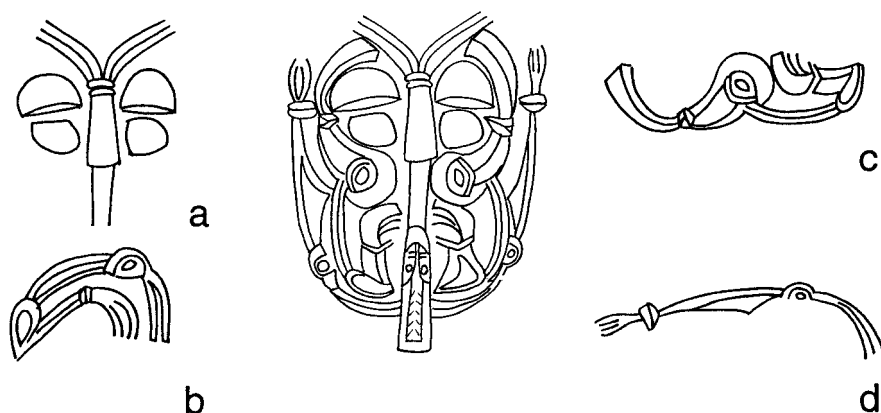


Fig. 5. Ambiguity within motifs, here: two pairs of animals embedded in an en-face mask on a side lobe. Relief brooch from Hauge, Klepp k., Rogaland (B4000). Details: (a) eyebrows, eyes and nose of the mask; (b) animal in high relief (sculpture) in the extension of the nose; (c) animal on both sides of the nose; and (d) bird-like creature framing the mask on both sides. Enlarged scale. Drawings by S. Kristoffersen.

en-faces expressed in the half en-faces can also be seen as an expression of ambiguity.

Many of the examples presented above also contain examples of 'embeddedness'. For instance, an animal or animal's head or leg embedded in a face, or a profile embedded in an en-face (Fig. 3).

The large brooch from Hauge, Rogaland (B4000) (Fig. 5) offers a good example of embeddedness. The one preserved footplate lobe of the brooch represents a face or a mask in which two pairs of animals and one single animal are embedded. The eyebrows, eyes, and nose belong only to the mask and are not parts of any of the animals (Fig. 5a). In the extension of the nose, in the lower end of the mask, however, an animal in high relief stands out like a sculpture from the brooch (Fig. 5b). A similar animal, in the same position, is found in a footplate lobe from Gyland, Vest-Agder (C7455) (Kristoffersen 2000a, plate 13:6). In the brooch from Hauge, two crouching animals are symmetrically placed on both sides of the nose, legs, and lower part of the body in the lower end of the mask, their heads just below the eyes of the mask, and long beak-like jaws are flung along the outside of the eyebrows of the mask (Fig. 5c). The animal heads are bent in an anatomically impossible position, probably to fit the space under and outside the mentioned elements of the mask. Further, the mask is framed by two creatures resembling birds (Fig. 5d). Their claws, or paws, are placed in the upper end of the mask, at the level of the eyebrows. Their heads are placed where the bodies of the inner animals meet their legs, in the lower corners of the mask. Their long jaws, or beaks, are flung underneath the legs of the inner animals and meet the sculptured animal, which forms the lower end of the mask. Apart from making out the contour, and in an impressionistic way being part of the mask, none of these animals constitutes a definable part of the mask.

Some motifs create ambiguity by being embedded, but are not ambiguous in them-

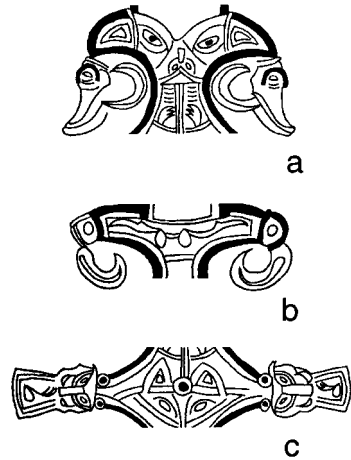


Fig. 6. *Embedded figures: (a) profiles with beaks in the panels which constitute the necks of the bending profile animals on the relief brooch from Ågedal, Audnedal k., Vest-Agder (B3410). (b) Animal legs within the corresponding panels of the relief brooch from Kvåle, Sogn og Fjordane (B6516). (c) Animal legs in the masks on the side lobes of the relief brooch from Ågedal. Reduced scales. Drawings by S. Kristoffersen.*

selves. One example is found on the brooch from Ågedal (B3410) (Fig. 3a), where beaks are placed within the necks of the large profile heads, which bend down towards the footplate side lobes (Fig. 6a). But the beaks themselves do not have an ambiguous relationship with the profiles, as they do not make up any particular part of them. The beaks are just placed within the profiles. In a similar panel in the brooch from Kvåle (B6516), a pair of legs with hooves is placed within the necks of birds (Fig. 6b). Finally, there are animals' legs within masks which do not function as any defined part of the mask; for instance, as in the footplate side lobes of the Ågedal brooch (B3410) (Fig. 6c). Embeddedness in this respect may be an expression of a wish to fill up all open spaces. The art in its developed form generally expresses a clear wish to fill out the entire surface with figures — even the space within the figures.

To sum up, the Migration Period art contains ambiguous figures. They are am-

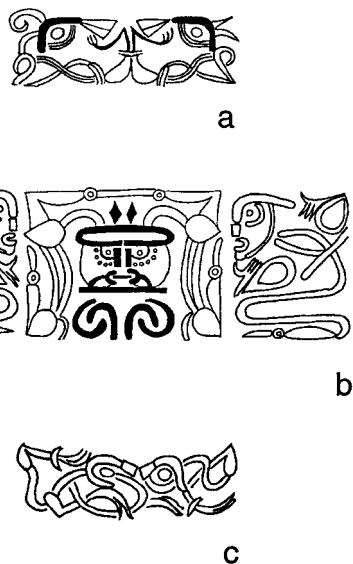


Fig. 7. Ambiguity as broken symmetry: (a) The symmetric composition is broken by the ears and curls of the animal heads in the headplate central panel of the brooch from Kvåle, Sogndal k., Sogn og Fjordane (B6516), by the different position of the hands on the 'scabbard mounting' from Amdal, Farsund k., Vest-Agder (C25077) and the lack of symmetrical composition of the antithetical figures in the headplate inner panel of the brooch from Syre, Karmøy k., Rogaland (S9269). Reduced scales. Drawings by S. Kristoffersen.

biguous, embedded and/or reversible in a strict perceptual-psychological sense. Yet, 'the ambiguity' of the art can also be traced on other levels, which will be discussed next.

Ambiguity on a compositional or structural level: broken symmetry

The composition of the ornamentation on the brooches is generally symmetrical, as is the form of the brooches. The symmetry is, however, not always carried out consistently. There are examples which show that this break in symmetry is a clear intentional act on the part of the smith (Kristoffersen 1995, 2000b). The symmetry is broken in the small details of the figures. A good example is found in the ears and curls of the, otherwise, symmetrically composed animals in the head-

plate inner panel on the brooch from Kvåle (B6516) (Fig. 7a). An example from a golden 'scabbard mounting', Amdal, Vest-Agder (C25077), is also presented, in Fig. 7b. The strict symmetry of the ornamentation in this object is broken by the different positions of the hands of the rear figures (here drawn as the outermost figures). This is most clearly expressed by the upper hands. This might also be expressed by the lower hands, but the left hand is so badly executed that we are not convinced this was intended by the smith.

Lack of symmetry might also be present, not so much by being 'broken', as by simply not being carried through consistently. For instance, the general pattern of the ornamentation and structure of the brooch from Syre, Rogaland (S9269) is made up of symmetrical design. Yet, the general symmetrical design of the brooch is broken by the animals in the headplate inner panel. The two entangled animals are placed in an antithetical position (Fig. 7b), and one might expect a symmetrical composition. However, neither the way the entanglement is carried out (and the direction of the bodylines and limbs), nor the details in the execution of the heads, are symmetrically composed. Broken symmetry may be regarded as an expression of: 'what is, and yet is not' — 'something in between' (Kristoffersen 2000b:271). The motif gives an immediate impression of symmetry, but on closer inspection, it does not. This may also be interpreted as an expression of ambiguity: the patterns are both symmetrical and non-symmetrical in very subtle ways. They offer surprises for the vigilant observer, and attract attention.

Ambiguity on an iconographic level: mingled species

In most cases, it is difficult to give an unequivocal interpretation of a figure as being human, animal or bird. The figures are compositions of elements from these three different groups of species, resulting in an iconographic ambiguity. This ambiguous mingling of species must be intentional.

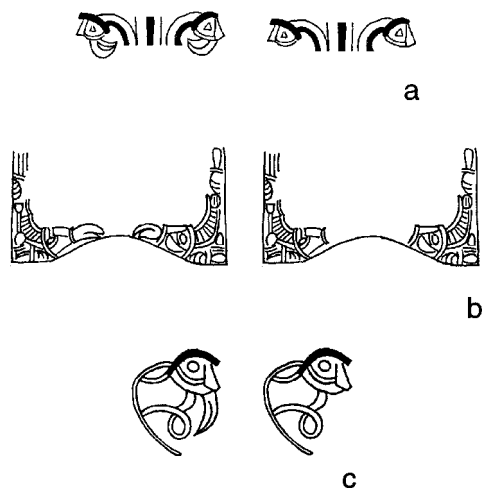


Fig. 8. Ambiguity in iconography, here: mingled species in (a) the side lobes of the small brooch from Nornes, Sogndal k., Sogn og Fjordane (B9688); (b) the headplate inner panel on the brooch from Trygsland, Audnedal k., Vest-Agder (KDCCCXXXII); and (c) the large heads on the lower side of the headplate of the brooch from Hauge, Klepp k., Rogaland (B4000). Reduced scales. Drawings by S. Kristoffersen.

There even seems to be a development towards increasing ambiguity in the brooches over time. In the earlier brooches there are relatively readily definable animals, humans, and birds placed together, such as, for example, in the lower part of the footplates of the two brooches from Tveitane, Vestfold (Kristoffersen 2000a, plates 3:2 & 4). In later brooches, similar motifs become increasingly mingled and ambiguous, as in the brooches discussed below and presented in Fig. 8.

The ambiguity of such figures (in Style I) has been interpreted as 'Tiermensen' ('animal-humans') (Haseloff 1981:111-133, Roth 1986:21-22). The motifs are suggested to express different forms of transformations (Vierck 1967:137-139, Kristoffersen 1995:12-13), or, rather, the potential of transformations between human and animal form. Such transformations and their different expressions — 'hamskifte', 'dyrefølge', 'alter ego', 'Seelentier' — are related to the Germanic

concept of 'the soul' and represent transformations which are fundamental to ecstatic techniques involved in 'seid' and shamanism (Vierck 1967, Mundal 1974, Roth 1986a & b, Steinsland 1990, Kristoffersen 1995). The 'Tiermensen' are artistically expressed as animals with a human head, often with a helmnose. Yet, it is not absolutely clear whether all of these faces are human. Sometimes they are difficult to define because it is unclear whether the limbs are animal limbs or stylized human limbs. The crouching position makes the bodies and limbs easier, or more likely, to interpret as belonging to animals. The headplate of the smaller brooch from Trygsland (KDCCCXXXII) (Fig. 4d) may represent one example. Therefore, instead of imposing an uncertain identification on the motifs, it might be more precise to accept them as an intended mingling of the species, and through the ambiguous mingling, a strong potential for expressing ritual transition from one to the other is created.

There are a number of convincing examples of figures that can change from 'being' animal to human simply by adding or removing some of the elements of the figures. A typical example is the bending profile heads on the brooch from Nornes (B9688) (Fig. 8a). Without the beaks, the heads are human. With the beaks, they can be seen as birds' heads, with the human nose as a part of the outline of the bird's head. Likewise, in the headplate of the larger brooch from Trygsland (KDCCCXXXII) (Fig. 8b), the heads become human if one excludes the beak when perceiving the figure. Simultaneously, it is an animal, an animal with a beak, a bird with a beak, or a human being. Similarly, in the brooch from Hauge (B4000) (Fig. 8c) the large heads on the lower side of the headplate may 'change' and become human when perceived without the beak.

Exceptions

The later brooches from Vest-Agder, Rogaland and Sogn og Fjordane are where the ambiguity, reversibility and embeddedness

reach their ultimate expression. This took place during the development of Style I with its progressive alienation from classical naturalistic expression. It is, however, not present, or equally present, in all the brooches. There are brooches and motifs within brooches in which there is no ambiguity to be traced. There are also examples in which the ambiguity may not be totally convincing. One example where none of the figures is ambiguous is the younger Kvåle brooch (Kristoffersen 2000a, plate 35:1), which is one of the best-executed brooches, where the smith seems to have had full control over the figures he created. Here ambiguity is present in the form of broken symmetry only, whereas none of the figures have any other aspects of ambiguity.

DISCUSSION

Gestalt formations

Higher-order mental processes are involved in the perception of ambiguous figures (Long & Toppino 1994:605). Gestalt formation is a creative perceptual process that is highly activated when one is confronted with ambiguous stimuli. Simply explained, it is the process of 'making sense' of something that is unclear. Gestalt formation is perhaps best known from the Rorschach inkblot test (Rorschach 1921). This psychological test implies that one must create interpretations of symmetrical inkblots. The ambiguity of the stimulus material (inkblots) stirs a creative cognitive process in the perceiver (observer). The creation of the objects 'seen' takes place in the observer's mind. During that process the whole stimulus, or part of it, is 'used' to create one or several objects. This ability to perceive figures in the Rorschach inkblots is regarded as indicative of important psychological resources: the ability to see meaningful 'wholes' or entities in a chaotic world, problem-solving ability and ego strength (Killingmo 1988:149-232, Klopfer & Davidson 1962:146-150). Based on the knowledge of cognitive processes involved in the percep-

tion of ambiguous stimuli, we suggest that the Migration Period art, with its ambiguity, split representations and other symmetrical properties, may have activated, or at least referred to, these creative Gestalt-forming processes during the Migration Period, particularly in the more 'gifted' observers. It seems possible, even likely, that this effect and/or referral was intended.

Neurological mechanisms

Perception of ambiguous figures has been neurologically located within the brain. The switching between different objects perceived in ambiguous figures probably takes place in the frontoparietal cortex, and interhemispheric switching mediates the perceptual rivalry between the two objects seen. The right frontoparietal cortex is responsible for the visual selection process, and each cortical hemisphere represents one of the two alternating/rivalling objects seen (Sengpiel 2000:482, Miller et al. 2000:383). Perception of ambiguous figures may be affected by voluntary control (Lieber & Burk 1985:1307), fatigue and set effects (Long et al. 1992:609); but basically, the 'reversion' or 'alternation' of the figures takes place automatically and involuntarily. Electrophysiological correlates of unconscious stimulus processing have been found to be similar in different age groups, which is interpreted to account for a basic, and general, neurophysiological mechanism in unconscious processing (Beteleva 1996:582).

The more complex the reversible figures are, the more time they require to be perceived (Masulli & Riani 1989:501). Curvilinear shapes are more difficult to reflect in the brain and require more time to be manipulated mentally (Radilova et al. 1997:129). Similarly, cognitive perceptual processes require more steps in the perception of three-dimensional reversible figures than perception of two-dimensional figures (Radilova 1983:76). This may give a clue to explaining why the brooches are so fascinating: the patternings not only ambiguous, but

also abounds in curvilinear shapes and three-dimensional reversible figures (the deep relief), and therefore requires time and attention to be perceived. We believe that the attention-requiring quality of this art could be used for several purposes, which will be elaborated below. We find every reason to believe that the same, general neurological mechanisms were involved in the perception of ambiguous figures in the Migration Period, as today. We believe that these perceptive processes, with their neurological concomitants, played a role in catching and focusing the observers' attention, which, in turn, could influence their state of consciousness.

Changed states of consciousness, particularly 'flow' and 'aesthetic arrest'

Neurophysiological correlates to different states of consciousness have been documented (Fischer 1971:897). A considerable number of mental states are available to consciousness over a short period of time (Fischer 1971:898, Gisiger et al. 2000:255). Among the more peculiar are trances, ecstatic states, meditative states, hypnosis, and hypnomantic thought (Fischer 1971:898, Obeyesekere 1981:169, Camino et al. 1999:24); but also 'lighter' states such as 'flow' and 'aesthetic arrest' may be counted among them.

The degree of imaginative involvement in ambiguous, reversible figures is positively related to hypnotizability (Pettigrew et al. 1982:68). It has even been suggested that the experience of obsession (possession by a supernatural being) is interpretable as a form of the reversible-figure phenomenon (Figge 1972:149). During obsessions, the medium's experience ranges from the normal personality and continuity of ego-consciousness, to a total elimination of ego-consciousness and replacement by the spirit possessing the body — and back again. From later literary sources it is known that ecstatic practices and prophecy (prophetic 'seeing': 'seid') were important in both religion and warfare during

the Iron Age (Magnus 1988, Kristoffersen 1995:12-13, Hedeager 1997a:100-115, 1997b, Høilund Nielsen 1999:332). It may seem far-fetched, but not impossible, to suggest that the prominent use of ambiguous figures in the Migration Period art may refer to practices of entering altered states of consciousness (mental 'transformations') during religious or semi-religious situations (for instance: initiation, healing, prophesying, and preparation for battle).

The alternation of ambiguous figures gives an impression of movement. It may be felt that the different figures compete for attention, and therefore a 'perceptual rivalry' (also called 'perceptual conflict' (Bokander 1967: 10)) takes place. This illusion of movement between rivalling figures is fascinating and attracts attention, and is here suggested to play an essential role in the psychological effect of such figures. If these figures fascinate us today, they must have had an even stronger fascination in a period when television, movies, and computers did not exist. The activation of cognitive creative (and playful) processes to form *Gestalten* and to find new 'hidden' forms may also be experienced as stimulating and rewarding. One may therefore speak of a 'motivated perception' (Gisiger et al. 2000:251) where the task by itself becomes rewarding: to discern more figures and figurative connections within the stimulus material. Such playful, creative 'problem-solving' tends to induce a particular mental state of consciousness, called 'flow' (Csikszentmihalyi 1975: 40), also termed 'type B-state' (Koch 1956). This state is characterized by fascination, concentration, focused but relaxed attention, joy, absence of self-awareness, and complete absorption in an activity which requires some, but not too much, effort, and which is intrinsically motivated (self-reinforcing) (Eckblad 1981). This mental state may happen any time, whenever one becomes absorbed in an activity, and can be characterized as a semi-hypnotic (or light hypnotic) state. 'Flow' or 'type B-state', thus described,

seems to be an important aspect of the phenomenon of 'aesthetic arrest'.

The brooches are conspicuous and aesthetic. Their great size, intricate patterns, the glimmering gilded surfaces with a relief so deep that it gives an almost three-dimensional impression, all these characteristics may contribute to an experience of aesthetic arrest when these objects are perceived (Kristoffer- sen 2000:267). Aesthetic arrest is described as:

The instant wherein that supreme quality of beauty, the clear radiance of the aesthetic image, is apprehended luminously by the mind which has been arrested by its wholeness and fascinated by its harmony is the luminous silent stasis of aesthetic pleasure (Campbell 1976:350).

When the fascination is strong, 'one gives over the whole force of one's spirit to the act of perceiving, . . . losing oneself in the object. . . .' (Campbell 1976:351). A related feeling is 'the sense of awe': a feeling of perceiving something wonderful, powerful, particular, ineffable, and out-of-this-world (Campbell 1976:352-353). The loss of self-awareness and the strong attention-consuming properties of 'aesthetic arrest' also qualify it to be described as a semi-hypnotic state. Needless to say, such perceptual qualities are often found in objects (including buildings) that have a religious, magical, and/or political function. Such objects are designed to induce respect and devotion.

We suggest that the discrete perceptual qualities and the overall aesthetic qualities of this art join forces to invite the observer to involvement and fascination. This takes place both at close hand and, to a certain extent, at a distance. Earlier, we suggested that the art referred to practices involving changed states of consciousness. Here, we even suggest that the art has perceptual qualities that actually serve to induce such changed states of consciousness, although perhaps on a smaller scale — the observer may actually have been unaware of it — it may have taken place unconsciously.

Unconscious cognitive processing and subliminal perception

There are multiple levels of cognitive processing, also within those cognitive processes that contribute to emotional experiences. Without going too deeply into the difficult distinction between conscious and unconscious processes, we simply state that it is commonly accepted that substantial cognitive processing takes place on an 'unconscious' or 'subconscious' level (Spitz 1993:231, Gisiger et al. 2000:255). Unconscious processing may take place after subliminal perception. That is, when a stimulus is presented slightly below the threshold for ordinary attention and conscious perception. It is possible that some of the switching between the ambiguous figures, the perceptual rivalry (described above), takes place so swiftly as to approach the threshold for conscious processing of the stimulus material: 'It is there, and it is that — but in an instance, it is something else, or gone!' Subliminal perception has been regarded as a subtype of implicit perception (Kihlström 1996:23). Implicit perception means an unconscious perception, and has been proposed to contribute to the development of abstract knowledge (Berry 1996:203). Unconscious cognitive processing is a part of unconscious, implicit learning (Vinter & Perruchet 1999:871) and plays an important role in complex mental processes such as problem-solving and creativity (Bowers et al. 1990:73, Spitz 1993:233).

Unconscious processing of stimuli, also subliminal stimuli, has been suggested to account for the phenomenon called 'intuition' (Spitz 1993:234). Women seem to have a greater ability for unconscious processing of environmental stimuli than men (McGivern et al. 1998:223). This may explain why women are traditionally regarded as having more intuitive abilities — abilities connected to the functions of 'seid', foretelling of the future.

Only women used the relief brooches (Nissen Meyer 1934). Women seemed to be the gender to which the animal art was particularly connected. These women's roles

in connection with 'seid' (prophetic 'seeing'), shamanism, and other religious functions have not been, and can probably never be, completely proven beyond any doubt. However, there are strong indications, both from their grave equipment and from later literary sources, that these powerful women, 'husfruer' (literally: 'housewives') did indeed have such important roles in the Migration Period society (Kristoffersen 2000a:130–142). These roles not only demanded, but were also based on the role-bearer's intuitive abilities. Yet, intuitive abilities may well coincide with other creative and problem-solving abilities. The important role of the 'husfrue' was not restricted to religious, or semi-religious domains. The role was also closely connected to the complicated technology of textile production, which, in turn, was connected to economy. The 'husfrue' role definitely relied on intellectual capacity. Yet, paradoxically for us today, textile production was also metaphorically connected to 'seid'. Therefore, a combination of intellectual and intuitive abilities seems to have been required of the 'husfrue' — and more importantly for our analysis, these different realms of abilities seem to have been conceptualized as a unity during the period in question. These abilities gave status to those who possessed them, and were represented and activated in their objects of art and ornaments.

Motivated perception

The percepts (the figures or objects perceived) may in themselves reinforce the perceptual act (Soudkova 1969:89). In simple terms: it is exciting to perceive them. Thus, one may, for one reason or another, enter a psychological 'set' to see reversals (Leppman & Mefferd 1968:1167). As stated above, the reversion of the reversible figures is an automatic process; the percepts seem to 'rival' all by themselves. Yet, a certain voluntary control is possible, and there seem to be stable individual differences in the ability to control this perception voluntarily (Liebert & Burk 1985:1307). However, when

one of the perceived objects is strengthened (or reinforced), it becomes the preferred percept; ambiguity diminishes, and it becomes more difficult for the person to restate the alternative percept through perceptual mechanisms (Rianiet al. 1986:191). Yet, this may not have been the only possible motivating factor in perceiving certain figures.

The visual information processing may also be influenced by instructions. The instructions given or the particular situation the person is involved in may produce a 'perceptual set' which influences the way objects are perceived and interpreted (Krech et al. 1969:172). In addition, the visual information processing is also largely determined by previous perceptual experience, and stored in some type of long-term memory (Radilova 1983:76). This means that if instructions on how to perceive and interpret the patterns on the brooches in a particular way were given, this would have strongly influenced the perception of them and their interpretation. It seems probable that such instructions (if present) may have been related to a content pertaining to mythology, ritual, or to the social structure. Thus the identification of certain objects may have been rewarded through social reinforcements (such as verbal approval); for instance in connection with initiation rites. This means that the perception may also have been socially motivated (Bokander 1967:10). It may be far-fetched, but not impossible, that the ability to 'see' many figures and thereby be able to 'read out' the content or message of the object may have been a socially attractive and reinforced ability — particularly if the content was intentionally hidden in the complexity of the patterning.

Condensation of information

The objects are cast in bronze or silver, and gilded (Kristoffersen 2000a:266). They are strikingly dazzling and beautiful to behold today, and may have had even stronger awe-inspiring effects at the time when they were in use. In those days, people were not sur-

rounded by as many colourful objects as we are today, and particularly not shining, glittering, sparkling objects. In the Migration Period, such objects were rare and always exclusive. Most of the brooches have sizes that clearly exceed the size of their purpose as clothes-fastening devices (the largest is more than 20 cm long). Therefore, one gets the impression that the purpose of these objects must have gone beyond their practical use.

We can think of at least three reasons why certain objects exceed the size necessary for their practical function. One is their 'show-off' effect, their status-representing function. Certain objects are 'status symbols', and the 'amount of' status of the owner is shown in the size of the objects. (Modern examples are: cars, and (in Norway) holiday homes (*hytter*)). Another reason for extraordinarily large-sized objects is when they have to be seen by large groups of observers — objects used in (religious) ceremonies, processions, and other public display are often 'oversized', simply to be seen. However, the size may also in this case be connected to the status of the bearer or owner, and therefore be doubly determined. (Examples are: chalices, Bibles for use in churches, regalia, flags, masks, and processional costumes.) A third reason for 'over-sizing' an object is when it must contain a certain number of symbols, either conveyed as text, pictures or other symbols. The space needed for these symbols may make enlargement of the objects necessary. (Examples are: crucifixes with 'The Lord's prayer' on the reverse side, buttons on uniforms, and ritual objects such as candleholders.)

All three reasons for 'oversizing' an object may pertain to the Migration Period brooches. Two of them are obvious: the brooches were 'status symbols', worn solely by women of high prestige. They were used, at least, in connection with ritual ceremonial occasions when a relatively 'great public' was assembled and the paraphernalia had to be seen. In addition, we suggest that the third reason may also have been a relevant

determinant: the brooches should convey, and therefore contain, certain symbols and symbolic messages. Despite the intricate compression (through ambiguous figures), the semiotics still needed ample space for their expression.

What all ambiguous figures have in common is that there is not necessarily one correct and complete interpretation of the stimulus material. Several, perhaps multiple, interpretations are possible. When several figures, in this way, are located in the same small area, this implies an enormous compression of information within the stimulus material. We could call this a 'condensation of information'. The opposite takes place when all the information is 'unfolded', when the figures are 'seen' or 'interpreted'. Then the interpretations cause a considerable expansion of the 'text' that lies in the stimulus material. Therefore, we could say that such stimuli may function as a sort of 'hyper-text' where (additional) information is hidden 'between the lines' of the more apparent and obvious patterning and within the broken symmetry. Thus, it is possible that the patterns on the brooches referred to myths, legends and stories, to symbols and rites, social structures and roles, which the observers could 'read' from the pattern just as Medieval people could 'read' the Biblical stories from the icons in the church, and interpret other Christian visual symbols and sacred objects.

On a more subtle level, such patterning may express archetypal symbols and content (Jung 1959). To 'see' a mixture of human and animal forms has been suggested to be characteristic of the processes that relate archetypal content to an ambiguous stimulus material (Lewis & McCully 1994:1). Archetypal symbols may trigger subconscious or unconscious cognitive processing and emotional reactions (Jung 1959). Therefore, when expressed in costumes and personal ornaments, archetypal symbols may be used to support living myths on an unconscious level (Morgado 1993:37).

Cryptification of information

The condensation of information also opens up for the possibility of conveying coded and cryptic information. Multiple interpretations of ambiguous stimuli may be used to convey several layers of meanings. Some of them may be coded, or cryptic, hidden messages or symbols, intended for the selected 'informed observers' and not for the ignorant (Morgado 1993:36). These 'informed observers' may be special because they are members of a specific rank, gender, or particular group (initiated persons, a profession, or a secret society). Even today, membership in certain organizations (such as Freemasonry) or a particular status (such as having attained a doctoral degree) is signalled by finger-rings which only the informed observer can understand the significance of. For the 'ignorant', it is 'just another ring'. Certain fashions and trademark emblems function as signals of class membership today (Morgado 1993:36). Similarly, a particular location of an earring on males was, until recently, a sign of homosexuality, intended to inform other male homosexuals. It took some time before this sign was generally known, but in the meantime it functioned as a cryptic message. It is possible that some of the figures in the patterning on the brooches were just such cryptic signals of secret group memberships (priestesses, women involved in 'seid', magicians, shamans), fully interpretable only by the other group members.

It is, however, also possible that the patterning referred not to secret, but simply to overt and well-known group memberships such as rank, profession, religious role or affiliation; or it might have demonstrated political or social relationships established through mechanisms of gift-giving/ gift-exchange (Kristoffersen 2000a). The viewers could understand the social code, which also signified their exclusion from, or inclusion in that social group (Morgado 1993:36). And there is yet another possibility: 'group membership' signalled by the brooches might simply have been the family- or clan member-

ship. In traditional Norwegian folk costumes (which were part of a living tradition until the latter part of the 19th century), patterning in the females' costumes could tell us which region the woman came from. The males' costumes, however, were of a more 'over-regional' design. Surprisingly, the patterning on the Migration Period brooches, worn exclusively by women, similarly shows regional variations compatible with the hypothesis of a regional (perhaps even family- or clan) association of patterns, whereas the patterning on the male objects (scabbard mountings) does not have this regional differentiation (Kristoffersen 1995:3).

In this way, the patterning, let alone the brooches themselves, could function as symbols of the social structure particularly of the privileged prestigious groups and their ideology. The ambiguous figures could have contained symbols of their propaganda. Through their ambiguous designs, they could have evoked a processing of subliminal visual stimuli which may have been effective in exerting an unconscious influence on the people (Theus 1994:282). Needless to say, this was in fact the art and objects of the highly *influential* people and groups in the Migration Period.

CONCLUSIONS

Primarily, we have suggested that the Migration Period animal art is ambiguous both on a literal, perceptual-psychological level, and on a compositional and iconographical level. Psychological research has shown that our perception of ambiguous figures instigates certain cognitive (and neurophysiological) processes such as Gestalt formation, changed states of consciousness, unconscious processing, subliminal perception, and motivated perception, which, in turn, are variously related to learning, problem-solving, intuition, and ego strength. Ambiguous stimuli must have evoked the same processes during the Migration Period as they do today. It is possible that the art was designed to instigate

these processes. We will not insist on claiming this, but the idea is tempting. Another tentative conclusion is that the art 'referred' to such processes and abilities, just as art from other periods has referred to important aspects of *their* contemporary 'Zeitgeist', or 'cultural situation' (to use a more discreet term).

Secondly, we claim that the art and 'les objet d'art' on which it was expressed was strikingly aesthetic and captivating and that it referred to 'transformations' of various kinds. The patterning itself was executed in such a way that it required considerable attention in order to be properly perceived. This quality could, as mentioned earlier, both induce and refer to altered states of consciousness. Such altered states (mental 'transformations') were part of the religious practice (Eliade 1974, Steinsland 1990, Kristoffersen 1995:13). 'Transformations' are also suggested by the ambiguity of the figures themselves, showing animals metamorphosing into people, legs into beards, and birds into a mask, to recapitulate a few examples.

Finally, we claim that the art, and its objects, could serve semiotic functions. Sociopolitical propaganda, mythological and ritual references may have been conveyed, along with, or parallel to, signs of memberships in certain social groups, certain relations, alliances, clans, secret societies, certain professions, and so on. The semiotic messages may have been public or secret, or both. The dense ornamentation with the entangling of figures and the relatively large objects they were placed on, clearly give the opportunity for a considerable number of messages to be conveyed in this way. Seen from a semiotic point of view, the art may contain both condensed information ('hyper-texts') and cryptic (secret) information.

The Migration Period was a time of great social, cultural and political upheaval and changes (we are tempted to say 'transformations'). Whether there were any 'migrations' in western Norway is difficult to assess, but there is ample evidence to indicate consider-

able political and cultural changes in that region. Although we may be accused of pushing our argumentation too far from its perceptual-psychological foundations, we are tempted to use the term 'ambiguous figures' metaphorically to describe the Migration Period: the structures of society, or rather lack of stable structures, created situations that were indeed ambiguous. The period offered opportunities for social advancement for people with initiative: the strong, ambitious, opportunistic, those who could 'create Gestalten' out of the chaos of the period. Those persons were rewarded: new powerful entities were established, new élites and power configurations.

Without wanting to be too conclusive, we find it interesting and astonishing that the art of this period seems both to activate and refer to psychological processes known to be related to problem-solving, intuition, creativity, ego strength, etc., abilities that were greatly needed and highly rewarded during the turmoil of the Migration Period. Was this a coincidence? When the social structure stabilized again, the intricacy of the art degenerated and lost its structure. We make the tentative claim that there seems to be a connection.

To integrate psychology into archaeological research is a new trend. For us, our cooperative enterprise has been fascinating, challenging, and profoundly rewarding. Simply put: Neither of us could have written this paper alone!

NOTE

1. The portraits, comprising fruits, vegetables, etc., by the Dutch painter Hieronymus Bosch (1450-1516) represent examples of embedded figures.

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