ACROSS THE PACIFIC

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From Ancient Asia to Precolombian America

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PROLOGUE

The origins of Pre-Columbian civilization have fascinated archaeologists for more than a century. They have sought a solution to this enigma, via the Bering Strait, without arriving at a satisfactory historical reconstruction of its development. In this work, we will consider the possibility of a trans-Pacific solution, which integrates perfectly the latest archaeological discoveries and takes into account the complex climatologic phenomenon which has always affected the equatorial band of the Pacific Ocean, and its Asian and American banks.

If one admits the ancient Asian connection with pre-Colombian America, a question arises immediately: which are the privileged migration paths between the old civilizations of Asia and those of pre-Colombian America? The traditional answer to this question for the majority of authors has been by way of the Bering Strait. However, the assumption of a trans-Pacific link, proposed in the middle of the last century, then considered as improbable, even impossible, by the majority of archaeologists, must be re-considered today, without preconceived ideas or dogmatism. In addition, the most recent scientific discoveries concerning the climatic phenomenon known as El Niño must be brought to bear on the subject.

Most archaeologists and ethnologists of the North-American School have supported, until now, the assumption that pre-Columbian civilizations founded their origin in migrations from Asia, through the Bering Strait, during the last ice age approximately 11,500 years ago. These migrations would have then been from north to south along the west coast of the North American continent.

These primitive population groups would have then evolved in situ, according to a local context only. This assumption explains rather well the origin and the development of the Proto-Americans (or Clovis) during Paleolithic and Neolithic times, but it does not correctly account for the blossoming and the development of great pre-Colombian civilizations of Meso- and South America, in the restricted peri-equatorial area called 'Nuclear America' (from Mexico to Peru). Moreover, the civilizing stage attained abruptly by certain pre-Colombian cultures of Nuclear America contrasts sharply with the primitive development stage of the peripheral cultures…during concurrent periods!

Contrary to this dominant idea of migrations from Asia only by way of the Bering Strait, (but without excluding its reality in the old Paleolithic and Neolithic American settlements), it is now possible to propose another assumption, guessed in the middle of the twentieth century, but never demonstrated. The traditional pre-Colombian civilizations distributed between southern Mexico and northern Peru, including Central American countries as well as Colombia and Ecuador, could be the product of random and multiple migrations of daring navigators coming from East Asia (China) or from South (India) and Southeast Asia (Indonesia, etc.)

These navigators could have crossed the Pacific at the level of the equator, particularly at certain favorable periods corresponding to the climatic phenomenon of El Niño. They could have followed the dominant stream of its currents and winds, landing either on the coasts of Central America, or on those of northern South America, but always close enough to the equator. Though this theory is quite old, it still remains controversial. However, recent archaeological and ethnological discoveries, as well as the description and the comprehension of the El Niño phenomenon, allows it to be illustrated it in a captivating way.

The old anthropological and archaeological "evidences" were brightly defended, and also severely criticized, in the middle of the last century. The anthropological evidence was defended by Paul Rivet (1954), who announced the existence of at least four important migrations, and by J. Imbelloni (1950-1958), who distinguished up to eight different "invasions". The archaeological evidence allowed definition of a more precise origin of these civilizations. The main contributions on the matter are from the following individuals:

- Clifford Evans, Betty Meggers and Emilio Estrada each supposed that trans-Pacific migrations could have taken place as early as 3200 BC, resulting in contacts between southernmost Japan and the Ecuadorian coast. This assumption was based on the striking resemblances between Valdivia ceramics and that of the Jômon culture in Kyushu, the older by several millennia.

- Rene Grousset had also noticed the stylistic resemblances between works of art from the Mesoamerican area and those of the Far East, particularly those of South Asia. These archaeological theories were taken seriously enough to be given space at the 1949 exhibition "Across the Pacific", in the American Museum of Natural History.

- Gordon F. Ekholm, Miguel Covarrubias, Paul Kichhoff, and especially Robert Heine Geldern had even formulated a theory according to which travellers coming from China and from Southeast Asia would have unloaded in America between 700 BC and 900 AD.

Presently, it is necessary to present a number of convergent indices and facts which contribute to reinforce the existence of direct links between ancient Asia and pre-Columbian America. If this trans-Pacific migration is assumed to have happened, it is necessary to reconstruct the scenario of the "audacious navigators". They would have left China, India, or Southeast Asia (Indonesia, Papuasia, North Australia), probably pushed by catastrophic natural events, such as drought, famine, fires, floods, vegetation changes, earthquakes, tsunamis, etc. Or they may have left because of man-made disasters such as inter-ethnic wars, socio-political upheaval, or religious revolutions. Or more simply, they could have ventured off for commercial reasons, for the taste of the adventure, in order to discover more fertile shores. Then, they would have been pushed through the Pacific, from west to east by currents and favorable equatorial winds related to El Niño. Thus, they could have landed, at various times, on the Pacific coasts of America, bringing their cultures and skills, which will be compared to American civilizations in the following chapters.

Several ancient and recent facts support this assumption of ancient sailing. Australia was populated by navigators coming from India, via the Indonesian archipelago, at least 40,000 years ago (the sites of Carpenter's Gap and Riwi in Kimberley, and of Mungo, in western News South Wales). In New Guinea, the first occupations

can be dated back to 40,000 years ago (sites of Lachitu, Nombe and Kosipe), of 30,000 years ago in the northern Solomon Islands (site of Kilu), and of 20,000 years ago in Manus island. About 10,000 years ago, settlements were even attested on the Kuk site, in New Guinea.

Though the sea level, lower at that time, allowed the main Indonesian islands to communicate between each other by land, communications with New Guinea and the Melanesian islands required sailing at sea on rather long journeys, in particular on an equatorial oceanic route subject to the El Niño phenomenon. Then, due to sea level rise, the Australian ethno-geographic area was insulated thereafter until Europeans arrived. However, other ethno-geographical areas such as Melanesia, Micronesia and Polynesia would have been prone to many migrations coming from East Asia (China in the broad sense) or Southeast Asia (Indonesia and Vietnam). In 1991, Frenchman Gerard d' Aboville successfully crossed the Pacific, alone, in an oared boat. He departed from Choshi, Japan on July 10th and reached the US coast on November 21st. This demonstrates that, if necessary, it was possible to cross the Pacific Ocean using small boats, today, yesterday, and undoubtedly 5000 years ago.

The settlement of Nuclear America was a case of eastern conquest by people coming from Asia, started around 3200 BC.

Pre-Colombian settlements in Meso- and South American areas could thus have been populated by successive immigration waves, in the period ranging between 3200 and 2500 BC, according to the following scenario:

In the Meso-American area, covering Mexico, Guatemala, Belize, Honduras, El Salvador and Nicaragua, there developed the "**jade civilizations**" or, more generally, the "polished stone" civilizations. The original settlement could have occurred very early, primarily starting from the East -or from Southeast Asia, under strong Chinese cultural influence. China (in the broad sense) would not have been a single cultural unit before the Xia, but rather a mosaic of cultures, some of whom were very advanced in their localized areas. They probably developed sailing in open sea like the Indus Valley people, including crossing the Pacific Ocean.

On their arrival in America, these groups of Asian immigrants would have been confronted with the prehistoric autochthons, that is to say, with groups of former immigrants (Clovis, proto-Olmecs, proto-Mayas, etc), and such contact could have played out according to four possible scenarios. Given their technological advances, they could have conquered the pre-existing groups of people, who had

more primitive cultures at the time. Alternatively, the natives could have been assimilated, which is most probable, or they could have been repelled by groups more aggressive (located at the periphery of the developed areas). Or finally, they could have been eliminated, purely and simply. Mesoamerican pre-Colombian civilizations thus present an extraordinary paradox with the coexistence of their very advanced cultures based on relatively basic technologies. These Mesoamerican cultures would have known the beginnings of metallurgy only around 600-800 AD, and their real development did not occur until about 900 AD.

In the South American area, covering Costa Rica, Panama, Columbia, Ecuador, Peru, Bolivia and the north of Chile, there developed the "**golden civilizations**" or, more largely "metallurgic civilizations". The original settlements were older and more culturally disparate than in Mesoamerica, with mixed Indian-Dravidian and East Asian components represented, to a certain extent, by the Sino-Tibetans and the Indo-Chinese coming from South- and Southeast Asia (Thailand, Kampuchea, Laos, Vietnam, Philippines, Indonesia and possibly Melanesia).

As in the Mesoamerican area, waves of the most advanced immigrants, the best organized and technologically most developed, could then either conquer, control or assimilate the already sedentary former people, or push them back towards the east in the Andean mountains, and even further, into the Amazonian rainforest to the Caribbean or Atlantic shores. This would have happened to the most primitive groups or tribes, those who would not have liked to be subjected. These pre-Colombian civilizations used stones but also had knowledge of metallurgy, melting and working gold, platinum, silver, copper and bronze more than 1000 years before our era.

Whichever pre-Colombian area is being considered, the evidence forces us to note that new Asian navigators each time brought with them their culture, i.e., their religious beliefs, sculpture and painting, their political, social and cultural organizations, their technological knowledge, not only in weaponry, but also in architecture, and even in hydraulic systems, allowing for the irrigation of cultivated grounds, and knowledge of their crafts, such as the manufacture of nets, basket making, weaving, pottery or metallurgy. They could then have imposed their religious and social habits on the already sedentarized people without systematically destroying all that pre-existed. This does not exclude the development and the particularities of local

cultures, which could have conquered neighbouring tribes and territories to strengthen their borders and to extend their influence.

Another important aspect of eastern cultures such as China, India or Southeast Asia is the preservation of their ancestral traditions, providing excellent points of comparison with past pre-Colombian cultures. When comparing the most primitive, similarities between the habits of current Amazonian cultures and those of Borneo or Sulawesi (Celebes), are striking enough. Among the most advanced, surviving pre-Colombian cultures such as the Lacandons of Mexico, Mayas of Guatemala and the Kogis of Colombia, all have habits similar to those of some Asian tribes, such as the Dayaks of Kalimantan, the Karens of the "Golden Triangle", and even the Hmongs of Laos. Moreover, pre-Colombian archaeologists have made contact with living, remote groups, some of whom have been almost free of modern influence, allowing us to learn the past in the light of the present.

Indeed, when one examines the sum of archaeological and ethnological discoveries during the last half-century, in pre-Colombian America or in Asia, one is struck by their similarities and by a deep feeling of humility with respect to our current knowledge. This knowledge can be changed at any time by a new major discovery.

As Aldous Huxley wrote in his *A Note on Dogma*, "The facts do not cease existing because one is unaware of them."

Chapter 1
The El Niño Phenomenon

Under the trans-Pacific migrations assumption, the El Niño phenomenon would have allowed the possible connections, during certain periods, between East-, South- and Southeast Asian civilizations and pre-Colombian civilizations.

This is a complex and major climatic phenomenon which cyclically affects the climate and all the ecosystems of the equatorial band of the Pacific Ocean. It is important to understand its causes, effects and consequences in order to trace it back in time, and clarify the suggested trans-oceanic connection.

Origin of the Name "El Niño"

This name comes from Peru. It means "the little boy" in Spanish, in reference to the Child Jesus, because this phenomenon has a tendency to appear on the Peruvian coasts towards Christmas.

What is this Phenomenon?

It is a temporary climatic event of a great amplitude, consisting of cyclical oscillations, which affects the sea by reheating the surface waters, modifying thermoclines (transitional layer between superficial and deep water), and inverting currents. It affects the air by changing atmospheric pressures and precipitation and by inverting the tropical easterly wind. Soil can be affected by heavy rain or catastrophic dryness. With each occurrence, it modifies the fragile climatic balance of

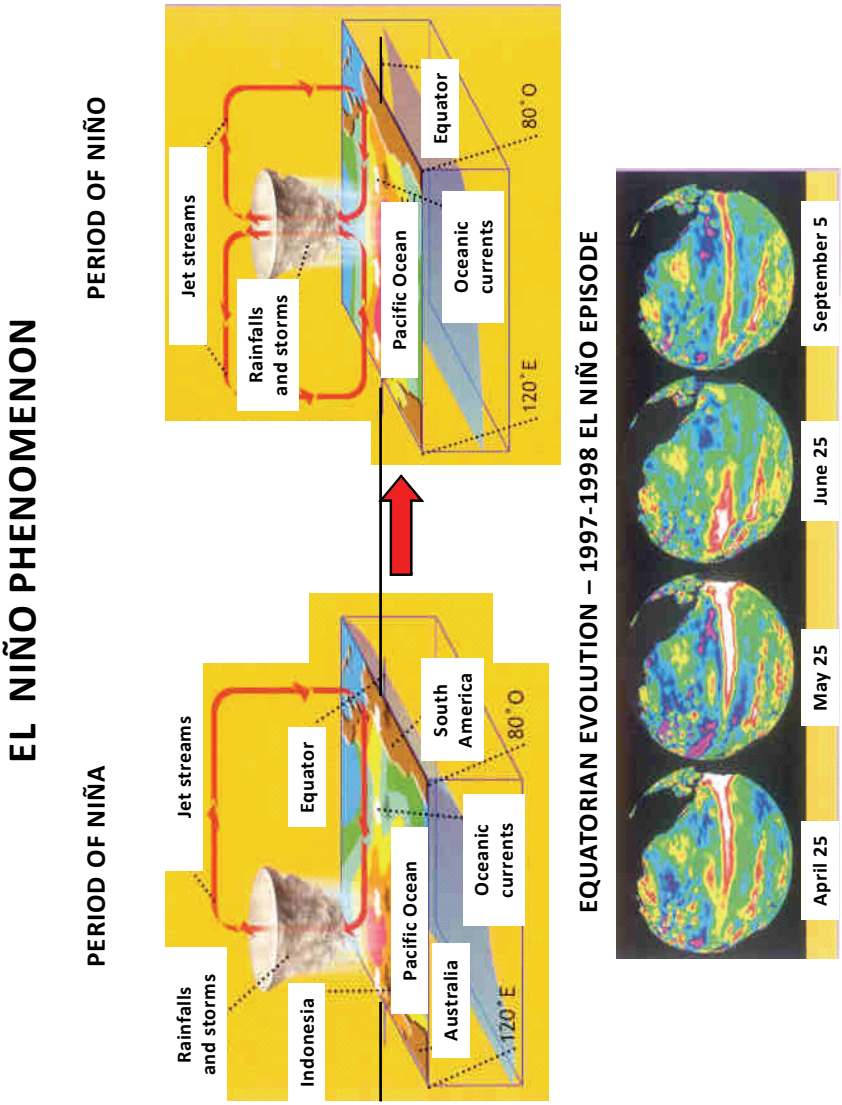

Plate 1: El Niño Phenomenon

both the Pacific's western and eastern equatorial banks, precisely the areas of Southeast Asia, Central America, and down to the north of South America (Colombia, Ecuador, Peru and north Chile). It is called ENSO for "El Niño Southern Oscillation". To understand it better we should refer to Plate1.

During opposite periods called "La Niña", high atmospheric pressure is located in the east and the low pressure in the west. Thus, the trade winds blow from east to west throughout the Pacific Ocean. These winds carry hot surface water towards the west, i.e., Southeast Asia, while deeper, cold water goes in the opposite direction along the east coast, i.e., Central America and northern South America. This is the regime known as the Humboldt Current.

During periods of El Niño, however, atmospheric pressures either attenuate or reverse, and the winds blowing from east to west either decrease or are completely reversed. The hot water of the western Pacific then moves east, in the form of an equatorial tongue, over 8000 kilometers (Fig.1). This hot water band is the place where, at the atmospheric levels, strong tropical rains and winds (jet streams) occur, going from Asia/Southeast Asia (west Pacific) and reaching the Central- and South American coasts (east Pacific).

At the end of these periods of El Niño, the cycle changes and may be followed by a cooler period known as "La Niña" or by normal climatic conditions. During either of these other periods, the equatorial trade winds blow from east to west, hot water is pushed back towards the western Pacific, and the cold water of the Humboldt Current goes up along the American southern coasts towards the equator (Fig.2).

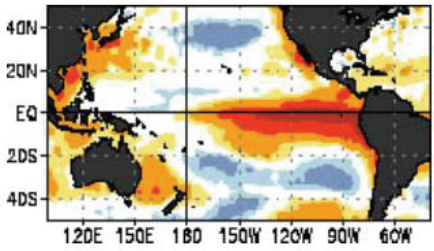

Fig.1
El Niño period
(hot in dark grey)

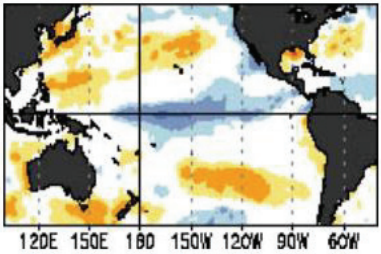

Fig.2
La Niña / Neutral period
(cold in grey)

Periods of El Niño last between 14 and 22 months and have a frequency which varies between 5 and 7 years (on Figure 1, hot waters are illustrated in dark grey). Periods of La Niña last only 9-12 months, occurring every 3 to 5 years (on Figure 2, cold waters are illustrated in grey). These two reversed systems form the tail ends of a bell curve cycle and are closely bound. Indeed, some scientists argue that there exists only varying degrees of El Nino and La Nina, and that precisely is the assumption of the author. Scientists have even been successful measuring the intensity of this phenomenon thanks to a scale called the Southern Oscillation Index (Fig.3).

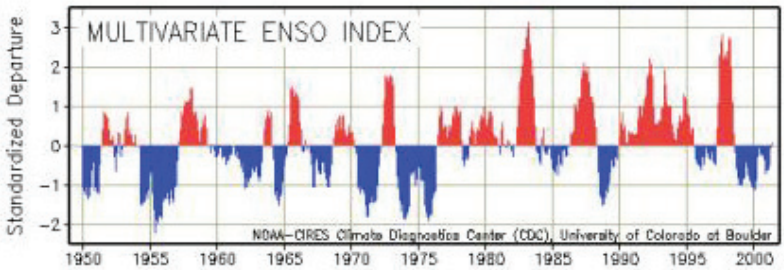

Fig.3
Variations of the Intensity of El Niño temperatures over time

Its Effects and their Consequences

These periodic inversions of winds and of hot and cold currents within the equatorial band of the Pacific Ocean bring considerable climatic and ecological modifications to the neighboring lands.

In periods of El Niño, in the east, from lower California to the north of Chile, increasing rainfall becomes torrential, with inundations and landslides. In the west, in Indonesia and in the north of Australia, dryness prevails, with catastrophic forest fires. The situation might even cause a reduction in the intensity of the monsoon, causing thin harvests and famine in India.

In periods of La Niña, these effects are reversed and the dryness prevails in Ecuador and in the north of Peru, while the countries of Southeast Asia experience strong rains and even floods. However, the return of the cold water linked to the Humboldt Current correlates with increased phytoplankton along the coasts of Peru and Ecuador, allowing for the restart of anchovy and sardine fishing, basic food for pre-Colombian people for at least 5000 years.

EFFECTS AND CONSEQUENCES OF EL NIÑO (1997-1998 EPISODE)

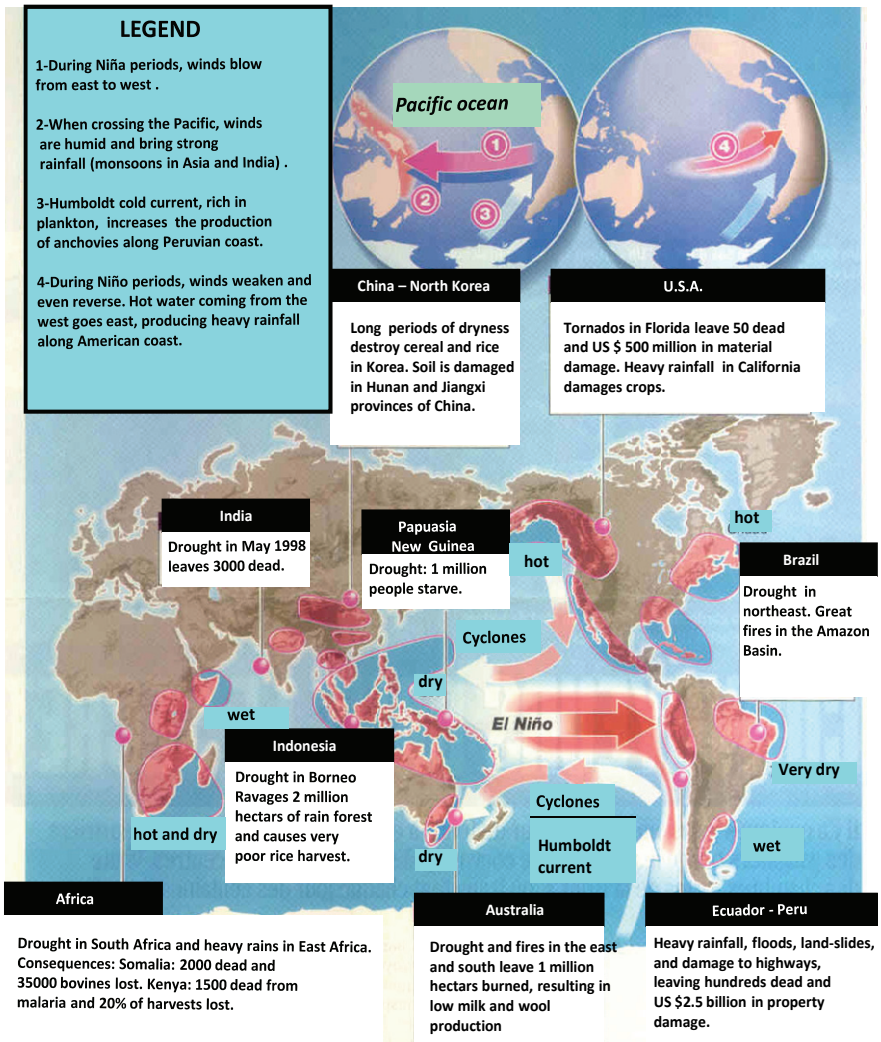

Plate 2: Effects and Consequences of El Niño (1997-1998 Episode)

The effects of these climatic oscillations have extremely important consequences on the lives of the populations and the economies of the pertinent cultures. The consequences of the 1997-1998 episode (Plate 2) give an idea of what these consequences could have meant in pre-Colombian times, when all that was incontrollable was deified by the people. A corollary question then arises, is there any connection between periods when the El Niño phenomenon climaxes and the 208 year solar cycle, a rhythm that contributes to periods of dryness and great rainfall globally? The answer to this question seems to be positive; this phenomenon can even become permanent if temperatures rise in the tropics. Global climatological and paleoclimatologic research is still in progress and will certainly clarify this point in the near future.

How Long has this Phenomenon Existed?

This climatic cycle has been studied statistically since 1969, and more generally during the last 50 years.

Research into such events concerning the remote past, by the means of paleo-climatology, is only at its beginning. The first outstanding study of these paleoclimatic events was compiled on a time scale basis (Plate 3) and is detailed below.

In South America: Studies carried out by Ruth Shady and Carlos Leyva on the Peruvian Andes glaciers makes it possible to subdivide the Holocene into climatic phases.

The Jalca phase, from 8000 to 5500 BC, was a prevalently cold climate period, and was subdivided itself into three sub phases: Jalca 1, characterized by a relative reheating and a retreat of the Wurm glaciers, Jalca 2, with a climatic cooling, and Jalca 3, with a marked reheating and an intense melting of the Andean glaciers.

This was followed by the Yunga phase, from 5500 to 2000 BC, which involved a general rise in temperatures. The oldest attestation of this phase goes back to 2200 BC, where a hot period, accompanied by an immense dryness (La Niña), left its signature in the Kunzi glacier of the Andes. This evidence was discovered by Dr. Lonnie Thompson in 1993.

The climatic oscillations were also recorded thanks to variations in the level of Lake Titicaca: from 8000 to 5000 BC, the level dropped by 50 to 60 meters, between 5000 and 2500 BC, the level went up due to reheating, and around 1000 BC, the level was 5 meters higher than it is currently, indicating a hot and wet period.

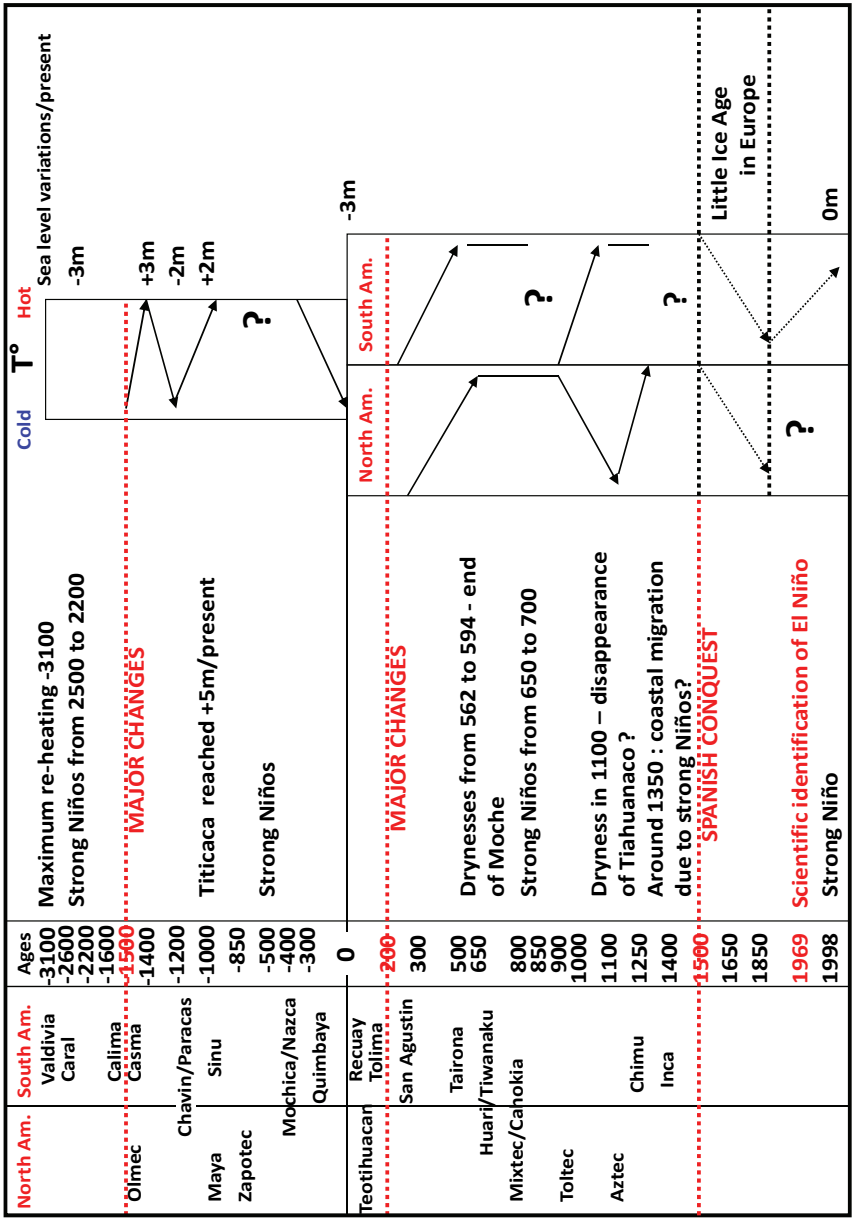

Plate 3: Climatic Changes and Precolombian Cultures

Professors Claude Chauchat and Santiago Uceda have also discovered traces of this phenomenon at work in Peru in excavations of Mochica ruins, going back approximately 2000 years.

In 200 AD, a period of strong El Niño inflicted dryness followed by fires in the Amazonian forest.

Between 920 and 1000 AD, a period of very strong El Niño, with lengthy dryness and sandstorms followed by devastating floods, affected the Lake Titicaca area and left traces in the Andean glaciers.

More recently, Dr. Steve Le Bourget has discovered an old Inca funerary well, about 500 years old, which contained 80 people. Were these people possibly sacrificed to calm the anger of the god of the Sun? Why? This date corresponds to a period of a strong El Niño, occurring between 1500 and 1600 AD, which would have resulted in strong fires in the Amazonian forest.

In North America: With regard to the post-glacial period in which we are still living and which started approximately 15,000 years ago, the paleo-environmental history of North America is believed to be appreciably parallel to that of Europe. If this proposal is accepted, it is then possible to reconstruct the broad features of the North-American continent's paleo-environmental history based on Furon's studies in "Elements of Paleoclimatology" as:

From 10000 to 9000 BC, a reheating called Wisconsin corresponds to Alleröd in Europe.

In 9000 BC, the climate was marked by the Valders cooling.

As of 8000 BC, a punctuated general reheating with hot and cold oscillations prevailed, not excluding local particularisms due to the geography and topography of the places considered.

The maximum reheating would have taken place around 5000 BC, and from there, the sea level rise would have been continuous until reaching the current zero level around 4000 BC. However, the reheating continued until the sea level reached an additional four meters, around 3100 BC, observed in Europe as the maximum Flandrian transgression (glacial retreat).

It is probably at that time, around 3200 to 3000 BC, that the exacerbation of the catastrophic climatic phenomenon related to El Niño would have supported the first migrations of populations from Asia. This might have involved only populations having reached a sufficient technological development level to sail in open sea between Asia and America, within the equatorial band.

Thereafter, the study of European shore lines, concordant with climatic phases, allows us to reconstitute its history, thereby showing a great variability. Thus, if we admit parallels between Europe and North America, then it is possible to specify its chronology:

Towards 2300 BC, there was a cold phase, with consequently an increase in the ice of the poles and thus a marine regression, lowering the level of the marine shorelines by three meters with respect to current sea levels.

Towards 1600 BC, on the contrary, there was a hot climatic oscillation, with shore levels higher than three meters compared to the current level. It was undoubtedly a period of El Niño exacerbation and thus of another wave of emigration from Asia to the coasts of equatorial America, perhaps providing clues to the material culture found along Guatemala's Pacific coast dating to between 1900 and 1600 BC.

Towards 1300 BC, a new cooling brought a fall of the sea level by two meters.

Around 300 BC, a new reheating allowed the seas to go up by two meters compared to the current level. It was another period of El Niño exacerbation and probably of migration. Indeed, this date corresponds to an increase in the making of ceramics on the Central American coast, which demonstrates the correlation between the extremes of El Niño and emigration from Asia towards America, with a corresponding increase in population. (See following chapters.)

At the beginning of our era, a new cooling was responsible for a regression of three meters below the current sea level.

Between 300 and 1000 AD, a new hot period gave birth to a new marine invasion of the shoreline, exacerbating the effects of El Niño and leading once again to subsequent migrations.

From 1000 to 1200 AD, a new cooling produced a correlating marine regression.

Around 1300 AD, a climatic reheating was the prelude to the recorded historical cooling which occurred between 1650 and 1850 when the glaciers progressed during what is called the Small Ice Age in Europe.

From 1850 to 1950, the climate constantly warmed up, producing glacier melting and a rise of the sea level.

Since 1950, thanks to the progress of climatology, satellite imagery, the multiplication of the statistical studies and the development of mathematical climatologic models using powerful computers, we

have been able to check with greater accuracy the earth's climatic instability during the last fifty years. Consequently, we can conceive what could have happened during the past centuries and millennia.

In the Caribbean Sea: Isotopic analyses of pelagic tests for microscopic animals called Foraminifera, discovered in deep water cores in this zone, make it possible to have an idea of the main temperature variations. If the current surface water temperature is 32°C, this temperature would have only changed a little during the last ice age (Würm IV, ending around 12,000 BC). During this Würm ice age, between 28,000 and 12,000 BC, the sea water temperatures oscillated between 29° and 25° C, demonstrating the important thermal regulator role played by the oceans and the largest ocean, the Pacific.

Recent research using chemical tracers yielded results much more precise. Paleoclimatologist G. Haug detected, in sediments deposited in the Cariaco basin off Venezuela, at least three successive waves of intense dryness, in 810, 860 and 910 AD. Perhaps the initial dryness could have even been as early as 760 AD. Each episode, intense and short, would have lasted from three to ten years at the longest, as happened in 810 AD. It is also, as we will see later, the period corresponding to the decline of Maya civilization in Yucatan. Are they coincidences?

In the Pacific Ocean: Researchers of the Noumea Research Institute for Development (New Caledonia) studied certain chemical tracers in fossil corals off the Vanuatu archipelago. They deduced that, since approximately 2200 BC, the water temperature, sunning and the sea level have changed only little. Furthermore, the seasonal variations between summer and winter, now ranging between 2°C and 4°C, back then were marked, from 5°C to 6°C, between 2193 and 2189 BC.

In conclusion, it would seem that these important thermal variations mean that the El Niño climatic and cyclic phenomenon was much more intense formerly than they are today, with episodes at the same time longer and of stronger amplitude.

It is probable that these studies will increase in the coming years and enable researchers to establish an even more precise chronology of this El Niño phenomenon… but how is it relevant to our study?

The Assumption

If we agree that El Niño occurs at certain climatic periods, providing a privileged navigable link between Southeast Asia and equatorial

America, then it is possible to propose it as an enabler of multiple migrations across the Pacific. It may well explain the origin of these great pre-Colombian civilizations in an area close to the equatorial belt, called **Nuclear America**. Without any great speculation, it is possible to then say that this long trans-Pacific travel could have been carried out in a much shorter lapse of time during periods of El Niño, thanks to reversed currents and favorable winds, thus increasing the chances of survival for these intrepid navigators coming from Asia in their frail rafts. What yesterday appeared improbable becomes most probable today, thanks to the magic of El Niño!

Random Landing in America

According to recent studies, past behavior of the El Niño phenomenon is not rigorously identical to today's, as shown by the comparison of El Niños in December 1993 and December 1997 (Fig.4 and 5). The El Niño of December 1993 was limited to north of the equator, affecting the Central American and the Southern Mexican coasts. The El Niño of December 1997, the southernmost, was centered on the equator, arriving in Colombia, Ecuador and north of the Peruvian coasts.

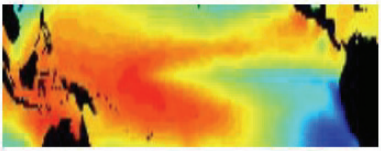

Fig.4
(Niño Dec. 1993)

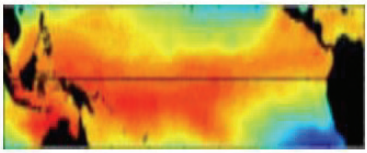

Fig.5
(Niño Dec. 1997)

Surface water temperatures

Comparisons and Comments

Now, if one compares the equatorial bandwidth affected by this El Niño phenomenon across the Pacific Ocean, one realizes immediately that its North-South extension along the American continent's coast corresponds precisely to the areal distribution of great pre-Colombian civilizations. Only the great ones, occurring between Mexico and Peru, left important architectural vestiges, such as religious monuments or imposing palaces, testifying to high levels of advancement. In order to build such monumental vistas, it was necessary for these people, to have advanced architectural techniques and a consistent labour force, organized from a religious and social

point of view. We do not find such architectural vistas northward, between California and Canada, nor is it found southward, between northern Chile and Argentina.

This extraordinary match-up between the El Niño's distribution on the American coast and the area encompassing the great pre-Colombian civilizations is not mere coincidence.

However, if we accept the reality of this trans-Pacific link, many questions remain: such as, what was the importance of maritime exchange in the Pacific during these remote times? If we do not have any certainty, the answer to this question starts to become clearer upon inspection. In the Inca chronicles collected by the Spanish conquistador Sarmiento de Gamboa, and recently exhumed by scholar Salvador de Madariaga in Seville, there is a mention of the arrival of immense rafts with thousands of navigators on the Peruvian coast. This recorded event occurred well before the Inca's own time, showing that the Pacific was not an insurmountable barrier even in pre-Colombian times. However, for the success of an expedition, how many perished in the tropical tornadoes of this ocean?

Travel without Return?

In 1947, the great Norwegian navigator Thor Heyerdahl, succeeded in showing that travel in the opposite direction (from America) was also possible. In a raft he named Kon-Tiki (after the Inca creator god Viracocha), he sailed from the south of Peru (Callao) and reached a Tahitian atoll after 101 days of navigation, thanks to the Humboldt Current. In normal times (La Niña period), this powerful current skirts the Peruvian coast and curves towards the west at the southern latitude of the equatorial band, moving towards the Tahitian islands (Fig.6).

Since this bright demonstration, other adventurers have successfully duplicated this crossing. Recently (November 2003), the Frenchwoman Raphaëla le Gouvello joined Peru and Tahiti in three months on a small windsurfing board, thereby showing its relative facility.

In addition, according to the Peruvian historian Jose Antonio El Busto who has just written the history of Tupac Yupanqui, the Incan emperor, it is very probable that this last led a maritime expedition through the Pacific, from the Peruvian coast to the island of Mangareva in Polynesia (based on previous work by archaeologist Jorgue Marcos), and then on to Easter Island, where he could have admired the famous statues dated to the fourth century of our era. Moreover,

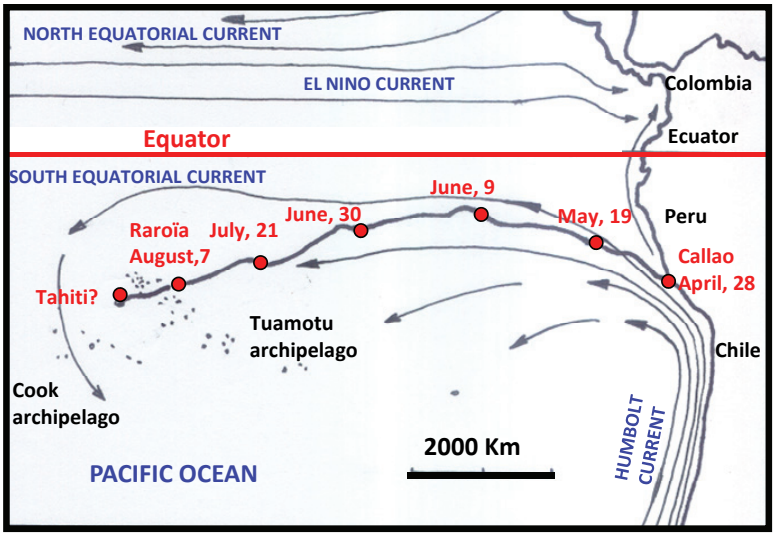

Fig.6
Kon Tiki Trajectory

petroglyphs representing a man-bird similar to the Incan god have been discovered there, indicating a trace of such travel or of older links between Easter Island and Peru. According to the Inca Chronicles, the rafts were made of balsa trunks and bamboo, with cords of bound hemp and cotton sails. They were propelled by four drifts, two in the front and two in the back.

These old audacious Asian navigators did not even require compasses to sail to Central America, because at the equatorial level, the East-West direction is given by the sun's diurnal trajectory, which naturally indicates the way to be followed.

This being said, rather than to seek the origin of these great pre-Colombian civilizations in the idea of an "in situ" evolution of local prehistoric tribes existing since 3200 BC, who then at various later periods of their history morphed into "puffs of spontaneous blossoming civilizations" as advanced as those of the Caral, Olmec or Chavin, it is more logical to take into account the direct influence of outside pre-existing civilizations who were technically more advanced either before or contemporaneously, on other bank of the Pacific, in Asia.