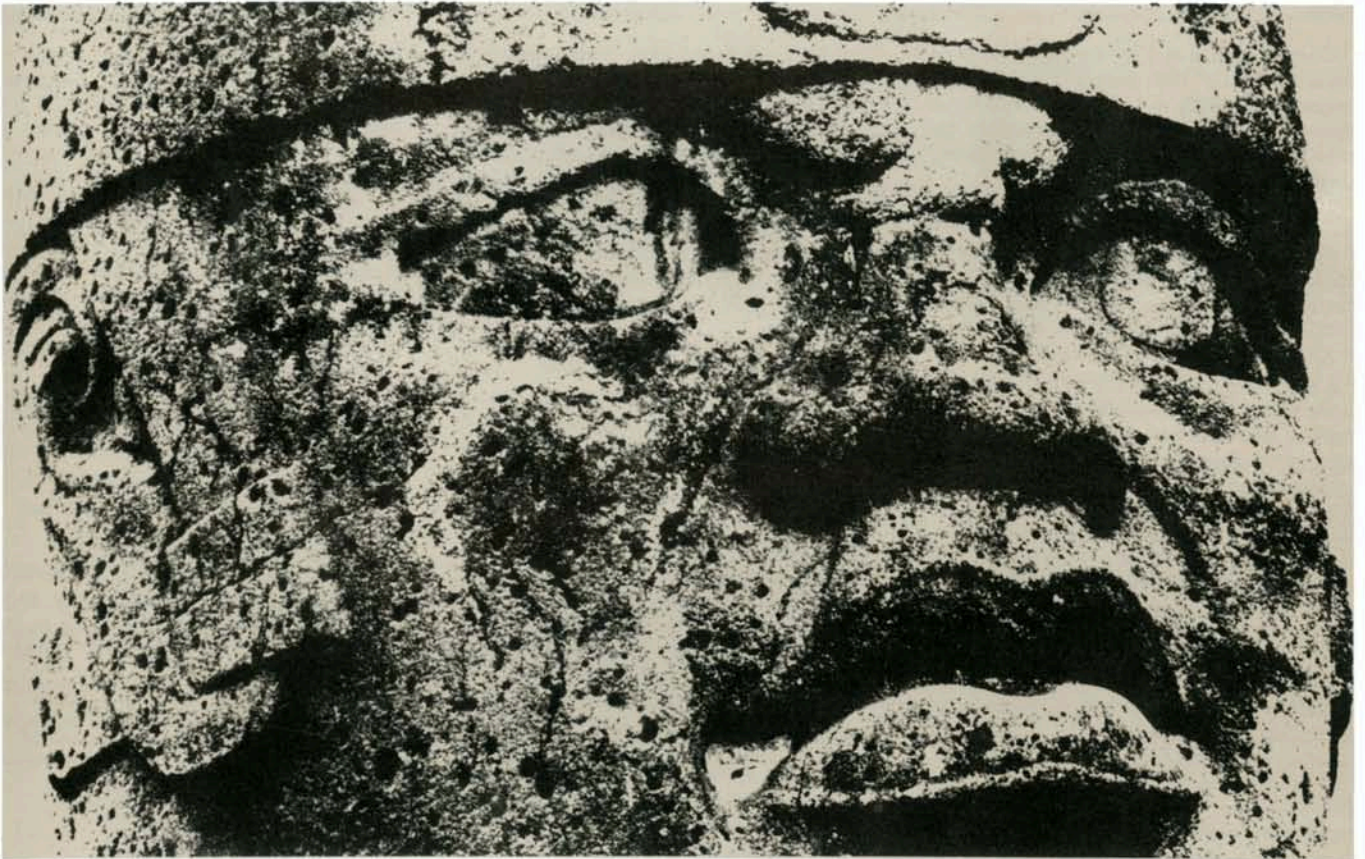


SECOND LOOK

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Coincidence or Contact:

Magnetism in the New World

by Robert K.G. Temple

Who invented the compass? Every school child is supposed to know that it was the Chinese, who also supplied the Italians with spaghetti and the rest of the world with gunpowder and that even more explosive commodity, print.

WRONG. It was not the Chinese. Back to the drawing boards with all those textbooks. Although we no longer know who invented the compass, and our heads are in just as much of a spin as any compass needle held too close to a magnet, a compass has been found in Veracruz, Mexico, which is at least a thousand years older than the earliest evidence of any Chinese compass.

Let's start again: Who invented the compass? Every school child will one day be required to know that it was the Olmecs, who also supplied the world with gigantic stone heads, snarling fanged babies carved in jade, strange parabolic mirrors, and huge carved stone spheres which litter the jungles of Mexico and Guatemala.

And they call archaeology *progress*? Everything was nice and neat until those archaeologists from Yale came along and insisted on discovering something embarrassing, which:

Immediately suggested to (Professor) Coe that it might be part of a compass. To test the possibility, he cut a piece from a cork mat, placed the object on it,

and floated it in a plastic bowl full of water. It consistently oriented itself to the same direction, which was slightly west of magnetic north. Turned over, the pointer always aligned itself to a consistent orientation slightly east of magnetic north.

It doesn't look like there is any getting away from it. Professor Michael Coe had found a compass. However, *what happened next?* Was it immediately on the front page of the *New York Times*? We are told in the first publication of the information, in *Science Magazine*, in 1975:

After Coe established in 1967 that the fragment M-160 would perform as a lodestone floater compass—a geomagnetically self-orienting device—no further investigations were carried out until the experiments described in this article were undertaken.

Why the eight years' delay? My curiosity was all the more aroused by reading in an article in *Nature Magazine* a year later that "a flattened oblong piece of hematite discovered by Coe during the excavation of the Olmec site of San Lorenzo in southern Veracruz state in 1973, has been thoroughly examined by Carlson, who suggests that it probably was manufactured for use as a compass."

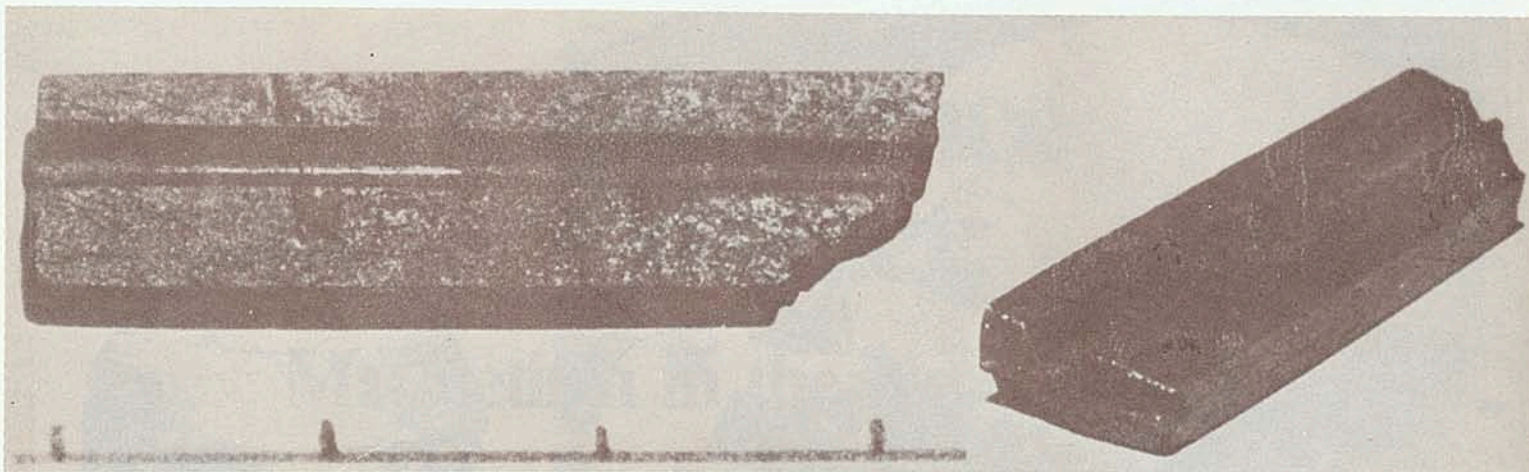
This statement, made by Professor Vincent H. Malmstrom in an extraordinary article to which I shall be returning in a moment, puzzled me greatly. So I wrote to Malmstrom, and he replied:

The citation of 1973 in my article was in error; the hematite bar was discovered by Coe in 1967 but not tested by Carlson until 1973. I have no idea why it took so long to publish anything on its magnetic properties.

To discover a compass a thousand years older than any known previously, which transforms one aspect of the history of science . . . to allow eight years to elapse before finally somebody publishes something . . . strikes me as alarming.

TOP RIGHT: Monumental stone head excavated at San Lorenzo in 1869 where Professor Coe later discovered the Olmec compass. RIGHT: Olmec figurines, as they were found at La Venta.





M-160, which may have been used as a compass, predates the Chinese compass by more than a thousand years.

One wonders whether major discoveries of this kind have been made all over the world and the archaeologists concerned have not bothered to let anybody know! To discover a compass a thousand years older than any known previously, which transforms one aspect of the history of science and technology, and then to allow eight years to elapse before finally somebody publishes something about it strikes me as alarming.

It will become evident as we proceed that what happened at San Lorenzo was not just the discovery of a piece of hematite which acts as a compass—some miscellaneous bric-a-brac with accidental magnetic properties. With the discovery we have taken the first step towards understanding an entire aspect of ancient American culture which until then it was possible to ignore or even to say it was coincidental. Olmec ceremonial centers are laid out a few degrees west of north, which corresponds to the alignment of the compass bar. It appears, then, that the compass bar is a surviving instrument of the science of Olmec geomancy which was used to orient the important structures of that culture to the correct points of the compass. But the preoccupation of the Olmecs must have been not to be “pointing the right way” so much as to be aligned with the mysterious invisible force-field which their compass-bar revealed to them.

The Olmec compass may be seen in the photograph. It is “a small, carefully shaped, highly polished rectangular bar of hematite with a trapezoidal cross section. It is a fragment of a larger piece, broken off in ancient times. . . . this fragment is about half of the original

. . . analysis of [the compass] . . . indicates that the Olmec may have discovered and used the geomagnetic lodestone compass earlier than 1000 B.C.—predating the Chinese discovery by more than a millenium.

artifact. . . . The mineral is hard and brittle and its finishing and polishing must have required great skill and much time.”

There is no doubt about the authenticity and context of the compass. It was excavated *in situ* at San Lorenzo, which Dr. Coe himself has described in his book *America's First Civilization* as “The first civilized center of Mesoamerica and probably of the New World.” The date of the object can be set with certainty at earlier than 1000 B.C., and possibly a good deal earlier. It was found associated with material which we know from radio-carbon dating to be from a period between 1400-1000 B.C.

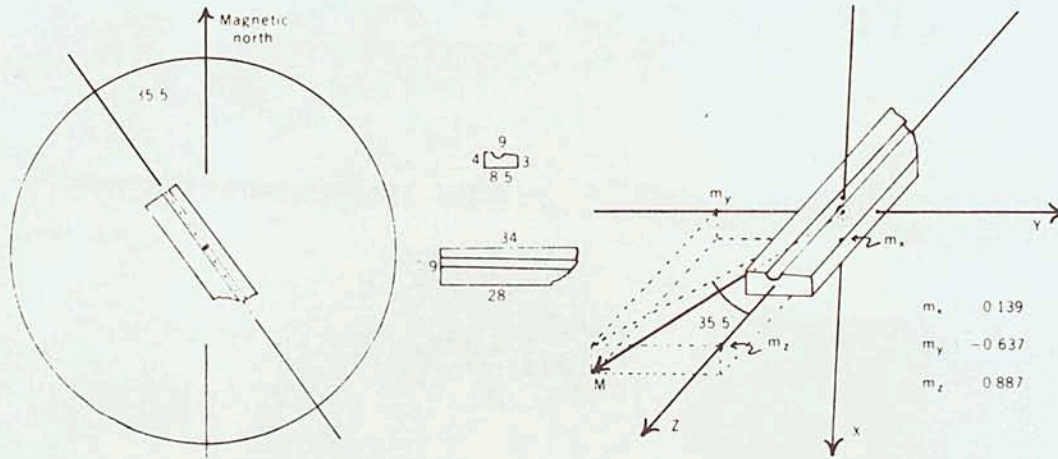
As Dr. John Carlson says in his report in *Science Magazine*: “The analysis of (this object) indicates that the Olmec may have discovered and used the geomagnetic lodestone compass earlier than 1000 B.C.—predating the Chinese discovery by more than a millennium.”

I brought the compass discovery to

the attention of Adrian Berry, of the London *Sunday Telegraph*, and he wrote a brief popular article entitled “Compass 3,000 Years Old,” but no one seems to have pursued it further.

In another photograph may be seen one of the gigantic Olmec stone heads, for which no explanation has ever been given. Erich von Däniken says in his book *In Search of Ancient Gods* that they are “Gigantic stone heads of robots.” I have no idea why he thinks that. Much speculation has been fueled by the apparently negroid features of these faces. The headgear is also strange, and when I studied Mesoamerican archaeology under Dr. William Coe (brother of the other Coe) we used to joke about these heads wearing “football helmets.” Some ancient astronaut enthusiasts have suggested that they are space helmets.

But although the headgear and the features of these giant heads are strange, the most remarkable thing about the heads is their enormous size.



LEFT: The floater experiment, showing M-160's orientation 35.5 west of magnetic north. CENTER LEFT: Top face and cross section of M-160 (dimensions in millimeters). RIGHT: The total magnetic moment of M-160. M points toward the north-seeking pole, and y-z is the floating plane of M-160.

Some of them are roughly ten feet high. Of all the ancient cultures I have studied, there is no question but that the Olmec were by far the strangest. It is scarcely possible to convey the eerie fascination which a study of the Olmec inspires. On those occasions when I sometimes regret that I was prevented from studying ancient American archaeology more intensively by my university (who got wise to my doing that *and* Oriental Studies and absolutely forbade its continuance), it is inevitable because I wanted to know more about the Olmec. I had just been accepted by Dr. Alfred Kidder as a special student of *South American archaeology*, where I was going to get to grips with the Chavin culture. For at my university, all the Americanists were believers in the *Chavin-Olmec Horizon*. One of their students some years before had established to their satisfaction that the Olmec culture of Mexico and Guatemala was directly linked with the mysterious Chavin culture of the Andes, thousands of miles to the south. A direct link between cultures is technically referred to as a *horizon*.

One reason why the Chavin-Olmec Horizon attracted fierce and unrelenting criticism from some was that no one could figure out how the contact could have been kept up. I now venture to suggest that since we have found an Olmec compass, we have a means by which the Olmec could have navigated to the coast of Peru successfully. This might possibly be the answer to that particular enigma. Personally, I always thought this must be so, and have believed since 1963 that the Olmec *must* have had compasses.

Second Look plans future coverage of the Chavin culture, of the mysterious

site of Tiahuanaco, and yet further reports on the Nasca Desert. Further details will be announced as our research, by several different people, develops.

Let us turn now to what may be the most incredible object ever found by archaeologists in the New World. It relates directly to the discovery of the Olmec compass, as we shall see. It is reproduced in the photograph on pg. 13. It is a statue, being a large carving of the head of a turtle. It measures 114 cm. in length and 122 cm. across at its widest point. It is carved from a basalt boulder rich in iron which was naturally magnetized.

But the extraordinary thing is that the ancient people who carved this statue carved it in such a way that they "executed it so carefully that the magnetic lines of force all came to focus in the snout of the turtle." The turtle, therefore, is an ancient magnetic statue! I don't believe that even in the wildest fantasies of pop art in this century has

anyone thought of doing a magnetic statue of a turtle where the lines of force converge in the snout. As far as I know, this extraordinary statue may be unique in the world.

In the photograph of the magnetic turtle head, you can see that a modern compass is being held up to the turtle's nose. Professor Malmstrom, in his report on the sculpture in *Nature* magazine tells us: "When a Brunton compass was brought near the turtle head a sharp deflection of the needle was observed, of more than 60°. No matter where the compass was moved along the perimeter of the sculpture, the needle continuously pointed to the snout of the turtle. Discovery of this magnetic field prompted the testing of all other exposed rock at the site for magnetic properties, but no others were detected. This would suggest that the Izapans knew about magnetism in that they had reserved a basaltic boulder rich in iron for their carving of the turtle-head, and had executed it so carefully that the magnetic lines of force all came to a focus in the snout of the

[Not] even in the wildest fantasies of pop art in this century has anyone thought of doing a magnetic statue of a turtle where the lines of force converge in the snout . . . this extraordinary statue may be unique in the world.



Stone carvings of snake and turtle heads at Izapa.

VINCENT H. MALMSTROM

turtle."

This remarkable carving was found at the ancient site of Izapa, about 20 miles inland from the Pacific coast of Chiapas State in Mexico (near the present town of Tapachula). The ancient Izapan culture is insufficiently known, but had influence which extended all the way down to what is today Guatemala City. Michael Coe, in his book *The Maya*, has written: "Izapa itself is a very large site made up of over eighty temple mounds of earthen construction faced with river cobbles . . . Izapa was founded as a ceremonial center . . ."

It doesn't take much imagination to realize that the Izapans needed a compass in order to accomplish their feat of carving the magnetic turtle. So the discovery of the Olmec compass really saves the day, for otherwise we would be desperately perplexed, more than we are already. It is not surprising to learn from Ignacia Bernal's book *The Olmec*

World that there appear to be relationships between the Izapans and the Olmecs:

"Izapa stands out because of its stone sculptures. . . . most of them are related to the Olmec style . . . The frequent association of stelae and altars at Izapa is notable. At only one site in the Metropolitan zone—Tres Zapotes—do we find a similar situation." Bernal calls the Izapans, in fact, "Olmecoids," because "they were more or less contemporaneous and show a number of Olmec traits, though their style indicates strong differences because of fusion with local groups which were not Olmec . . ."

But where do the famous Maya stand in relation to all of this? It was thought that the Izapan culture was a direct link between the Olmec and the early Maya. But in 1976 a report was published in *Nature* magazine by five archaeologists on some research they had done at a site in the country of Belize (formerly known

as British Honduras) which indicated that the Maya had existed 1700 years earlier than anyone had thought! This sets the Maya culture in ancient America back around 2600 B.C., based on radiocarbon dates, and completely upsets the applecart. It puts the Maya earlier than the Olmec, whereas everyone had thought that the Olmec were long before the Maya. In the report just mentioned, the archaeologists reverse the conventional notion, and now say that their discoveries "provide another possible source for Olmec culture."

As for the Izapans, the archaeologist Bernal says: ". . . the Izapan style has a number of traits which resemble those in Olmec sculpture, as well as traits which cross-tie with the earliest Maya sculpture known." The turtle was extremely important to the



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The magnetic lines of force in the turtle head converge in the snout.

Izapan people. Professor Vincent Malmstrom, who reported the magnetic sculpture to the world, informs us: "The magnetic turtle-head is not the only representation of this creature found at Izapa. Overlooking the western end of the ceremonial ball court is a large altar carved from a single piece of basalt which is also unmistakably a turtle. A few meters south of this altar, adjacent to the wall of the main pyramid, is another sculpture, which has the appearance of an upturned turtle shell, again carved from a single basalt boulder. The latter would obviously have become filled with water during the rainy season, and may well have provided the frictionless surface needed for a shaving or needle of lodestone, floating on a small piece of wood, a leaf, or a straw, to serve as a compass. Clearly the Izapans, a sea-faring people, were impressed by the navigational ability of the turtle, which is common in this

area. It may be interesting to note that the theory that turtles navigate by magnetism has not yet been discounted."

Turtles are known to migrate enormous distances in the sea, indeed for hundreds of miles. Although I have not discovered any reports demonstrating definitely that turtles migrate using magnetic fields, we do know this of fish and eels. A.P. Dubrov, in his recent bombshell of a book (published in English in 1978) *The Geomagnetic Field and Life: Geomagnetobiology*, which will be reviewed in a future issue of *SECOND LOOK*, tells us of these phenomena (see pages 204-210) and also says: "Ocean currents, carrying vast masses of salt water intersect the . . . lines of force (of the Earth's magnetic field) and create electric currents that can be perceived by fish." So there is no reason why turtles should be any less sensitive than fish to these same electric

currents—indeed, it seems to me that they have more need to be. As for eels, the electric eel has been studied closely and has special organs located in its tail which generate electricity. The tail forms a negative pole and the head a positive pole, with the field surrounding the body. Sensory organs in the head perceive objects through distorting effects in the current. And, of course, where there is electricity, there is also magnetism. The two are inextricably related phenomena.

I sought further information direct from Professor Malmstrom, who made public the discovery of the turtle, thinking that there might be more such objects. But he replied: "To my knowledge, no other magnetic artifacts have been discovered in the Mesoamerican region. (I have located one other, slightly magnetized but non-oriented sculpture at Izapa. It seems

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quite apparent that the sculptor in this instance neither knew nor cared about the magnetic properties of his raw material.)”

And so that is where we stand at the moment. Many questions arise, and it would be possible to go into quite a long discussion on the similarities with China, where not only was the compass used for orientation of buildings in a geomancy tradition, but where the turtle was held sacred and used for divination. One wonders whether culture-contact could have taken place between ancient Americans and Shang Dynasty or Chou Dynasty China. Many scholars are now coming round to such a possibility of a relationship between turtles and magnetism being part of a common cultural heritage in both China and America. Indeed, some of my recent research strongly suggests a trans-Pacific link between these two areas. An article published in the

Scientific American as long ago as January, 1966, was titled “A Transpacific Contact in 3000 B.C.” and presents the evidence for Japanese pottery being found on the coast of Ecuador. Despite immense and sometimes fanatical resistance to the idea, the possibility that the cultures of ancient America and the Orient were linked is coming to find wide acceptance now. And that may be where the answer lies to the mystery of the advanced knowledge of magnetism in ancient America. □

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This article incorporates material from Robert Temple's forthcoming book on time, precognition, and cosmology, **FORESHADOWS**, to appear in January, 1980, from Sidgwick & Jackson, Ltd., of London.