Keith F. Otterbein Award Report: Bronze Age Rock Art Research in Southern Sweden

Nathan Dubinin

The Tanum World Heritage Site consists of a 45 km^2 area located in the Bohuslän province in southwestern Sweden boasting at least 600 Bronze Age rock art panels. The Bohuslän province in general has at least 1500 Bronze Age rock carving sites. Tanum, and the Bohuslän region in particular, is considered the most prolific rock carving area in northern Europe, gaining its status as a World Heritage Site in 1994.[1] A plethora of representations are carved on the natural bedrock exposed as the Fennoscandian Ice Sheet retreated after the Last Glacial Maximum. Cupmarks, boats and images of warfare and violence respectively are the most abundant motifs. Although styles changed during the course of the Nordic Bronze Age (3700-2500 BP), representations of boats and 'warriors', along with weapons were a constant throughout the entire Bronze Age. These dominant motifs of boats and representations of warfare may suggest significant social reproduction surrounding their creation as the rock was continually reused over the course of a millennia.

During October 2019 I travelled to Gothenburg, Sweden as a part of my dissertation project "Don't Rock the Boat: environmental change and evolving representations of conflict in Southern Swedish Bronze Age rock art". This project uses GIS and proxy data for archaeological environmental conditions to better understand the socio-environmental relationships between Bronze Age people expressed over time in representations of interpersonal and symbolic violence illustrated in rock art. Particular interest will be paid to the examination of demographic changes that may have resulted from environmental change. For example, warmer periods, because they are potentially more agriculturally productive, may have created agricultural surpluses in Bronze Age societies. This phenomenon could have led to crowding because of higher birth rates, lower infant mortality, and better overall health. Higher population densities may have led to constraints on land available for new farmsteads. This trend would likely have been reversed in colder, wetter periods. Either situation could have resulted in increased maritime opportunities for social advancement, either through trade or warfare. Specifically, this research will investigate the effects of the documented 3800 BP and 2800-3000 BP climate events respectively as potential drivers of cultural development in Scandinavia.[2]

Funding from the Keith F. Otterbein Award supported travel and residence from Gothenburg to Tanum. During the

Fig. 1. Section of Fossum panel; warriors fighting with axes (Photograph by author).

trip, I was able to visit major rock art sites within the Tanum World Heritage Site. These included the Vitlycke, Aspegebet, Fossum, and Litsleby rock carving sites. I was also able to visit several museums in Tanum and Gothenburg. These included, the City Museum of Gothenburg, Vitlycke Museum, and the Tanums Hällristningsmuseum Underslös (Underslös Museum and Tanum Rock Art Research Centre). The visit to the City Museum was particularly useful to my research as it provided the historical and cultural context necessary to understand Gothenburg's human settlement of over 8000 years. It is important to situate the archaeological context in which the rock art was created by becoming familiar with artifacts from contemporary Bronze Age settlements along with their distribution over space and time. Vitlycke Museum was also crucial as it displays cultural artifacts and reproductions such as swords, which are also illustrated in the rock art. This museum, located in Tanumshede, also manages the Tanum World Heritage Site.

Vitlycke Museum also holds the *Svenskt HällristningsForskningsarkiv* (SHFA) or Swedish Rock Art Archives. Direct, in person access, allowed me to negotiate access to high resolution images not readily available on their website. Representatives from the SHFA agreed to provide higher resolution images upon request. The current online database on the SHFA website has a tremendous amount of data and images, but many of the images are only snapshots of larger panels. Physically seeing these rock art panels afforded me the twofold opportunity to not only physically see the rock art in its geographic context, but also the phenomenological experience of seeing these rock art sites within their past and current landscape. GIS analysis of shoreline displacement resulting from isostatic rebound has greatly informed how the landscape has changed for thousands of years due to glacial processes.[3] During the Bronze Age, many of the rock art sites would have been situated near the shoreline, as the low valleys of today would have been shallow bays several thousand years ago. As it may be difficult to imagine these rock art sites situated on a Bronze Age shoreline, since many of the sites are now located several kilometers inland, a visit to the rest stop Skräddö aided in visualizing the past landscape. Skräddö, known as the "gateway" to the World Heritage area has a series of illustrations providing a snapshot of how the cultural landscape would have looked over the past 8000 years.

I was also able to record several sites using a Canon DSLR camera and the images captured will be used within my dissertation. Data was also provided to me in the form

Fig. 2. Section of Tanum 12A, Aspeberget panel depicting warriors with axes (Photograph by author).

of a published archaeological report which includes descriptions of several hundred rock art sites. This report is not readily accessible unless one travels to Vitlycke Museum. This data will be used in conjunction with the SHFA database to gather the corresponding geographic coordinates, as the report data, although having detailed descriptions of specific Tanum sites, excludes the latitude and longitude of these sites. All Tanum sites on the SHFA website have been obtained and formatted so they may be used with GIS software. Rstudio, an IDE for the statistical programing language R has been employed to aid in the creation of a database using PostgreSQL, an open source relational database software. The processing of this data is ongoing.

While in Gothenburg, several resources were brought to my attention, such as the Swedish National Heritage Board's archaeological database *Fornsök* which is publicly accessible. Sweden has a long tradition of preserving its cultural heritage dating back to the 17th century. Another resource is *Stiftelsen för dokumentation av Bohusläns hällristningar* (Foundation for the Documentation of the Rock Carvings of Bohuslän). The foundation is devoted to the systematic documentation of the rock carvings in the Bohuslän region. These resources have and will continue to facilitate my research and have become indispensable tools, not only to researchers, but to the general public.

My project offers a nuanced picture of the interplay between climate and warfare by providing information which up until this time has not been fully investigated for the Bronze Age in Southern Sweden. An overall spatial statistical approach using GIS will allow for direct comparison between these two factors as well as allowing for additional social aspects to be added to the study at a later date to determine the direct role, if any that they may have played in the development of Bronze Age society. My research trip to Sweden was instrumental in helping me gain access and acquire data. It also provided me an essential first-hand interaction with the rock art. These opportunities would not have been possible without the Keith. F. Otterbein Award funding.

Endnotes:

1 Bertilsson 2016, 93.
2 Berglund 2003, 9.
3 Påsse 2001.

Works Cited:

Berglund, B. E. 2003. "Human impact and climate changes—synchronous events and a causal link?" *Quaternary International*, 105(1),7-12.

Bertilsson, U. 2016. "The rock carvings in Tanum, Sweden." *Cuadernos de Arte Rupestre,* 7*:93-112.*

Påsse, T. 2001. "An empirical model of glacio-isostatic movements and shore-level displacement in Fennoscandia" (No. SKB-R--01-41). *Swedish Nuclear Fuel and Waste Management Co.* Stockholm.