The search for ancient human footprints

On grasslands that are now beneath the sea walked animals we would recognise, as well as small bands of people like us whose descendants would move out of Africa and conquer the Earth. By **Don Pinnock**

In the search for our past, there's something almost magical about a fossil footprint. It's not a gnawed bone in a cave, a stone tool or a bleached skull staring eyelessly. It's the imprint of a living creature – or person – that stood in that place in that moment thousands of years ago. And they were everywhere we looked.

But I'm getting ahead of myself. The journey really begins in a single room of a small museum in Still Bay on the Cape south coast. Crowding around paleoanthropologist Jan De Vynck are two lawyers, a publisher, a doctor, two NGO workers, me and three Ju/'hoansi San trackers from Namibia. In glass cases are stone tools, bones and a piece of inscribed red ochre acknowledged as among the oldest artwork by fully modern humans.

De Vynck is explaining what we're about to do. Lining the beach below are very strange-looking cliffs, which are delaminating layer by layer under pounding waves. Each layer was once the surface of a dune and on them creatures walked and left their prints. Countless steps and countless showers over ever-changing dunes over time have left their mark.

But there's a problem. The compacted sand layers, known as aeolianite, are deteriorating under wave and wind action.

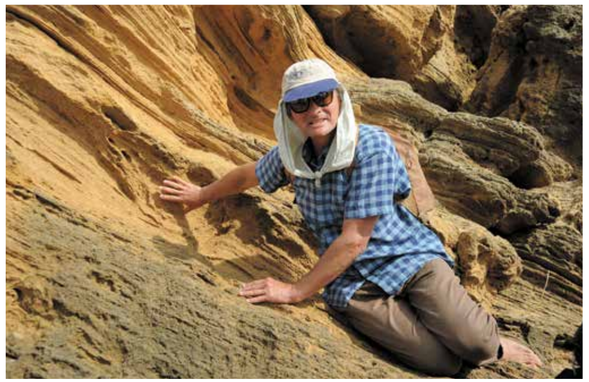
The citizen scientist team has been assembled by lawyer and wilderness trail guide Dr Clive Thompson to help De Vynck capture and document tracks before they die. The research is in collaboration with primary investigator Dr Charles Helm, who's in Canada and can't join us.

Thompson has brought in the best people on Earth to help: indigenous Ju/'hoansi master trackers Steven Kxunta, /uce N‡amce and #oma Daqm from Nyae Nyae in Namibia.

We assemble on the beach next morning. The Ju/'hoansi are not looking at the cliffs but gazing at the sea. "What makes the waves? Whales?" No, the wind. Much discussion follows in an ancient language sprinkled with pops and clicks.

The aeolianite dunes, it turns out, are encoded time stamps. A series of bedding planes – say 20cm high – may have been laid down in the distant past over just a few days or weeks or 10,000 years, depending on wind flows and erosive forces. In them are enigmatic prints.

Clive Thompson on the path to Blombos Cave. Photo: Simon Sephton



Palaeoanthropologist Jan De Vynck explaining the track of an elephant negotiating a dune. Photo: Don Pinnock

"This is an elephant footprint," says De Vynck, pointing to a large teardrop shape on the cliff wall. No way! "Yes, you have to think differently," he says. "You're looking at it from the side and half has broken away. It slid down the dune slope then got purchase. Its weight compressed the sand. Then, later, sand blew into the footprint, but the compacted sand held the shape."

Steven Kxunta, a Ju/'hoansi San tracker from Nyae Nyae. Photo: Don Pinnock

After a while we're almost hallucinating tracks. Every dent or protrusion is inspected and debated. This is exciting stuff. Lion, rhino, giant zebra and giant buffalo, an aardvark burrow, mole rat tunnels, bird tracks – the cliffs are coming alive.

One of the biggest questions people ask, says De Vynck, is how these tracks get preserved. Most of the trackways we see were between dunes where the sand remains moist after rain, preserving the tracks.

"Over time, dry sand from surrounding dunes blows over and covers these tracks, creating layers of preservation. Rain percolates through the dune and dissolves minerals, cementing them into rock."

The trackers are into their stride and we're following in their wake. Every now and then, though, they stop and gaze at the sea – it's just not something you get in north-eastern Namibia. The rest of us are hooked on paleoanthropology. Are we about to find *Homo sapiens* tracks, the holy grail of this mission?

But something isn't making sense. Buffalo, giraffe, rhino, hippo, quagga, lion, hyena, springbok all managing to survive on coastal fynbos? When I voice this, De Vynck gives me a puzzled look for a moment, then says: "They lived there."

He's pointing at the sea, which is noisily chewing bits off the land. Then he explains.

"Standing here 100,000 years ago you wouldn't see the sea," he says. "It was up to 47m lower than today. What you'd be looking at would be the equivalent of the Serengeti: meandering rivers, grassland, elephants, giraffes, buffalo, antelope, predators. It's called the Palaeo-Agulhas Plain. Climate change drowned the plain and evicted the animal species living there."

The next day we plan to hike the coast to Blombos Cave mouth, simply to have been there. For newly minted anthropologists, not visiting the cave would be like travelling to Egypt without seeing the pyramids. Hindsight will tell us it was a crazy idea.

The shoreline looks like Poseidon teamed up with Thor to smash up the cliffs. There's a path of sorts, but from time to time we lose it and stumble on.

De Vynck is driven on by sheer enthusiasm. The three Ju/'hoansi trackers are superfit, but the rest of us seem rather grim, sweaty and not too talkative. Finally, De Vynck announces that the cave is just around the corner.

"We survived as a species in the Middle Stone Age because we became coastal foragers," De Vynck tells us. "Once people became coastal adapted … they had a stable, dependable resource in shellfish and coastal plants, which made migration along the coast easier.

Ancient fish traps near Still Bay. Photo: Don Pinnock

"There have been many steps along the way to being us," he continues, "but there's strong evidence that points to the Cape as the origin of cognitively modern humans."

When *Homo sapiens* began consuming lipid-rich fatty acids such as omega-3s, along with iodine from shellfish from around 164,000 years ago, it was brain food. These people made ever finer tools, they used pigments and they made art. They were indistinguishable from us.

The next day we decamp to another section of coast that De Vynck wants to explore, us citizen scientists in tow.

Before sunrise we're on an aeolianite clifftop. There's a cave down on the beach where there's evidence of archaeological material. If there were humans and dunes…

Are we standing on the launching pad of our species into the rest of the world? Science is about discovery and contestation, and there will be those who will challenge how humans emerged from Africa – and from southern Africa in particular. But the story viewed from the southern Cape is compelling.

Two-legged apes had come before: *Australopithecus*, *Homo habilis* and *Homo erectus*. *Homo heidelbergensis* left Africa and spawned *Homo neanderthalensis*.

But the rich Cape refuge in a frozen world produced social and physical transition to something special – a species that could exploit the protein- and omega-rich seashores right up Africa and along the Arabian and Indian coasts.

They could construct craft to island hop to Australia and advance into Asia, Europe and the Americas.

It would take thousands of years with many setbacks. Eccentric climate change during the Pleistocene ice age would not treat them kindly. But they had big brains, they collaborated and persevered where others died out.

Artwork from Blombos Cave. Photo: Don Pinnock

There's a shout of "Here!" We gather around what seems to be a perfect footprint. ≠oma Daqm takes off a shoe and places his foot in it. A perfect fit. There is no doubt to me that it's a human footprint.

There's a sort of awed silence as we ponder the magic of a person with the oldest and richest DNA in the world placing his foot in the footprint of a human from the beginning of our species.

That afternoon De Vynck will take dozens of photographs to make up a multilayered photogrammetry image and get samples for optically stimulated luminescence dating. It's not a footprint until science declares it to be.

But we know it is, not because we want it to be but because it's so visibly obvious.

We may never know what the daily pattern of that far-off person's life looked and felt like, what they wore and how exactly they used the delicate tools they made. They could never know they were a species that would eventually live in almost every corner of the planet, fly to the moon and capture their footprints on a pocket cellphone.

But in some almost mystical way ≠oma Daqm's foot in their footprint makes the connection for us. Our small team's personal journey of discovery ends here, but for the person who made that footprint, the human journey across the planet was just beginning.

Wherever we've ended up, we're all survivors of a wild and perilous journey. But all over the world, we're all Africans under the skin. **DM**

One of the trackers compares his foot to the footprint we found – but science still needs to confirm the imprint is of human origin. Photo: Don Pinnock