2000-year-old statue of an athlete sheds light on corrosion, other modern challenges

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A 2000-year-old statue of a Greek athlete sheds new light on corrosion and other modern challenges, scientists report. Credit: The American Chemical Society

The restoration of a 2,000-year-old bronze sculpture of the famed ancient Greek athlete Apoxyomenos may help modern scientists understand how to prevent metal corrosion, discover the safest ways to permanently store nuclear waste, and understand other perplexing problems.

That's the conclusion of a new study on the so-called "biomineralization" of Apoxyomenos appearing in the current issue of ACS' *Crystal Growth*

& Design. Best known as "The Scraper," the statue depicts an athlete scraping sweat and dust from his body with a small curved instrument.

In the report, Davorin Medakovic and colleagues point out that Apoxyomenos was discovered in 1998 on floor of the Adriatic Sea. While the discovery was a bonanza for archaeologists and art historians, it also proved to be an unexpected boon to scientists trying to understand biomineralization. That's the process in which animals and plants use minerals from their surroundings and form shells and bone. Apoxyomenos was encrusted with such deposits.

"As studies of long-term biofouled manmade structures are limited, the finding of an ancient sculpture immersed for two millennia in the sea provided a unique opportunity to probe the long-term impact of a specific artificial substrate on biomineralizng organisms and the effects of biocorrosion," the report said. By evaluating the mineral layers and fossilized organisms on the statue, the researchers were able to evaluate how underwater fouling organisms and communities interacted with the statue as well as how certain mineral deposits on the bronze sculpture slowed its deterioration.

More information: "Biomineralization on an Ancient Sculpture of the Apoxyomenos: Effects of a Metal-Rich Environment on Crystal Growth in Living Organisms," *Crystal Growth & Design*

Source: American Chemical Society (news : web)