

What triangular patterns on rocks may reveal about human ancestors

April 26 2021, by Charles Helm



The larger of the two triangular geometric features (scale bar = 10 cm.). Credit: Charles Helm

The [Pleistocene epoch](#), which started 2.6 million years ago and lasted until about 11,700 years ago, was crucially important for our hominin ancestors.

Homo sapiens first evolved in this era, about 200,000 years ago. Then, in the latter period of the Pleistocene, our ancestors started to display signs of [cognitive complexity](#): among other innovations, they made more sophisticated tools, began to harvest seafood, used compound paints and adhesives, engraved objects with geometric designs and strung shell beads.

Some of these [ancient humans](#) lived in and traveled through what is today South Africa's Cape south coast. They, like the many animals that occupied this space, left their tracks in aeolianites, the cemented remains of dune surfaces; the oldest of these surfaces are around 400,000 years old and the youngest are about 35,000 years old. One hominin tracksite that our research team found, at Brenton-on-Sea on the Cape south coast, [contained 40 human footprints](#) dating back around 90,000 years. Since then we have [identified](#) a further three hominin tracksites. [Previously reported sites](#) from the Cape's east and west coasts bring the [total number](#) of reported Pleistocene hominin tracksites in southern Africa to six.

These [rock surfaces](#) don't just show where and how our ancestors walked or jogged. They also reveal how they foraged or [left stone tools](#)—and made patterns in the sand. The patterns that we have found consisted of circles, grooves, "hashtags", fan shapes and even what appeared to be a sand sculpture that resembled a sting-ray. In our [research paper](#) about these discoveries, we introduced the term "ammoglyph" to describe a pattern created by humans in sand that is now evident in [rock](#).

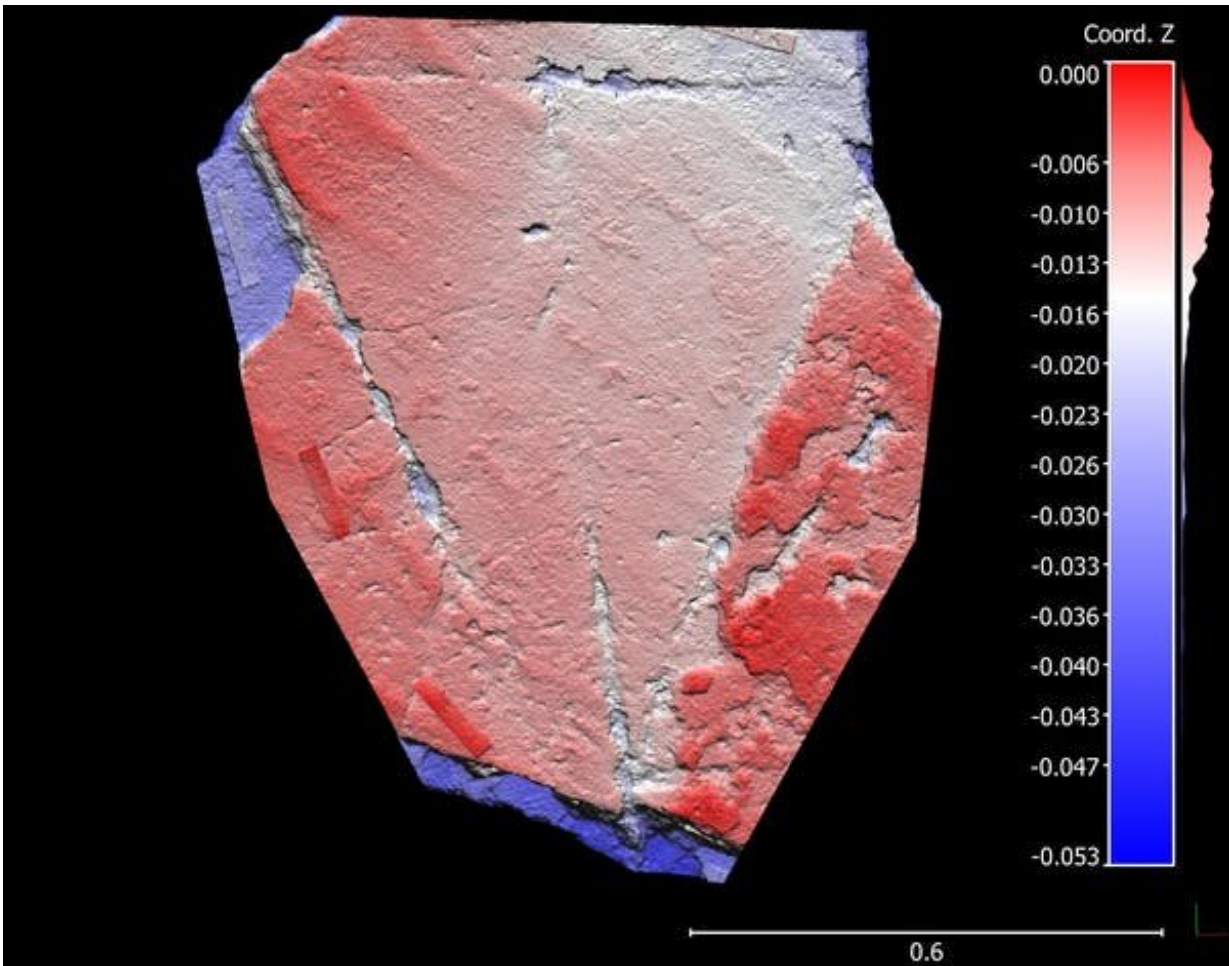
Now we've [discovered](#) two new triangular patterns that we believe are ammoglyphs. This is yet [more evidence](#) that South Africa's coastline is a

place where our human forebears became [truly modern](#). Here they developed the complex cognition that defines us today.

It appears that the area's dunes and beaches formed a vast canvas of sand on which our ancestors could leave their mark, perhaps in the same way that today we enjoy inscribing patterns on the beach or making sandcastles with our kids. Remarkably, those surfaces are now amenable to our inspection and interpretation, if we know where to look.

Surprise discoveries

This newest discovery came in 2019. Three members of our research team were exploring a rugged and remote stretch of coastline at low tide, searching for newly exposed tracksites. As we clambered over a bunch of rocks and looked up, we could hardly believe our eyes. Ahead of us, on a large rock that had tumbled down from the cliffs above, was an arrangement of linear groove features that formed a near-isosceles triangle, complete with an almost perfect bisector.



Photogrammetry of the larger geometric feature; horizontal and vertical scales are in metres. Authors supplied

The sides of the triangle were close to a meter in length. Our first question was whether this could be modern graffiti. Fortunately we were easily able to exclude that possibility, as disturbance of the underlying layers of rock implied that this triangular feature had been created when the surface was sand, not rock.

We documented the site and took photos for photogrammetry, so we could generate digital 3D images.

When we returned a few weeks later we were amazed to find a similar but smaller rock right beside the rock we had initially identified. It also contained a triangular feature, but this time a near-right-angled triangle. It likely came from the same original surface, and high tides must have overturned it since our initial visit.

These triangular features, we argue in [our new paper](#), are probably ammoglyphs. Geological correlation to a dated site about 2km to the east suggests an age range of between 130,000 and 80,000 years, but we don't yet know exactly when they were made; we have submitted rock samples for dating studies and hope to have these results soon.

Palaeo-art

The area where we found the triangular features is relatively close to Blombos Cave. This site is internationally famous because of what can be termed its "palaeo-art", epitomized by [an engraved piece of ochre](#) and an [abstract drawing](#).

The engraving pattern at Blombos Cave has been analyzed by numerous experts, with varying interpretations. However, it can clearly be regarded as a series of triangles. Could what we have found and described represent a version of this pattern on an unprecedented, large scale? After all, it may have been easier for our ancestors to inscribe a large pattern in sand using a stick than to have to carry ochre a long distance to a cave and then meticulously get to work on engraving. For now, until we find more examples, this is pure speculation. But it is an intriguing possibility.

It is also exciting to think that the record of ancient art could be deepened by these sorts of finds. Examples of palaeo-art become less common with increasing distance in time, partly because some materials like bone or wood or rock art deteriorate faster than others, like stone.

Some researchers have lamented how much ancient art must have been created in perishable materials and, so, been [lost to the archaeological record](#).

With the emergence of possible ammoglyphs on South Africa's Cape south coast, it appears that such a lament may have been premature. The addition of sand as another medium through which palaeo-art can potentially be recognized is an unexpected development in the understanding of our human origins—and is something to be cherished.

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Provided by The Conversation

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