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IT'S ABOUT TIME!

When I first began researching and recording rock art sites in the 1970s, I was intrigued by the individuality of each site. With few exceptions, no two sites were alike. Similar symbols might be found at more than one location, but not arranged in the same way. And the symbols themselves, while similar in design, were seldom of the same size or configuration.

After studying pictures and sites for many years and noting various horizon features and solar effects at their locations, it slowly dawned on me that the uniqueness of each site was being dictated by something other than the whims or personal tastes of the artists who made them.

WHY IS EVERY SITE UNIQUE?

One fundamental aspect of motivation, learned through a life-long study of human tendencies and behavior, has been that we humans usually behave in a rational manner. We do not expend considerable time and energy to create something unless we have a very good reason for doing so. Our ancestors were no different. In fact, it is supposed much more of their time had to be spent finding and hunting or collecting the bare necessities of life. Therefore the time spent in planning and making a rock art site must have been considered very important.

I believe the motivation required was often their need to mark the passage of time in order to remain in touch with the "heavenly powers"—powers which they believed controlled the events affecting their lives here on earth.

To accomplish this, they needed to keep track of the sun, which produced seasonal changes in their environment, and to fix dates for the celebration of sacred events within their communities. To do this, they made sites to observe the heavens, and particularly the solar and lunar cycles, using features on the landscape at their locations.

The megalithic sites which still exist appear to facilitate this study of the heavens. Once it became clear that stars, constellations, and planets did not remain fixed in their locations in the sky, it became necessary to construct observatories to support "naked eye" astronomy. Larger and more sophisticated structures were later constructed to pinpoint precise observations of the heavenly bodies related to the myths of their societies.

An excellent article in the June, 2008, *National Geographic* (Alexander 2008), presents the results of years of archaeological research at Stonehenge—which start with the remains of the earliest structures on the site and go through the stages which finally resulted in construction of the gigantic stone columns and capstones, some of which still exist today. The emphasis appears to have been to achieve greater and greater precision in forecasting the arrival of important dates.

In fact, one of the sacred powers and privileges of rulers as the first great civilizations developed was to fix calendars which controlled the lives of their communities. In effect those who made the sites appear to have acted as "intermediaries" for their gods in setting forth worship dates and festivals (Aveni 1989).

And so, astronomy became the world's first "science."

MAPPING THE SKY

Thousands of years ago, records of moon phases and solar positions were being scratched on sticks

and bones. In Europe and Asia, records of star and planetary positions were also being recorded and maps were being drawn of star positions. For purposes of mapping, the sky was divided into sections—first six, and then twelve. Each section was given the name of the major constellation of stars. The entire map was called the zodiac (zoo-di-ak) since it was originally composed of constellations or groups of stars named after animals.

Open ocean voyagers used these star maps to navigate out of sight of land across the open ocean highways to other continents. Along these ocean and river highways flowed trade and also ideas and knowledge which contributed to the growth of the great civilizations all over the world.

The methods for designing sites to calculate time and dates varied, depending upon land features. Mountains provided excellent landmarks which could be used for keeping track of the position of the sun on the horizon. All one had to do was observe various peaks and valleys through which the sun rose on the important times and dates of the year from a fixed point.

Flat prairies and deserts, however, offered few distant landmarks which could be used. At these locations, stone cairns, standing stones, or other markers were needed to provide lines of sight to sun, moon, and star positions throughout the year. Stone circles, raised mounds, and walls of standing stones were constructed to mark positions of the sun, moon, and stars whose risings and settings coincided with or heralded festival dates.

Why were these sites different from each other? Every site had to be oriented to its specific longitude and latitude on the earth. This made each site unique because no two landscapes are ever exactly alike.

Jesse Warner's studies of petroglyphs and pictographs, reported over a period of several years in papers published in journals of the Utah Rock Art Research Association, point to some very interesting features of southwestern rock art sites (Warner 1982, 1983, 1985, 1993, 1995).

While symbols and elements of individual glyphs at different sites appear similar, there are differences in size and configuration. The glyphs appear to embody a symbolic meaning but also have been configured to take advantage of the conditions and features at an individual site. A site's characteristics related to the movements of heavenly bodies, as they appeared to observers at that specific location were planned and constructed using the features of the landscape.

A large number of ancient sites all over the world—sites consisting of standing stones, earthworks, or rock outlines—also exhibit these same features. Alignments of a site's features to prominent points on the horizon, or to standing stones, rock cairns, or symbols inscribed at the site allowed observation of the rising and setting of the sun, moon, or other heavenly bodies at significant dates and times throughout the solar or lunar year.

These sites appear to have been built to reflect and support a sky-based religion which explained human events in terms of interactions between heavenly bodies. Movements of the stars and other heavenly bodies were thought to be able to foretell the future of kingdoms, communities, and individuals. Records kept at these sites mapped these interactions and also noted changes observed in the risings, settings and interactions of heavenly bodies (Barber and Barber 2004, Brennan 1994, De Santillana and von Dechend 1977, Marshack 1971).

It had to have taken many centuries to accumulate data to support this knowledge of the heavens. How was this done?

Groups of "wise men" or astronomer/priests kept track of heavenly movements. Working from places devoted to observing heavenly movements,

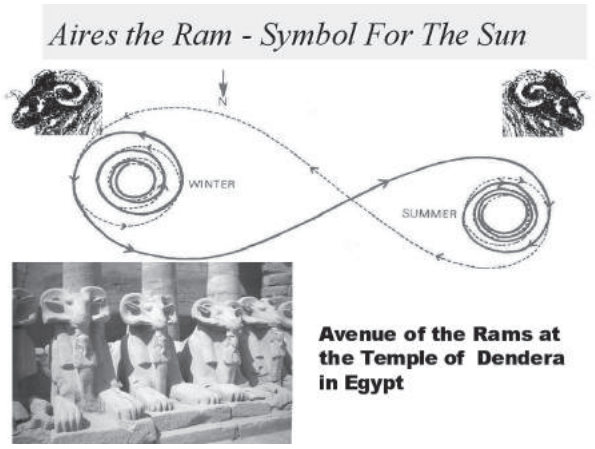

Figure 1. *The double helix traces the path the sun's shadow cast by a vertical pole or obelisk makes on the earth throughout the 365 day year. The ram zodiac symbol with its spiral horns was the "ruling constellation" in the sky from 2000 B.C. to A.D. 1. This pattern was known as the "horns of the solstices" in the ancient world and gave rise to use of many symbols with clockwise and counter-clockwise spirals representing the sun's position during the year.*

Figure 2. *Symbols used throughout the ancient world used to mark panels and locations related to observation of the sun and other heavenly bodies.*

they began making maps of the ancient skies which noted the location and movements of prominent heavenly bodies. Notations and symbols on these "charts" appear to have fostered the development of alphabets in which many symbols appear to have become the letters used to represent vowels and consonants as writing develope (Barber and Barber 2004, Brennan 1994, De Santillana and von Dechend 1977, Marshack 1971).

Long before this, even, information about the movements of stars, planets, sun, and moon had already been encoded and preserved in myths which tied interactions in the heavens to stories of mythical gods and events as outlined by De Santillana and von Dechend (1977) in their book, "*Hamlet's Mill*."

These myths, symbols, and "gods" appear to be what has been inscribed at many "rock art" sites all over the ancient world. Many were inscribed in such a manner that light from the sun or moon from positions on the horizon would highlight relevant symbols at specific times during the year, thus assuring the community of the "god's" continuing presence with them.

The power exercised by the community's rulers and their wise men thus depended upon their ability to convince their people that they could foretell events and "knew the will" of their gods and/or were acting as their intermediaries. They also controlled the life of their communities through the establishment of religious events designed to please the gods, thus exercising the "power of the calendar" to set aside specific dates for these events which all in the community had to observe.

Many observation sites probably were used for this instructional purpose also. Rock art at observation sites pictured mythological gods and heroes as well as symbolic representations of heavenly bodies and their movements.

Figures 1 and 2 show how one group of symbols was derived through observation of the 365 1/4 day sun cycle and how this led to the term "horns of the solstice."

Their symbols were particularly interesting for what they tell us about what was going on at these sites. We are just beginning to learn about their intellectual capacities through the recording and study of their art, alignments and symbols at the observation sites they left behind.

As a result of these studies, and based on new evidence which continues to come to light, several theories about the development of civilizations and ancient trade and migration patterns all over the world, are being re-examined. In many ways, on-going recording of rock art sites and images is contributing to this improved understanding."

This paper began by referring to the ancient community's need to construct places where they could observe the heavens to divine the will of their gods and to support worship of them. Also indicated was that the timing of these worship practices played a large role in the life of their communities. It is these factors which appear to have led to the construction of many of the rock art sites we find today. Some are very simple, maybe only a few glyphs. Others are very elaborate and speak to us over long periods of time.

Of course, some of these "observatories" may have become "inactive sites," due to the precession of the equinox and other changes in the heavens which made the original alignments to stars and planets they incorporated no longer observable. Some sites also provide evidence that changes had to be made to them to preserve alignments. Sites based upon observation of the solar cycle, on the other hand, can still be seen to function much as their early makers intended.

Those who are recording sites may wish to keep the following factors in mind:

1. No two sites are alike. Landscape features including alignments to features which may cast shadows on the glyphs should be recorded.
2. Light and shadow patterns on the glyphs will change with the position of the sun and should be recorded together with the time of year they were recorded.
3. Certain symbol glyphs (see Figures 1 and 2) often provide clues to the time of year the site will be "activated" by sunlight and shadows.
4. Unusual site features such as rock cairns, overhangs, etc., which may act as "shadow-casters" as well as lines-of-sight to distant landscape features should also be recorded.

To the often heard question, "Why were these sites made?" I believe our answer should be: "It's About Time!"

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