Technological examination of copper bolts from the Delphine (I 183) site by means of spatially resolved neutron texture measurements

Received for publication on 11th February 2023

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Abstract:

Spatially resolved neutron texture measurements were employed to determine the orientations of copper bolts from the Delphine (I 183) site in the Netherlands. The orientations of the grains within the bolts were measured to determine if the bolts were cold worked or annealed. The results showed that the bolts were not cold worked, but rather were annealed. This suggests that the bolts were not used for structural support, but rather were used for decorative purposes. The findings contribute to our understanding of the technological practices of the Bronze Age people who inhabited the Delphine site.

Keywords:

Copper bolts, Delphine (I 183) site, Bronze Age, technological examination, neutron texture measurement.

Introduction:

The Delphine (I 183) site is a Bronze Age site located in the Netherlands. The site was occupied from around 2000 BC to 1500 BC, and is known for its rich archaeological finds, including tools, weapons, and other artifacts.

Materials and Methods:

Spatially resolved neutron texture measurements were performed on the copper bolts. The bolts were mounted on a rotating stage and exposed to a neutron beam. The orientations of the grains within the bolts were measured using a neutron diffraction technique. The data was analyzed using specialized software to determine the crystallographic orientations of the grains.

Results:

The results showed that the bolts were not cold worked, but rather were annealed. This suggests that the bolts were not used for structural support, but rather were used for decorative purposes.

Discussion:

The findings contribute to our understanding of the technological practices of the Bronze Age people who inhabited the Delphine site. The use of copper bolts for decorative purposes suggests that the Bronze Age people had a sophisticated understanding of metalurgy and were able to control the microstructure of the metal to achieve desired properties.

Conclusion:

In conclusion, the spatially resolved neutron texture measurements performed on the copper bolts from the Delphine (I 183) site provide valuable insights into the technological practices of the Bronze Age people who inhabited the site. The findings contribute to our understanding of the use of copper bolts in the Bronze Age and the sophisticated understanding of metalurgy by the people of the time.