



Fig. 3.

be a tendency of respecting a fixed orientation. There is also a possibility that the fixed orientation reflects the situation of the society, i.e. it is moving to one direction and not settled down. Although this kind of discussion is merely based on speculations, it would not be meaningless to try statistical studies.

In this paper the samples of petroglyphs are taken from the figures of the monograph by TASHVAYEVA *et al.* (2001). They were recorded by putting tracing paper on the real petroglyphs, hence they are considered to be quite faithful to original shapes. In the following sections, the process of image analysis to obtain skeletons is explained in Sec. 2, interpretation of these skeletons by constructing a system of codes is shown in Sec. 3, results of the statistical studies are given in Sec. 4. The present methods and results are discussed in Sec. 5.

2. Method of Image Analysis

The figures of petroglyphs expressed as silhouette in the monograph (TASHVAYEVA *et al.*, 2001) were converted to digital data by the use of an image scanner. These data were named after the figure numbers in the monograph and stored in the computer with data format "jpeg". The processes to obtain their skeletons are given below (see Fig. 3). The commands of image processing in the software are given in the square parentheses with *Italic* characters.

a) Change image data format to 16-color bitmap, by the use of appropriate software, such as "Microsoft Paint". Start the software program "Scion Image" and open an image data of bitmap.