

### **Astronomy Domine**

Once upon a time there was the space age. Once upon a time, when exactly? In 1957! my readers would say without hesitation, when the Soviet Union launched into orbit the satellite Sputnik 1 on October 4; on the same year the International Geophysical Year (IGY) was declared to study the links between sun and earth. Yet things were not that simple as testified in the Italian tale featuring a piece of wood and not a king, or in the story we are about to tell you here – a story about a piece of bone.

It is not entirely certain – and herein lies the initial remark – that the space age was triggered by a virtuous synergy combining elements scientific, technical, political, military and commercial of modern civilisation, and the technological progress of astronomic instruments such as space probes. If we were to adopt an anthropologico-ethnological viewpoint space age dating would inexorably go back further and further in time, all the way to the origins of scientific thought and agrarian civilisation in Greece, Egypt, Mesopotamia, India and China, or among the Maya and Incas of central America, who had after all established a lunar calendar.

The exploration of space on the part of man may be traced back to the passage from hunting to agriculture, two activities that established a different relationship with time. If hunting took place in the course of a day, agriculture followed the changing of seasons, it was an activity regulated by time – a time factoring activity, as it was described by Alexander Marshack (1918-2004), the American journalist, archaeologist and art historian who will act as our ideal guide in this venue. Time-factoring, Marshack adds, are also the brain, art and science, legends and ceremonies, astronomy and religion, writing and language that allow man to organise an ever more complex existence. Clearly, these disciplines didn't have to wait for the diffusion of agriculture to develop, also because we have proof of lunar observations having been carried out prior to the rise of agriculture. Does that mean we need to go back even further in time? Wait a sec: even further back, to where? Because going further back would be like saying that the space age actually coincides with the history of mankind itself. Which would mean that we are no longer dealing with astronomy but with lunar archaeology.

### **Ishango, Ishango!**

Let's imagine ourselves to be at Ishango, a Mesolithic site in present day Congo, on the eastern mountain range of Equatorial Africa, in the Upper Nile basin. The year is 6500 BC, some three millennia before the advent of the first ancient Egyptian dynasty. On the shores of lake Edward lived a community of fishermen that, however, would not survive the eruption of a volcano a few centuries later. And if we still talk about these fishermen today it is because something of their civilisation has reached down to us: A handful of apparently insignificant manufactured objects, such as a tiny 9.6

cm piece of carved bone, merely a utensil handle with a quartz fragment at the top and etchings arranged along three rows. Though these carvings at a first glance appeared to be decorations, their symmetrical disposition aroused Marshack's suspicion. And what if those carvings had been made for a specific reason? What if those signs had been carved with the precise will of achieving a meaning that went beyond the mere function of reproducing a decorative pattern? What if they were an arithmetic game, as implied in an article written by a certain Jean de Heinzelin that Marshack had read?

By all means, the concept of repetition wasn't something altogether new. Primitive man felt the urge to observe and measure periodicity such as that relating, for example, to lunar cycles. André Leroi-Gourhan, whom Marshack had corresponded with in June 1962, had already focused attention on the repetition of compositions in cave drawings. Permanence in caves was most likely seasonal in character: cave paintings and drawings were probably made during a change of seasons (e.g. the coming of the rains), in the course of a migration, at the end of the hibernation period of bears, at the start of the hunting season in spring or autumn, at the time when hunters decamped from their winter refuge and set up the summer camp, and to mark ceremonies of initiations and so on and so forth.

Marshack observed in those tiny notches carved two- or three-thousand years before the advent of hieroglyphic writing, one of the earliest notation systems that had survived. But there were many difficulties to be tackled. After a time spent studying books and the photographs available at the New York Library, the time had come for him to see the artefact in person. In 1965, Marshack visited the Institut Royal in Brussels where the Ishango bone is kept and twice the Musée des Antiquités in Saint-Germain-en-Laye, the museum located just outside Paris that housed other objects he was also studying. The second time he went he brought along hundreds of kilos of materials, much more sophisticated than the Japanese 15-dollar binocular microscope he had with him the previous time he was there. On his return to New York, the Wenner-Gren foundation organised on 4 February 1966 a conference during which intrigued as well as downright sceptical archaeologists and anthropologist gave Marshack a day-long grilling.

On that occasion, an impassioned Marshack explained how his revolutionary but not less controversial intuitions had developed. The three rows of notches on that fateful bone – his theory went – concealed a code, one of the earliest forms of writing in human civilisation. Or, to be more precise, a means to calculate time, namely the lunar phases where each notch represented a single day. It was as if the Ishango bone were a reduced-scale version of the Stonehenge monoliths. According to Gerald S. Hawkins, an astronomer at the Smithsonian astrophysical observatory of Harvard University whom Marshack contacted in the summer of 1964, the Stonehenge monoliths are arranged in such a way as to imply astronomical knowledge as well as the existence of a calendar.

Here though – and we shouldn't forget it – we are not dealing with the monumental constructions of Stonehenge but with a tool of the length of under 10 cm. Indeed, one of those items covered in dust and accompanied

by a yellowing description tag that would pass unnoticed in most museums. And unnoticed it went until Marshack started studying it in full earnest, microscopically observing the way each one of those notches had been carved. The initial results were not at all encouraging because the irregular sequence of the notches did not tally well with the moon's regular cycles. The first row bears 11, 13, 17 and 19 notches; the second 11, 21, 19 and 9. Marshack adds them up:  $11+13+17+19=60$  for the first row;  $11+21+19+9=60$  for the second. And what if each notch represented two months? Hum, two lunar months make up 59 days, not 60... Without considering that the third row counts 47 or 48 notches, which is equivalent to one-and-a-half month. But Marshack wasn't going to take it laying down because he felt the basic intuition was solid. He was certain that what he had before him was a primitive lunar observation and notation system and that his job was to decipher it.

And then he realised that the 60 notches vary by inclination and length: the series of 19 notches is divided in two sequences of 5 and 14; in that with 17 notches, the last 6 are more pronounced while 2 are longer; in the series with 13, the notches are smaller with respect to the others. The lunar cycle is composed – to be precise – by the 29-and-a-half days that make up the synodic month, and this is a fact. Nevertheless, it is not possible to observe the entire cycle with the naked eye: there are bound to be moonless nights, at times once, twice or three times. For this reason in a notation system based exquisitely on observation, the lunar series will be made up of a number varying between 28 and 31 days. Marshack moreover demonstrated – and this is one of the aspects that have met the unanimous consensus of the scientific community – that the notches were etched with different tools. In the case of a bone having 69 signs he recognised as many as 24 different writings that progress over time with regularity, one after the other, along the same line, before proceeding on the successive one. In other words, we are dealing with a sequential annotation system where, in this case, the observation of the lunar phases and the pictographic writing have the same origin.

### **Aleph and mirador**

We are not interested in the criticism by specialists of Marshack's theories, of his hypertrophic hermeneutics, of his often extravagant justifications, of his single-mindedness. Alongside the other artefacts analysed by the author in *The Roots of Civilization – The Cognitive Beginnings of Man's First Art, Symbol and Notation* (published in 1972), some of which dating back to 30,000 years, such as the Blanchard or Lartet bone, the Ishango Bone is one of man's earliest attempts to repossess time, to measure and exorcise it. And that's not all: Marshack's scientific method is connected with the work of whoever deals with the visible, be they critics or artists. Is Marshack, then, the novel Giovanni Morelli of a time primitive, of an era of an art without names?

Indeed, a utopian approach, as Ernst Bloch writes in this remarkable passage: "Utopian conscience aims to expand the gaze well beyond, but, at a closer observation, only with a view to penetrating the extreme nearness of

the obscurity of the instant that has just been lived, where all that is, is as operating as it is hidden to itself. In other words, one needs the more powerful binoculars, the binoculars of smoothed utopian conscience, to penetrate the closest proximity” (*The Principle of Hope*).

With his ability to focus and analyse and also lose his way in the detail, to concentrate all his expectations and obsessions on a single object – a miserly bone! – Marshack is, come to think of it, the prototype of the visionary. And for a visionary a microscope and a telescope, a magnifying lens and a spyglass, a radiography and an image from space, a *camera oscura* or a panoramic landscape, an aleph and a mirador, a close-up or a wide-angle snapshot, a zoom to the tiniest pixel and Google Earth, all work in the same way.

Lunar archaeology will be the discipline that will focus on the dizzying ellipse that marks the opening scene of *2001: A space Odyssey*, when the primate brandishes a bone-cudgel before casting it heavenwards. So high up that space merges with time, and the bone becomes, all of a sudden, a spaceship (all of a sudden and not in the 97 hours and 20 minutes that is required to Jules Verne in an 1865 novel!). *A History of Violence*, no doubt, but also a lunar archaeology that considers the interval between the Ishango Bone and the Sputnik as not being negligible.