

Documentation and Registration of Rock Art

The method

Abstract

The environmental debate of the 1980s influenced rock art research decisively. The attention was focused on the already established problem of weathering, and the museum decided to employ the experience from many years of documentation work on a systematic documentation of entire areas of rock carvings.

At the end of the nineteen-eighties, a systematic re-documentation of the rock art of Tanum was started at Tanums Hällristningsmuseum Underslös as part of an annually recurrent international seminar with the purpose of spreading the knowledge of and interest in the rock carvings in Tanum and to educate new generations of researchers to the so-called Rubbing-method. The rubbings can be said to give a more objective dokumentation of the engravings and the rock surface including damage documentation. The method is now in use in different european countries and are continiously improved in cooperation with the involved countries.

The weathering situation is described as very serious, and it is a frightening thought that future research will have to be based on reproduced material such as rubbings, drawings, and photos.

The primary purpose of the reproduction and publication of rock carvings has always been to make this extensive and geographically scattered material accessible to research of different kinds.

Formerly, it used to be possible to study a reproduced motif on location, if more detailed investigation was necessary, or if the accuracy of a reproduction needed to be verified. It is common knowledge that it is very difficult to reproduce a rock carving one hundred per cent correctly, and it is also known that many studies have been based on incorrect depictions.

But recently, a new problem has arisen: The acceleration of weathering. Today we are in such a serious situation that the rock carvings must be documented in order to preserve the pictorial material - as a reproduction. In the future, research as well as the increasing public interest in prehistoric times must seek information from reproductions. It is a lamentable fact that the surfaces of the rocks are in an extraordinarily critical condition, and many of the rock panels documented within the last few years are simply disappearing. A three thousand-year-old picture tradition is about to disappear.

Environmental pollution

Damages to the environment including weathering of ancient monuments have been in the full blaze of publicity for a long time. The condition of the rock carvings in Tanum is deteriorating drastically these years. The cause is to be found in the changes of the environment created by man, the so-called environmental pollution. Essential factors accelerating the weathering are acid rain, humic acid created in newly planted scientifically managed forests, and environmentally caused changes of the vegetation on the surface of the rocks.

The environmental pollution project

In 1989 The National Heritage Board (NHB) in Sweden initiated an environmental pollution



On this scene the left part of the rock surface is still intact. The weathering on the right part, however, is so bad that one of the ships has become almost invisible. Photo: Gerhard Milstreu

project with the express purpose of examining the influence of the pollution on relics of culture, including the rock carvings.

This was done to get an idea of the extent of the damage. On the basis of the results of the examination, the NHB will adopt measures, acute as well as long-term, of preserving the carvings. NHB, however, point out that established techniques and methods do not exist, and therefore a great part of the project will consist in developing such methods. The project also includes documentation and registration of the rock carvings as they appear today.

Developing new methods

The degree of weathering of the rock surface varies a lot from one rock panel to the next, and even in the same panel.

Some surfaces are intact with undamaged carvings – others are totally weathered, so that figures have disappeared completely in places where we know they used to be.

This situation demands a lot from the method used and from the people using it. Naturally, an intact surface is relatively easy to document, and we can reproduce the figures almost 100 per cent correctly. Not so when the surface has been weathered.

The weathering makes it difficult to reproduce the original motif with absolute certainty, and we must either accept a certain amount of guesswork or omit those figures which we cannot reproduce correctly because of the weathering.

A third possibility would be to mark those figures with a special code which are reproduced with a degree of uncertainty.



This rubbing shows diagonal glacial strikes and a broad vertical rock fissure plus weathering damage all over the panel, e.g. exfoliation top left. Three phallic figures with bent knees, carrying sticks. Under the figures a deer with unusually beautiful horns. After Tanums Hällristningsmuseum .

This is indeed an ethical issue, which has not yet been discussed in the field of rock art research. Which is why we do not have any generally accepted standards for the correctness of our documentation.

Tanums Hällristningsmuseum Underslös, Sweden, (Museum and Rock Art Research Centre of Tanum) has many years of experience with documentation work, and the museum is all the time developing new methods for the various phases of the documentation and also continually assessing the suitability of the methods for different degrees of weathering. The rubbing technique is still the primary method, as no other method shows the surface of the rock including the carvings more precisely. Rubbing or frottage is a totally objective method since it is based on rubbing large sheets of paper laid on the surface with a soft sponge wrapped in carbon paper. The carbon is then fixed by rubbing the sheet of paper with grass, and the contours arise with more contrast. The method reproduces the carved figures and the surrounding rock surface very accurately.

The documentation must be seen as a total registration of the surface, that is figures, different types and degrees of weathering, plus fissures and areas with lichen or moss. The complexity of the actual conditions calls for a differentiated method, which can reproduce the original shape of the carvings as precisely as possible.

The method of documentation step by step:

1. *Localization*

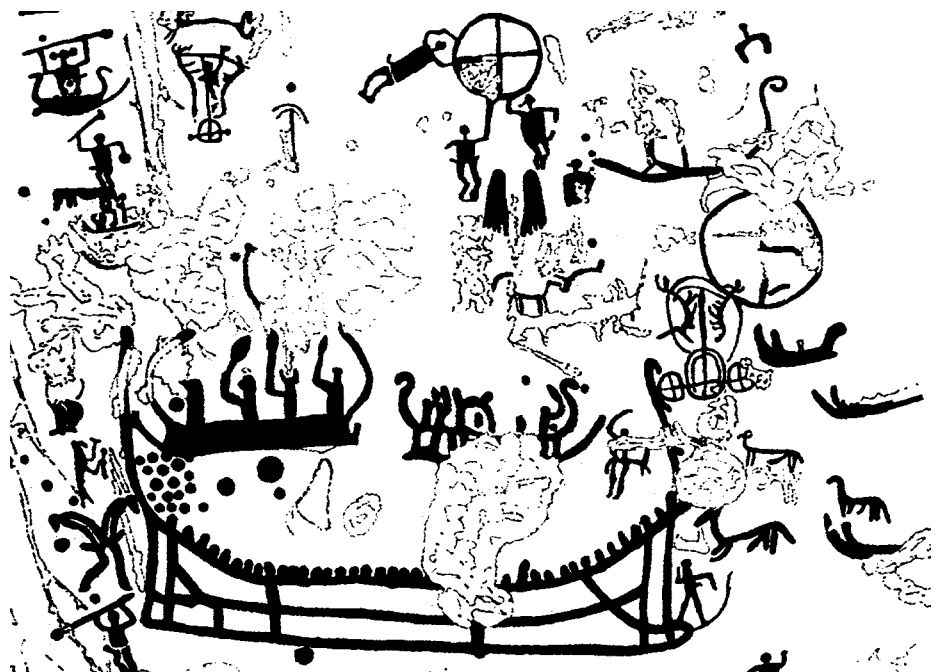
Hardly visible or strongly weathered figures are identified by night by artificial light at an oblique angle and if necessary, photographing them. (You have to check all motifs thoroughly, but especially where the rock surface is weathered.) Motifs are marked with chalk and when they are difficult to distinguish, you also draw the contours.

2. *The rubbing method*

The total panel of carvings is divided into rectangles measuring 100 by 70 centimetres in a system of co-ordinates. The sheets of paper used for the rubbing are also 100 by 70 centimetres. Most often, we use 110 gram paper, but difficult details may require thinner paper.



*The whole panel is covered with paper sheets, size 70 x 100 cm and the carving is documented by rubbing.
After Tanums Hällristningsmuseum.*



The photo-graphic version is based on the rubbings. After Tanums Hällristningsmuseum.

3. *Painting*

The purpose of the painting of the figures is to make them visible and contrasting with the rock, so that the whole panel can be photographed for publication. We have experimented with various dyes which do not damage the granite:

- Polysaccharide ($(C_6H_{10}O_5)_n$) suspended in water. As it is a natural product that is suspended and not dissolved, it may be brushed away easily, leaving no damage or traces on the rock. It is easy to retouch if it proves necessary to correct the figures and therefore it is well suited for work with figures which are difficult to discern.
- Suspended chalk ($CaCO_3$) may also be used. The chalk neutralises the acid environment on the surface of the rock and has a positive effect on the microflora, in that it makes the lichen disappear.
- Suspended quartz (SiO_2) is mild and neutral. Quartz is one of the elements of granite. All three materials have the quality that they go white when they dry up and thus make a good contrast for photography – and they disappear when it rains on them. Rain is a problem, and therefore we are experimenting with harmless rainproof dyes. Painting large panels may take several days, so we need a semi-permanent type of dye which will stay a while before it disappears.

The painting is based on the rubbings, a thorough investigation of the rock surface, and sometimes night photos.



After the rubbing has been completed, the figures are painted with suspended chalk. A precise painting demands a careful study of the carving on the rock surface compared with the rubbing. Sometime, it is necessary to use night photography, too. Photo: Henning Prøhl.

4. *Photography*

- Traditional black and white photos and colour slides.
- Digital photography

Both methods can be processed in various ways, see the section: From Rock Art to

Photographich Art. (1)

5. Registration

- Registration of figures and relevant conditions on and around the panel.

This method is especially suitable when documenting total panels and when producing illustrations for publication.

Objectivity

The basis for research must be the documentation we provide in the rubbings, perhaps supplemented by night photos. This method is the closest you get to an objective reproduction and is defined as the documentation.



Horse with line and disc/circle. Usually interpreted as the horse pulling the sun across the sky. Night photography. Barely visible and / or weathered motifs are usually identified in the darkness with artificial light. The outlines of the motif and the structure of the surface cast shadows by the inclined lighting. Photo: Gerhard Milstreu.

For publication, photographs of carvings painted and processed according to the method described above is a suitable method. But it should be realized that this method relies on interpretation: the person who performs the painting has to interpret, and this method can not be considered a one hundred per cent correct documentation – it has to be defined as an illustration.

Registration

Registration is part of the documentation and can be found in two systems of registration:

- HÄLLRIST – a central database established in 1998 by National Heritage Board (NHB) with the purpose of collecting all data on documentation and registration in Sweden.
- HELIOS – the database developed by Tanums Hällristningsmuseum Underslös, which has been in existence for some years and collects data from our own project: re-documentation in Tanum.

These two databases are now being co-ordinated.

Aspects of the registration:

- Identification of county, parish, name of panel, Raä number, name of map, and coordinates.

- References to earlier registrations
- The object: the dimension and orientation of the panel, the type of carving
- The type of figures
- The environmental situation on and around the panel
- Condition: Weathering damages, vegetation



The Fossum panel is being photographed. Every year thousands of tourists are visiting the Fossum rock carving , which is one of the very few painted panels in the World Heritage area. Photo: Henning Prohl.

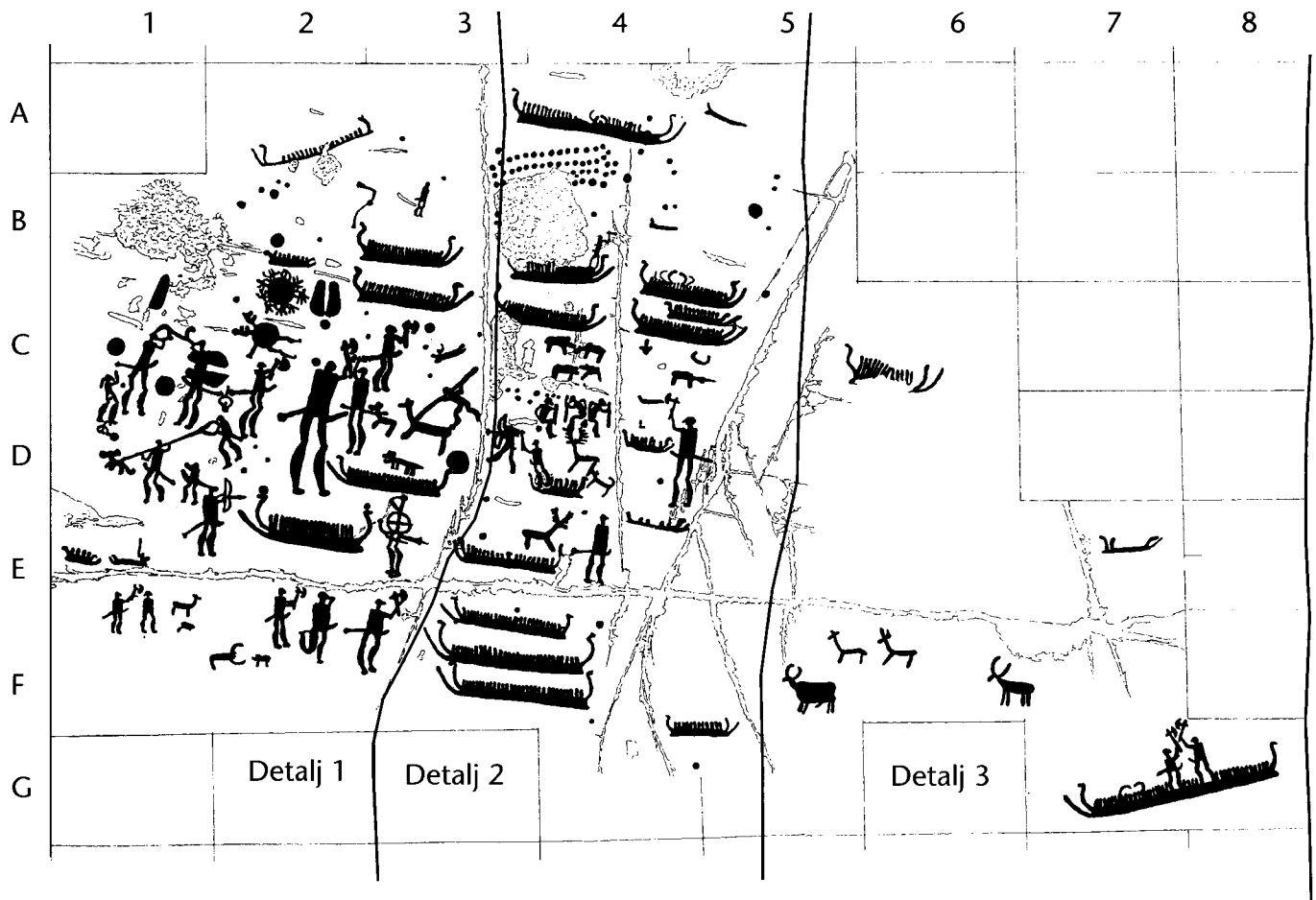
System and catalogue

The documentation project produces an enormous material consisting of thousands of sheets of paper, and this demands a cataloguing system which makes it possible to quickly identify a particular carving or figure, or the degree of weathering at the time of documentation.

The panel is divided into rectangles the size of the paper sheets (100 by 70 cms) arranged in a system of co-ordinates.

For every panel, there is a so-called work file with two corresponding systems of co-ordinates (part A and part B), in rectangles, which each represent a sheet of paper on a scale of 1:50.

In part A of the file, the dimension and the location of the panel are defined.
 In part B, the figures in the panel are sketched into the corresponding rectangle. The rectangles are marked with letters and numbers, e.g. C 13.



The left part of the Fossum panel, which is called one of "the pearls" in the World Heritage area of Tanum. The documentation in graphic version. Tanums Hällristningsmuseum

In the county of Tanum, each rectangle is marked with a T and a number, e.g. T-255.

For each rock art location, the rubbings, which are the primary documentation, are filed together. Part B of the file, the system of co-ordinates with the sketches of the carvings, makes it easy to find particular figures or combinations of figures on the correct sheet of paper. The size of this material is seen from the fact that the file for one location, e.g. Fossum T-255, consists of 66 sheets of paper sized 100 by 70 cms.

The documentation material is kept in fireproof archives at Tanums Hällristningsmuseum Underslös and filed according to the system of NHB.

The original material is accessible to those who are interested in working with it.

Scanning process.

In 1999 we started scanning the rubbing documents with great succes. We noticed that the rubbing method is working well even on badly weathered panels. And Outprints in scale 1:10 compromize the contours from the surface and it was possible to identify figures more precisely.

In fact a montage of rubbings might be the best way to be able to see the images on extremely weathered panels.

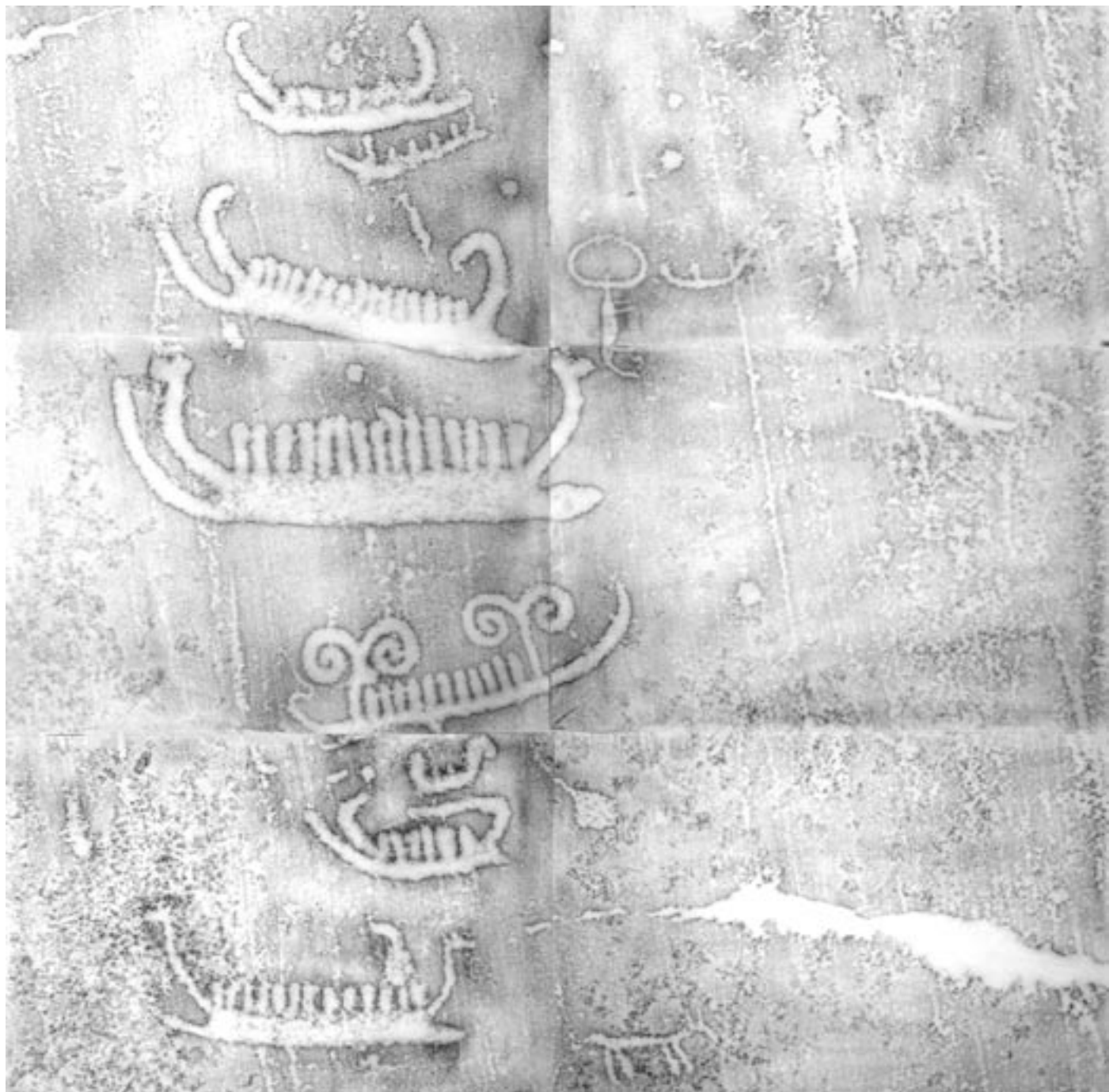
In addition the scanning and digitising of the rubbing documentation as a filingsystem is easy to handle and to communicate.

But there are some problems with storing this enormous material. And problems with storing on CD-Rom.

Digitized information as archive material has to be discussed.

Database

The data of the documentation material are transferred to a database, which contains pictures of each documented location, and the field observations from the work file. Information on position, orientation etc. is supplied. This method of registration makes it considerably simpler to get a general idea of what is in the material, and thus facilitates the use of the material in various connections.



This picture shows six rubbing sheets which have been digitised and combined to make a total picture. After Tanums Hällristningsmuseum

Demands on the documentation project

Documentation is a technical and an ethical challenge demanding total objectivity, which can never quite be achieved. The best documentation was left to us by our ancestors on the rock

surfaces – and it is disappearing.

As mentioned above, the situation is so critical that future research will often have to be based on documentation, i.e. reproduced material. And this makes heavy demands on the documentation project:

- The work has to be carried out as precisely as possible.
- The methods we employ must not increase the damage caused by weathering, and we must find all factors which increase deterioration in order to start an efficient strategy for preservation of the rock surfaces.
- It is necessary to co-operate and thus make the most of the very limited resources assigned for this work. In recent years there has been a high degree of constructive co-operation between involved parties in all areas of documentation, registration and co-ordination.
- Archives. The original documentation is on paper and we know a lot about the durability of that. All other information is filed electronically. In that area we have a lot of optimism, but little experience.



In the winter, the panels are covered with snow and ice for several months. But the melting snow portends the coming spring . Photo: Gerhard Milstreu

The problem facing us today is how to preserve this wealth of pictures and this cultural heritage for posterity – not as documented reproductions, but as pictures to be found on the rock surfaces.

The documentation material will only benefit a limited group of researchers and other curious people, and the material will only be accessible in various kinds of archives. The question cannot be answered today. But happily, the issue has come into focus.

Several of the important areas of rock art, among these Tanum, are on UNESCO's World Heritage List. From 1997 to 1999, Tanum was under the auspices of an EU Interreg project and 1999-2001 of the RockCare project/ EU-Raphael-programme, collaboration between

Sweden, Italy, Portugal and France, which supplies means for the preservation and documentation of our prehistoric cultural heritage – and that reflects an acknowledgement of the importance of the past for the people of today.

References:

1. Gerhard Milstreu, Henning Prøhl: Documentation and Registration of Rock Art in Tanum No 2 – Fossum and adjoining Areas, Tanum 1999. / Rock Art Research Centre in Tanum. Tanums Hällristningsmuseum Underslös , SE-457 91 Tanumshede.
2. Rock Carvings in the Borderlands. An INTERREG IIA project. Final Report 2001. / Cultural Heritage Section, SE-403 40 Göteborg.

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