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A MAN IS A DIFFICULT BEAST TO DRAW: THE NEGLECTED DETERMINANT IN ROCK ART

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Abstract

This paper offers a perceptual! psychologist's explanation of the predominance of portrayals of certain views of animals in rock art and of special problems associated with depiction of human figures and, as a consequence, of the special place these figures occupy in iconographic development.

The argument is a refinement of the arguments presented by the author in his earlier paper (Rock Art Research, 1995), and rests upon the notion of the 'typical contour', a perceptual feature of most objects, used by artists in a variety of cultures, sometimes with rather surprising results. it is argued that human beings are inherently more difficult to portray than bovines, equines and similar animals, and that this explains the rather late appearance of depictions of human figures.

There is a readily noticeable and well known difference between the manner of portrayal of animals and that of men in Palaeolithic art; animals are generally portrayed naturalistically whilst men are only sketchily represented. There is much speculation as to the origin of this difference, the explanation of which, according to Kloosterboer (1994), is the touchstone of any theory of Palaeolithic art. Proffered explanations share the view that the difference reflects the tact that animals were of particular importance to Palaeolithic man although they differ as to the nature of this importance, some suggesting magical, others aesthetic and social vectors; important elements will, it is said, inevitably be depicted in their full majesty; sketchy depictions of men are 'enigmatic'(Kloosterboer, 1994). Halverson (1987), who does not examine the difference between representations of animals and men, thinks that Palaeolithic art was non utilitarian and a result of a cognitive game engaged in for its own sake. This very hypothesis strengthens the question implicit in Kloosterboer's critique: Why was the cognitive game played by different rules when animals were concerned than when human beings were concerned?

The present paper addresses this question and attempts to offer an answer by considering perceptual aspects of the task of depiction. It concerns not just Palaeolithic art but ail rock art, and indeed, touches upon other art 'schools'.

In order to portray an object by means of a line, the artist needs to detect an appropriate line from the object's surface, and to translate it onto the surface that he is decorating. Perceptually speaking, the central element of this process is that of detection of an appropriate line. Most solid objects have such lines because surfaces of solids, spheres excepted, do not bend uniformly in ail directions but have lines and points of pronounced change. These features are perceptually salient and when sufficiently pronounced form typical contours. A typical contour of a solid is defined (Deregowski, Parker and Dziurawiec, (1996) as a tine of salient curvature of the surface of a solid. Mathematically speaking these fines may be defined as globally defined curves connecting points of maximum curvature, whose principal direction corresponds to minimal curvature. Perceptually speaking these are the fines that strike the eye, and delectability of such contours varies greatly among objects. When the contour is clearly pronounced and when it lies in a plane its shape is easy to detect. This is so in the case of flat lamellar or nearly lamellar objects such as, say, leaves, or **human hands when held flat**. Perceptual salience of the typical contours is however much affected by deviation from planarity (a flat leaf or hand is easy to draw, a curled leaf or folded hand very difficult). The contour can also lose its salience by becoming less pronounced as an object changes shape, even though this contour remains planar. For example the typical contour of a tortoise, which normally lies in a horizontal plane, decreases in salience whenever the animal pulls in his head and increases whenever he puts if out.

Objects which change their shape radically are difficult to draw because their typical contours change as the models change their shape. All animals change their shape as they move but the changes are not equally pronounced in all cases. Consider a cat. A cat's shape is entirely different when the animal is seated than when it is standing and different still when it is curled up asleep. A seated cat's spine is bent through about 50 Degrees, a standing cars spine is largely straight, while a sleeping cat's spine forms a circle. In consequence of this variability an artist cannot derive an enduring, all purpose, representation of a cats shape. It simply does not exist, although some parts of a cat's body, e.g. its head, have a stable shape. Unlike the linguistic label 'cat', which attaches to the animal whatever its shape, the depiction changes markedly with a cat's shape. Other animals notably those of equine and bovine groups show markedly greater shape invariance. They have therefore more <u>stable typical contours</u> that are easier to abstract. To summarise, a typical contours delectability is affected by ifs salience (which is affected by its pronouncedness and its planarity) and by its permanence. Since a contour's detectability is the primary determinant of the ease of drawing, it affects the difficulty of artistic models.

In the case of most animals a dominant plane containing the critical contour is to be found. it is clearly present in the equines and the bovines and if is easily seen in the vertical plane passing through the animal's spine when the animal stands upright. Superimposition of the out line of the animal contained in that plane onto any flattish surface provides a distinct outline. Indeed this effect is so strong that <u>recognisable drawings need contain only a segment of this outline</u>. Such segments frequently selected for depiction are the profile views of the head and the outline of the back of the animal, as shown in Fig. 1. However, when horned bovines are drawn the method described encounters a localised but significant difficulty. The typical contour of the horns is not coplanar with the typical contour of the animals' back - indeed the planes containing the two contours are, when the animal is looking straight ahead, orthogonal. Often the artist using the typical contours of the animal can dismiss such local difficulty by simply <u>omitting to take account of minor typical contours that are at inconvenient angles</u> to the dominant contour; however, cows' horns are a perceptually salient feature, and therefore difficult so to dismiss. If they and the back of the animals are drawn by depicting their planar typical contours, i.e. as if they were coplanar, a **'twisted'** figure results. This, indeed, is often done, as testified by figures drawn from a variety of cultures, shown below. (Fig. 2)

An Australian portrayal of a crocodile (fig.3) Is another example of a 'twisted' drawing. Dziurawiec and Deregowski (1992) report an experiment in which children were required to draw toy crocodile-like animals whose heads, bodies and tails could either be flat or slim so that their typical contours were either in the vertical or the horizontal plane. Children, it was found, portrayed the animals by drawing their typical contours in consequence. Whenever the animal's typical contours were co-planar, because all its parts were either flat or slim, the animal was drawn as if the artist's line of sight were orthogonal to the plane of the contours, but when the typical contours of the animal were non-planar a 'twisted' drawing resulted. This simple experiment supports the notion (Deregowski, 1995) that a fundamental process of detection in the typical contours and their depiction are at the root of the twisted styles.

Man is an even less satisfactory model than a crocodile. The typical contour of a man's head is contained in the median plane (the vertical plane) equidistant from both eyes and passing between them, and along the ridge of the nose. This makes silhouettes of the head very meaningful and easy to recognise, and made them once a popular form of art (Deregowski, 1984, Parker, 1990). However, the typical contour of the torso is in a plane at right angles to the plane of the typical contours of the head. Legs have a faintly pronounced typical contour running along the shinbones. Feet present special problems as they have two principal typical contours, of which one is markedly stronger than the other. The weaker contour runs along the two non horizontal ridges shown in Fig.4 and the stronger contour runs along the horizontal ridge.

A depiction of a man consistently using typical contours would therefore comprise a profile of the head, a front view of the torso and side view of his legs with his feet being drawn either in side view or as seen from above (or below) depending on the decision as to how the 'local difficulty' caused by two competing contours of the feet is resolved. If it is resolved by following the weaker contour that, however, is coplanar with the dominant contour of the adjacent elements viz. the leg, an 'ancient Egyptian' depiction results, as shown in Fig. 5. The Ethiopian creator of Fig. 6 preferred, however, to use the stronger contour.

Fig.1 The back line of a mammoth
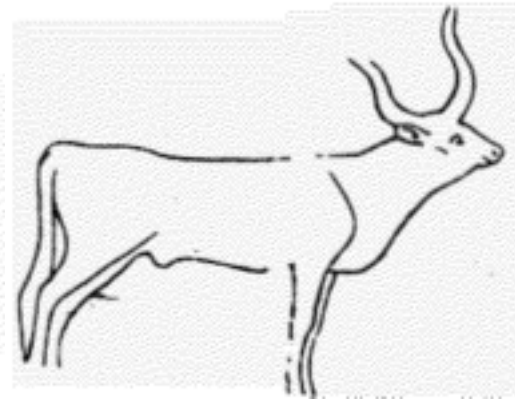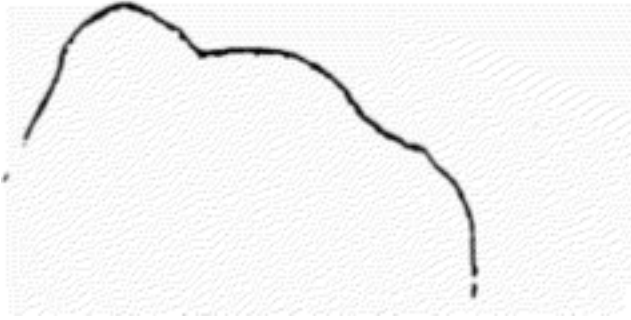
Fig. 3 Australian Aboriginal crocodile
(after Chaloupka 1984)

In addition to these difficulties brought about by the non co-planarity of the typical contours human features present yet another difficulty, caused by the eyes. This arises because two similar elements symmetrical about the vertical line tend, as a rule, to be perceived as co-planar. (The effect is readily demonstrable in a laboratory by presenting observers with an apparatus looking like a half open book. On the opposite pages of this book, flat designs are placed which are either similar or not and are arranged either symmetrically or asymmetrically. The observer is exposed to a variety of such stimuli, and after each exposure asked to reproduce the angle between the 'pages of the book'. The results show that similar designs symmetrically arranged induce the observer to open the 'book' further, to make the 'pages' more nearly co-planar than do other arrangements of designs).

The eyes or the eye spots therefore imply yet another plane that in the case of human beings is orthogonal to the plane of the typical contour defined by the profile of the head. Furthermore, both these intersecting planes are readily apprehensible from a large number of viewpoints and are therefore an enduring source of perceptual conflict. Such conflict is much weaker in the case of many animals. It is certainly much less in the case of grazing animals. There is only a narrow compass within which an observer can see both eyes of, say, a horse, and this compass is such that the horses' typical contour is then not visible. In contrast when the typical contour of the horse is plainly displayed, only one eye is seen. Since ethology (Hinton, 1973) has shown that the eye spots are of particular importance in the animal world, this plane implied by the location of the eyes of a human being is likely to be perceptually distinct and therefore to complicate derivation of the depicting line further.

Fig.4 Outlines of feet of 'Boys Eating Mel!on and Grapes' by Munilo. The ridges along which typical contours run are clearly mark~~ ~

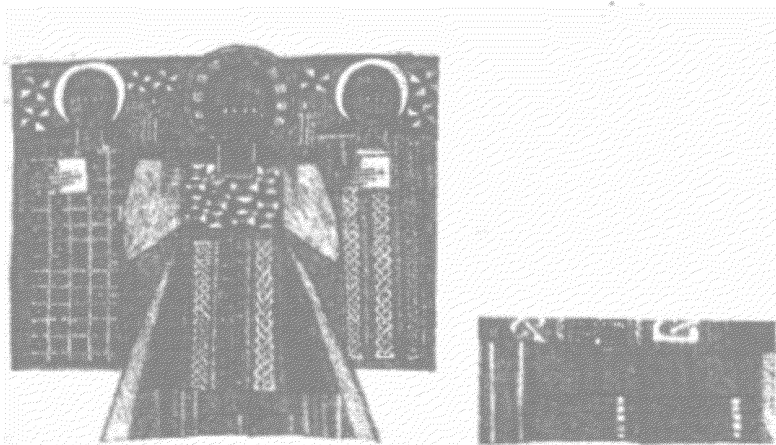*Fig.5 Typical depiction of a leg in an Egyptian painting. (After Michalowski, 1969)*

Fig.6. Saint mark and his acolytes as depicted in a I 7th century Ethiopian manuscript. Note the manner in which his feet and hands are portrayed. Some of the readers would have noted, although the artist obviously has not, that the Saint's hands are wrongly drawn (the right hand is drawn on the left and the left on the right, a result of drawing the typical outline from memory). The typical outlines are, however, correct. This accords with the tenet that typical contours are of primary importance.

To summarise, human beings present a number of planar but mutually non coplanar typical contours, as well as an implicit plane of the eyes and all these planes contend to be presented in the plane of the picture. In addition the shape of a human being is more variable than that of many frequently encountered animals. It is about as elusive as a cat's; an upright man has an entirely different shape than a squatting man and different still from that of a man sitting astride a plank. This variability makes derivation of a representative line of a man's shape difficult. **A man is therefore a difficult beast to draw.**

A variety of solutions is available to the artist faced with these difficulties. There is the radical solution of *abandoning depiction by outlines* altogether and using instead only the central lines of various elements. *Men thus depicted become pin figures*, their limbs and bodies become straight lines and their heads but eyeless blobs. Such depictions are common in Bushman art (Fig.7) (but even so concessions are often made and typical contours are used to depict the nether regions of the models). If the contours are not abandoned then the only strategies are those involving selective depiction and deliberate omission of various typical contours or those combining on the plane of the picture, those features of the model that are not coplanar.

In the case of human faces, as mentioned above, such competing and non coplanar features are the profile and the frontal view showing both eyes. A conflict thus arising leads sometimes to depiction of curiously contorted faces, which are found in a variety of cultures, consisting of a typical profile outline and yet showing both eyes. Figure 8 shows such a portrayal of a devil's head in a thirteenth century Spanish painting. The devil, one presumes, has a head that is essentially human but is crowned with a pair of horns grown in the manner of a cow's horns. It affords therefore perception of two orthogonal planes, that associated with the profile and that associated with the eyes, just as a human's head does, and in addition there is a plane defined by the horns that is about parallel to the plane defined by the eyes. The Spanish artist attempted to portray both orthogonal views; in consequence the devil's face is badly twisted. (One should perhaps note here that *the resulting grimace is not related to the devil's moral character,* angels were drawn with similar grimaces by followers of that particular Spanish tradition)

Fig.7   A Bushman picture (after Pager, **1972**

Fig.8 A devil depicted in a mediaeval Spanish painting. Note the combination of a profile view of the face with depiction of both eyes. Her left hand is drawn by 'folding over' the typical contour, whilst her right hand shows that it is difficult to portray hand other wise than by using typical contours.

A conceptually similar distortion occurs in an illustration in the seventeenth century Ethiopian manuscript to which we have already referred, showing ail three figures en face (i.e. The artist has entirely ignored the plane of the profile) and showing the locally more salient contour of the feet Note too that the saint's hands are held so as to render them planar and therefore provide the artist with a readily depictable contour. Of all the members of the human body, that which changes its shape most dramatically is the hand. When it is flat it is easy to portray. Since the salience of the outline is increased by increasing its complexity, a hand's outline is enhanced by spreading of the fingers. An enhanced outline leads to greater ease of recognition, and incidentally, to the IFRAO's logo. Such pictures that are tracings or impressions made by placing hands against the rock face (thus practically achieving the ideal of the typical contour being coplanar with the picture's surface) are known in rock art; in contrast, other depictions are extremely rare, for *what is very difficult to draw is best left un-drawn.*

This unwillingness to draw a difficult figure does not affect solely depictions of human beings; as one would expect this effect is also found in portrayals of animals. Thus Leroi Gourhan (1982) in his analysis of the frequencies with which various species are depicted in rupestrian art in Dordogne shows that horses and bovines predominate and constitute about 60% of ah depictions of animals, whereas feline animals constitute only 1.3%. Furthermore, as the former group can be increased by inclusion of other animals having similar perceptual characteristics as far as the shape of their bodies is concerned: stag (5.1%), hind (6.2%), ibex (8.4%), reindeer (3.8%) and rhinoceros (0.7%), the ratio of the frequencies of portrayals of the felines to those of the other animals is in excess of 1:60. The felines are, as shown above, 'perceptually less stable' than those other animals, and are in this respect like human beings. They are also similar to human beings in another respect, the location of their eyes, both of which car be seen simultaneously over a relatively large compass, and therefore define cogently a plane orthogonal to their median plane.

Gourhan's data accord well with the hypothesis put forward; *an animal that is more difficult to depict is depicted less often*. This being so the frequency with which anthropomorphs are found should be about as low as that of felines. It is however about twice as high. (Leroi Gourhan (1967) estimates if as being between 4 and 5%).

These considerations suggest that human beings are drawn more rarely than expected but that they are drawn more often than the difficulties of drawing them would lead one to expect. Presumably some factors other than the dominant factor of difficulty of drawing moderate the outcomes.

This qualification is supported by the frequencies with which various animals are drawn. Drawings of various animals, which according to the perceptual criteria should be about equally frequent, do in fact differ considerably in their frequency. Rice and Paterson (1985) think that the relative meat yield and the relative danger involved in the chase are the two important vectors, and that the art-for-art's sake explanation that Halverson (1987) favours is dubious. This dismissal of Halverson's notion seems rather rushed. If, as the present paper suggests, the ease of drawing is an important factor, then, ipso facto, man was engaged in the process of artistic evaluation as to what should be drawn as an artist and the artistic nature of the act cannot be dismissed. This contention is further sustained by Alpert's (1992) witty article about playfulness in the late Pleistocene age in which she examines portrayals showing that our ancestors 'played with the line' and were aware of such devices as the visual double entendre wherein the same line represents, say, the neck of two horses, or in which two fishes share a single tail.

It is only appropriate that two well known Namibian pictures should now be considered.

Fig.9. The Twyfelfontein lion

Fig. 10.
The White lady" of the Brandberg

One of these is the little lion from Twyfelfontein with its strangely placed paws, and the other is the White Lady, who seems to preside over this meeting.

The argument put forward above suggests that the paws of the lion (Fig. 9) fall into the same category as do the feet of the Ethiopian saint (Fig.6); they are simply portrayals of the animal's feet by means of their typical contours. There is of course a third paw in the picture, and to this, as if is located at the end of the lion's tail, the perceptual explanation cannot apply. The only acceptable explanation, it seems is that suggested by Alpert: '*L'incongruité plaît à l'imagination ludique*'.

The 'White Lady' whom we now know not to be a lady at all, is drawn partly in the 'Egyptian' style; the head is shown in profile and the chest frontally - a twisted depiction therefore results, and she too supports the thesis.

To sum up: it is argued that portrayals of human beings are inherently more difficult to execute than those of bovines, equines and similar animals and that this is reflected in the relative frequencies of portrayals found. Examination of the frequencies of portrayals shows, however, that human beings are more often depicted than felines. Some other vectors must therefore affect the frequencies of various styles of depictions. These influences are, however, clearly secondary to that of relative difficulty.

Acknowledgement

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