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137.0 THE WORLD AGES IN INDIA AND MESOAMERICA. By David H. Kelley, professor of archaeology at the University of Calgary, Calgary, Alberta, Canada. Guest address delivered at the Twenty-second Annual Symposium on the Archaeology of the Scriptures, held at Brigham Young University on October 28, 1972.

Bibliographic Note. By Robert W. Bass. The author of the following paper, Dr. David H. Kelley, is a leading archaeologist and authority on ancient Mesoamerican writing, calendrics, astronomy, and mythology. Trained at Harvard University, he recently spent a year doing research at Cambridge University in England.

Some of Dr. Kelley's other papers which should interest readers of the *Newsletter and Proceedings* are: "The Birth of the Gods at Palenque," *Estudios de Cultura Maya*, Vol. 5, pp. 93-134, Universidad Nacional Autonoma de Mexico, 1965; "The Nine Lords of the Night," *Contributions of the University of California Archaeological Research Facility*, No. 16, pp. 53-68, Berkeley, 1972; and "Mayan Astronomy and Astronomical Glyphs," *Dumbarton Oaks Conference on Mesoamerican Writing Systems*, pp. 179-215, Washington, DC, 1974.

Dr. Kelley is the co-author, with Hugh A. Moran, of the volume, *The Alphabet and the Ancient Calendar Signs*, 1967. His latest book, *A Primer of Maya Hieroglyphic Writing*, is presently being published by the University of Texas Press. Currently, he is working on a monograph about Maya astronomy and problems of correlation of the Maya with the European calendar.

ALTHOUGH THE MAJORITY of scholars interested in the ancient high cultures of the Americas believe they developed with little or no stimulus from the Old World, a surprising number of recent studies have indicated items which may have originated in the Eastern Hemisphere.

The *Lagenaria* bottle gourd, botanically of African origin, has appeared, evidently as a domestic plant, in deposits from Mexico of about 6200 BC; the New World cottons are hybrids derived in part, naturally or artificially, from Asian cottons; the earliest New World pottery, from Ecuador of somewhat before 3000 BC, is

surprisingly like contemporary Japanese pottery; beaten-bark cloth, prepared in a similar way with similar implements, suggests derivation of the Mesoamerican industry from Southeast Asia, perhaps about 800 BC. A variety of major and minor items of later date, including such processes as loom weaving and metallurgy, also suggest that the New World was by no means completely sealed off from the Old World.

Nevertheless, there are no clearcut, fully acceptable items proving the significant presence of Europeans, Asians, Africans, or Australians in the New World prior to the time of Columbus.

It is my own conviction that, short of finding a numerous group of Old World artifacts, only the correspondence of complex systems can suffice to demonstrate contacts between the Old World and the New. My interest has been particularly in the history of the complex group of ideas embodied in the calendar system of Guatemala and southern Mexico (i.e. the area called by archaeologists Mesoamerica).

In this paper, I am going to suggest that an extensive series of ideas about the nature of the universe, developed in Eurasia, was adopted and changed by the people of Mesoamerica in the first or second century BC. The purposes of this paper are: (1) to demonstrate, by the similarity of arbitrary ideas in both areas, that contact occurred, and (2) to reconstruct some of the important features of the cosmological scheme as it was developed in Mesoamerica. I shall not here be concerned with the human realities which must, of necessity, be incorporated in such a scheme.

GREEK AGES

The concept of the World Ages is most familiar to us through Greek ideas, implicit in familiar references to the "golden age". The usage is so much a part of our everyday vocabulary that we are apt to forget that an association of virtue and plenty with gold or any other metal is a purely arbitrary one. The best study of the Greek and Roman ideas known to me is that of Kirby Flower Smith (see Bibliography at the end of the paper). The first surviving account is that of Hesiod (eighth century BC), who tells us of five ages of gold, silver, bronze, heroes, and iron. In such a sequence of metals, the heroes are an obvious intrusion, warning of the reworking of older ideas.

In general, the early versions of these Greek ages emphasize a lost time when "men lived long, never grew old, and died a painless, i.e. a natural, death. Meanwhile, they passed their days like the gods in innocence, peace, and fabulous plenty, making merry continually, and knowing nothing of labour, disease, or sorrow" (Smith, p. 194).

According to Hesiod, in each subsequent age the gods were supposed to have made a new race of men, each inferior to the preceding, save for that of the intrusive "age of heroes." Casual remarks that the men of the Golden Age ate the products of the "teeming earth" while those of the Bronze Age ate no grain were later elaborated systematically. By the time of Empedocles (fifth century BC) it was specified that the men of the Golden Age were vegetarians. This idea became interwoven with a generalized concept that technological advances produced social conflict and degeneration. This partially reconciled ideas of evolution and progress with the contrasting view of decline and degeneration. Aratus, the Alexandrian poet of the third century BC, stated that the men of the Golden Age were simple farmers, while in the Bronze Age swords were invented and oxen were first slaughtered for meat. The impiety of navigators, who defied the power of the god of Ocean, was associated with the invention of the first ship.

None of the early accounts associate the world ages with cataclysms, although tales of destruction by flood or fire were known. Indeed, a standard analogy between the four world ages and the four ages of man seems to conceive of the division between one world age and the next as a relatively arbitrary division. The generally cataclysmic nature of the division between the world ages seems to have first become widely accepted in the first century BC with the incorporation of two other important ideas.

CYCLES

The first of these ideas which were developing about this time in Greece was the concept of cyclical recurrence. Originally associated with the seasons and with directly astronomical events, it came to be tied to a great many other ideas, including eventually the view that even historical events would recur in exactly the same form at some future time. This idea seems to have been associated with the concept of the world ages at an early date. It was also associated with cataclysmic destructions and the latter were put into a framework of recurrent astronomical events at least by the time of Plato (c.400 BC).

According to Plato a great year was the period in which all the planets returned to their starting point. Either during the cycle or at its end, there was a reversal of direction, accompanied by fire, flood, or some other cosmic upheaval. Smith (pp. 197-198) interprets this as reversing the direction of revolution. However, Aristotle put a flood at the winter solstice of the great year and a destruction by fire at the summer solstice. In the regular year, the solstices are the points of "reversal" of the *sun*, and I suspect this is what Plato intended. Moreover, Plato directly associates the "Golden Age" with the forward revolution and "our" age with the backward revolution. Nonetheless, the full scheme of the four or five world ages was not really associated with cataclysms until considerably later. Ovid was one of the first to do this, making Deucalion's flood the end of the Iron Age and putting both the Heroes and his own contemporaries into the fifth Age.

ASSOCIATION OF ELEMENTS

The second important idea which was developing about this time was that of elemental states of matter, usually three, four, or five of them. In the commonest scheme, attributed to Empedocles, they were fire, air, water and earth. It is not entirely clear whether this system was derived from India or transferred to India. It appeared there in documents usually believed to be substantially earlier than Empedocles, but the dating of documents exclusively from internal factors is notoriously uncertain. From the time of Aristotle, "aether" is often added as a fifth element. A closely corresponding concept is found in very early Hindu materials, but the traditional four are also important.

Smith (p. 199) draws attention to statements of Dio Chrysostom (first century AD) that the Magi (here probably Iranians) taught that "the Lord of the world rides in a chariot drawn by four horses which are sacred to Zeus, Hera, Poseidon, and Hestia, respectively." Zeus, as sky god, here apparently stands for air; Hera is the goddess of earth; Poseidon the lord of ocean; and Hestia

the guardian of the hearth and a fire goddess. Dio goes on to attribute the destruction by fire in the Greek story of Phaethon to the restive actions of the first steed, and Deucalion's flood to the restiveness of Poseidon's horse. Gruppe (p.450) cites the late Syrian *Apologia* of Melito for destructions by wind, water, and fire and suggests a further destruction by earthquakes, but cites no source for this. However, it is probably implicit in Dio's account. According to Nigidius Figulus, the great year had four seasons, each ruled by its appropriate element. The association of the world ages with cyclic theories, with cataclysms, and perhaps with the four elements may have been more or less complete by the first century BC.

AGES IN INDIA

A parallel development went on in India. The development of ideas of the recurrence of cataclysms and the association of these with a series of four world ages was present by the time of the *Mahabharata*, the great epic, probably in about the second century BC. Each age was called a *yuga*, and four ages made up a *mahayuga* or great *yuga*. Already by the second century BC it was maintained that 1000 *mahayugas* made up a *kalpa* and that 72,000 of these formed the life of Brahma. It seems, however, that the original *kalpa* may not have been greatly distinguished from the *yuga*. An inscription of the emperor Asoka in the mid-third century BC refers to forthcoming disasters at the end of a *kalpa*.

For present purposes, I shall refer only to the four *yugas*, unless other periods are specified. In most Hindu sources, these have the length ratio of 4:3:2:1, so that the last *yuga* is 1/10 of the total period, although the astrologer and astronomer Aryabhata, in the fifth century BC, made them of equal length. They are usually said to be 4800, 3600, 2400 and 1200 "divine years" long, respectively, thus totalling 12,000, each "divine year" later said to equal 360 mortal years.

Buddhist sources use a scheme with tremendously longer periods and seem somewhat inconsistent. In one version, there are 64 great *kalpas* in which there are seven destructions by fire, then one by water, then seven by fire and one by water, repeating thus to the completion of 56 periods, followed by seven destructions by fire and one by wind. Here three of the four elements are associated with destructions.

In the Hindu epic sources the end of each age is cataclysmic, but fire, water, and wind evidently appear as joint agents of destruction at the end of each *yuga*. The last age is said to have begun with a mass conjunction of the planets at the spring equinox of 3102 BC in late sources, which is also implicit in one remark in the *Mahabharata*. According to the Iranian Abu Ma'shar, this

was the date of the Flood, thus apparently combining Mesopotamian and Hindu views (Pingree, p. 243).

In the Buddhist, Jain, and some other Indian sources the length of the period of destruction which intervenes between the ages is specified, which seems to be an attempt to formalize all the chronological information in the account.

Jain sources use the Hindu 4:3:2:1 ratio but applied to immensely longer periods in a pattern of combined evolution and devolution going eternally 1:2:3:4//4:3:2:1. All the Indian sources indicate a regular diminution of physical size during the period of degeneration, accompanied by diminution of length of life and diminution of virtue, all according to the regular 4:3:2:1 ratio. They also formally specify different kinds of foods in the various ages.

In Buddhist accounts, the beings of the first age were sexless, living on a foam produced by the ocean; then they began eating moss and creepers, and finally rice. The last-mentioned may imply farming. With it, sexual differentiation and marriage appear.

Hindu versions are similar in concept but different in detail. The people of the first age were a thousand pairs of sexless twins living directly on products of the earth. In the succeeding period, trees first came into existence, producing a honey which people ate. Sexual differentiation appeared, the people built houses, and trade, personal property, and quarreling began.

In late sources, each age is associated with a different caste. Directions and colors are also associated and are found in the writings of the Hindu astrologer Varahamihira of the fifth century AD. Colors were already associated with the world ages in the *Mahabharata* in about the second century BC, in the order white—yellow—red—black or white—red—yellow—black. In the system of Varahamihira, white is associated with north and Brahmins (priests); red with east and Ksatriyas (warriors); yellow with south and Vaisyas (merchants and others); and black with Sudras, the lowest of all. The gods of the elements are also associated with directions in somewhat variable forms. Vayu, "wind," in the northwest, is represented by white and opposes Agni, "fire," in the southeast. Varuna, lord of ocean, is always associated with the west and with black. Earth as a separate god-element is assigned to a direction only in late sources: the east.

MESOAMERICAN SCHEME

In Mesoamerica we have a remarkably close set of parallels both to India and to the Hellenistic world. The ages are recurrent and cataclysmic and the agents of cataclysm are the same four elements as known in India.

In some cases, the length of the period of destruction is specified. Each age is associated with a separately-created race of men, and the ages have their colors, identical with those of India and in the same sequence. In each age there are different foods which were wild plants in the preceding ages. Size and virtue both decrease (although not with the rigid regularity of our Indian sources). Finally, I shall argue that equinoxes, solstices, and planetary movements are all implicit in the Mesoamerican accounts and that the base of the Maya era corresponds structurally, with some changes, to the base of the *kaliyuga* era.

A good summary of the Mesoamerican material is given by Roberto Moreno de los Arcos. This study shows the diversity of our sources. The order of the World Ages (called "suns") is different in most of the sources, which also differ as to the number of previous ages. Moreno prefers the versions which give five ages, regarding the fifth as representing the center, "the synthesis of time, the sum of the elements". It is quite possible that this idea represents Aztec philosophy correctly, but there are clear indications that an earlier system of four ages had been current.

One of the major documents is the *Leyenda de los Soles* of 1558. According to this, the destructions are as follows:

1. Called by the calendar name 4 Jaguar. Lasted 676 years. The people were destroyed by being eaten by jaguars. Destruction lasted 13 years.

2. Called 4 Wind. Lasted 364 years. People transformed to monkeys. Destroyed by wind in a single day.

3. Called 4 Rain. Lasted 312 years. People transformed to turkeys. Destroyed by a rain of fire. The sun also burned up.

4. Called 4 Water. Lasted 676 years. People transformed to fishes. The sky fell in a single day and a flood came and lasted for 52 years.

5. The last sun in which we live is called 4 Movement (sometimes 4 Earthquake).

JUGGLED SEQUENCE

This sequence gives three indications of a somewhat changed enlargement of an earlier series. In the first place, the destruction by jaguars is out of place amidst the cosmic destructions by wind, fire, and flood. In the second place, the first and fourth ages are each assigned 676 years. The second and third ages only total 676 years together. In the third place, water and rain would normally be expected to be a single age of flooding. Except in those sources dealing with the World Ages, the Rain God is always associated with water, never with fire. The association of "rain" with "rain of fire" is actually a very artificial one.

A similar but somewhat more consistent version is given in the *Historia de los Mexicanos por sus pinturas*. According to this the ages were:

1. Sun of Tezcatlipoca. Giants. Ate acorns. Lasted 676 years. Giants eaten by jaguars, one of whom was Tezcatlipoca himself.

2. Sun of Quetzalcoatl, the Feathered Serpent and wind god. Common people. Ate pinyon nuts. Lasted 676 years. Destroyed by a wind. Some people became monkeys.

3. Sun of Tlalocatecutli, god of rain. Common people. Ate acicintli, a plant like wheat which grows in water. Lasted 364 years. Destroyed by fire.

4. Sun of Chalchihuitlicue, goddess of water and wife of Tlaloc. Common people. Ate cincocopi, a plant like corn. Rained so much the skies fell. People converted into fish.

5. The sun in which we live. In this source the rain god and his wife, the water goddess, rule successively for 676 years in all, which is the length of each of the other two past ages.

Without enumerating all the variations, some details from other sources are worth mentioning. The *Histoire du Mexique* says there were two creations, during the first of which there were four successive suns and men were made from stone. This system is more like the Jain and Buddhist systems, whereas the others seem like that of the Hindus. An important point is that the giants are said to have lived in a Sun of Darkness, eating myrrh and pine resin, and to have been destroyed by earthquakes and wild beasts.

The mention of earthquakes here is notable, as other sources mention only the jaguars. Although Moreno consistently associates the "Jaguar Sun" with the earth, this is the only solid piece of evidence in this context which validates the association. This provides a further reason for thinking that a list of four world ages has been expanded to five, for the fifth age is called 4 Ollin, literally 4 Movement. But *ollin* is often translated "earthquake," which is also the name of the equivalent day in a number of other Mesoamerican calendars, and it is said in many of our sources that the present age will end in earthquakes and famine.

The only source which associates colors with directions is the *Codex Vaticanus A*. This gives the color of hair of the people of the first age as white, of the second as yellow, of the third as red, and of the last as black. The first age was destroyed by water, the second by wind, and the third by fire; the last is that of earth, not yet destroyed.

EVIDENCE OF THE CALENDAR

The above, together with materials from Yucatan and highland Guatemala, have usually been the standard

sources used in studies of the world ages in Mesoamerica. However, new evidence is provided by the Mesoamerican calendar (for which see Caso, 1967). A basic element of this calendar is a repeating series of 20 day names which are combined with a series of 13 numbers to make up 260 days. The second day name is "wind" in Aztec, Otomi, Matlatzinca, Mixtec, Mixe, Totonac, and all the Maya languages. The seventeenth day name is Aztec *ollin*, "movement", translated "earthquake" in several of our sources. The meaning is also earthquake in Otomi, Matlatzinca, Zapotec, Mixe, and Totonac; whereas the Yucatec Maya name, *caban*, is composed of *cab*, long recognized as "earth," and *an*, said to be a movement, such as an earthquake (in the Motul dictionary, as pointed out to me by Antoon Vollemaere). The nineteenth day name is "rain" in Aztec, Otomi, Matlatzinca, Mixtec, and Totonac; "cloudy" in Zapotec; and *kawak* or related term in all the Maya languages, translated variously as "rain," "storm," and "water" in the calendar lists and as "lightning" in some of our other materials.

While this has long been known, it was only recently that I noted that the fourth day-name appears in a considerable number of the highland Maya languages as "fire," although the commonest meaning for the equivalent day elsewhere in Mesoamerica is "lizard." This means that all four elements appear in the calendar in their destructive aspects, as usually found in the Mesoamerican world ages. When the sequential distribution of these days is examined, as in Table I, it becomes apparent that they are placed symmetrically.

ASSOCIATIONS OF COLOR, DIRECTION

We also know of other associations of the days. Berlin and I presented data in an earlier paper on how colors and directions were assigned to days during the Classic period. It will be seen that each of these days is associated with a different color and direction. The associations are:

- Wind, white, north
- Fire, yellow, south
- Earthquake, red, east
- Rain, black, west

The color sequence given here is thus white, yellow, red, and black, which is precisely the order of colors of the world ages in the *Vaticanus A*.

One of the problems which Moreno saw in the latter document, however, was that not wind but flood was associated with white, although white was the color of the wind god. It now appears as shown below that the sequence is systematically misplaced by one position, probably to accord with the Aztec view that the destruction by earthquakes is in the future.

Calendar	Vaticanus A
	Flood
1. Wind—white	—white
	Wind
2. Fire—yellow	—yellow
	Fire
3. Earthquake—red	—red
	Earth
4. Water—black	—black

The agreement of this scheme with the colors of the world ages in one of the two systems of the *Mahabharata* is striking. So also is the complete correspondence of the directions assigned to these colors among the Mayas with those of Varahamihira in India.

ASTRONOMICAL IMPLICATIONS

In light of the fact that the Old World materials associate the World Ages with solstices and equinoxes of the "great year," another interesting fact emerges. Three of the five day-names under consideration appear in Aztec sources as names of world ages, always with the number 4 attached. If we put "4" with each of these days and count the interval between them in the calendar round, we find that we have to go 182 days from 4 Wind to 4 Fire and 182 days from 4 Earthquake to 4 Rain. The interval is the closest whole-day approximation to half a year and would go approximately from an equinox to an equinox or from a solstice to a solstice. The interval from 4 Fire to 4 Earthquake is, minimally, 13 days. However, if one adds one complete 260-day cycle to this, the sum is 273 days or 3/4 of a year. The interval would go from an equinox to a solstice or from a solstice to an equinox. I find this strong structural support for this particular sequence as the correct one.

I have already mentioned that the Hindus counted from the beginning of the last World Age as an era base and that they associated it with a mass planetary conjunction. If we now turn to the so-called Aztec Calendar Stone, which I have left until the last, we find here the names of the days which mark the world ages. In the center is a giant 4 Ollin (4 Earthquake) glyph, and set in its four arms are the other glyphs of the days associated with the World Ages, in the following arrangement:

4 Wind	4 Jaguar
4 Rain	4 Water

If we assume a mass conjunction and count from 4 Ollin to each of these dates in turn, we get some rather surprising results, here somewhat modified from work of Noriega (1959). From 4 Ollin to 4 Wind are 65 days; if two cycles of 260 days be added to this, we get 585

1. Crocodile East red	2. WIND North white AC IV 4 Wind LS IIA 1 Flint	3. House/night, darkness West black	4. FIRE (Maya highlands)/ lizard/corn South yellow	5. Snake East red
6. Death North white	7. Deer West black	8. Rabbit/Lamat South yellow	9. Water/Mulu (M, river) East red AC I 4 Water LS III 1 House	10. Dog, coyote/ (M, vine) North white
11. Monkey West black	12. Twisted/tooth/ plant, broom South yellow	13. Reed East red	14. Jaguar/sorcerer North white AC II 4 Jaguar (Earth!) LS I 1 Reed	15. Eagle, bird (M, tobacco) West black
16. Vulture, crow, turkey, owl/ sun, god (M, pole) South yellow	17. EARTHQUAKE East red AC V 4 Movement LS IV	18. Flint knife, spear North white	19. RAIN, lightning/ turtle (M, grass) West black AC III 4 Rain (Fire!) LS IIB 1 Flint	20. Flower/hunter, ruler (M, wasp) South yellow

TABLE I. Reconstructed List of Mesoamerican Day-Names. Where the majority of lists agree on a meaning, it is given without comment. Where there are serious disagreements, the alternates are given. Colors and directions are assigned to days as in the Classical Maya scheme of Berlin and Kelley. The world ages are numbered in accordance with the sources, AC standing for the Annals of Cuauhtitlan version and LS for the Leyenda de los Soles version. M is used for Mixe.

	<u>Greece</u>	<u>India</u>	<u>Mesoamerica</u>
	3, 4, or 5 ages, usually 4	Normally 4 ages	3, 4, or (usually) 5 ages
	No women in the Golden Age	No sexual differentiation in the first age	
Physical and moral degeneration	Length of life decreased	Usually of decreasing length in the ratio 4:3:2:1; sometimes of equal length	When specified, usually of equal length
	Illness appeared and increased	Length of life decreased in regular ratio	
	Increasing violence and war	Size decreased regularly	Giants in a past age
Progress (evolution)	Diseases appear	Diseases appear	
	Famine	Famine	Famine
	Virtue decreased regularly; warfare became normal		
	House building and property owning	House building and property owning	
	Four different races, separately created by Zeus: first farmers, then warriors	Four castes, different in different ages: priests, farmers, warriors, merchants	"Four kinds of people," separate creation of new races by the gods, usually; sometimes a survival of one or seven pairs of people
	First age people were vegetarians; oxen first eaten later	Different foods in each age; magic products of the earth or plants	Different foods in each age; all apparently wild plants in earlier ages
	Metal ages in order and probable associated colors: Golden yellow Silver white Bronze red Iron black	Colors of ages in order and associated directions: White north Yellow or red south or east Red or yellow east or south Black west	Colors and directions of day names: White north Yellow south Red east Black west
	Cataclysmic end by fire or flood in late sources only	Cataclysmic end normal, successively by wind, fire and flood	Cataclysmic end normal, by wind, fire, flood, earthquakes (and jaguars)
	Gods of ages (late) seem to imply the four elements in the order: AIR EARTH OCEAN (WATER) FIRE	Gods and four elements have comparable associations with directions and colors: WIND is assigned to the NW but associated with white, which is north. FIRE is opposite WIND in the SE. WATER is associated with black and west. (Leaves EARTH for east)	1. WIND is north. 2. FIRE is south. 4. WATER is west. 3. EARTH is east.
	Cataclysms are associated with the equinoxes and solstices of the "great year."	The last age began with a mass planetary conjunction at the spring equinox in 3102 BC.	The calendric names of the world ages imply association with equinoxes and solstices.

TABLE II. Comparative Elements in Accounts of the World Ages in Greece, India, and Mesoamerica.

days, one day over the average length of a synodic revolution of Venus. From 4 Ollin to 4 Jaguar, we have 117 days, one day over an average synodic revolution of Mercury. By a curious coincidence, if one cycle of 260 days is added to this, we have 377 days or one synodic revolution of Saturn. From 4 Ollin to 4 Water are 52 days. Although the number is very important in Mesoamerica, its possible significance here escapes me. From 4 Ollin to 4 Rain is the solar half-year, already mentioned. Since the synodic interval of Mars is 780 days, which are three times 260, the third return of any date will bring Mars back to an equivalent position—in this case, from 4 Ollin to 4 Ollin.

Finally, two additional lesser dates have been written in. Associated with 4 Rain is the day 1 Rain. From 4 Rain to 1 Rain are 140 days, and with one cycle of 260 days added it becomes 400 days, one day over a synodic interval of Jupiter. Then, the day 8 Monkey is associated with 4 Water, which it precedes by 178 days. The interval is a lunar half-year, and 177 or 178 days are the basic interval of repetition of eclipses.

I do not think that such a reading of the Calendar Stone by any means exhausts its possible importance, but I do think it strongly suggests that astronomical factors were basic in elaborating this system and that it is reasonable to suppose that the Mesoamericans, like the Hindus and Greeks, associated a mass conjunction with the World Ages. We have very little direct information on the Maya date 4 Ahau 8 Cumku, which served as an era base, but a pottery vessel published by Michael D. Coe (Coe, Figure 5, p. 86) shows a scene with God L, a war and death god, facing six other deities. The text mentions repeatedly "nine star earth," clearly indicating some sort of astronomical connotations.

In Table II, I have compared the principal features of the World Ages in Greece, India, and Mesoamerica. These similarities, presented at length in the text, clearly show that in most cases of difference Mesoamerica is more like India than Greece. Their complex past history, partly reviewed here, suggests that it is very likely that these ideas were introduced into Mesoamerica from India, probably about the first century BC.

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Editorial Comment. The current rise of the "New Diffusionism" in Americanist scholarship has been referred to a number of times in recent issues of the *Newsletter and Proceedings* (e.g., 111.01, 118.0, 125.0, 132.0, 135.0). Diffusionism is a school of thought which would account for the existence of the early high civilizations of the New World by proposing overseas contacts from a center or centers of advanced civilization in the Old World. The *new* diffusionism which has lately come

into prominence is far more sophisticated than the older "extreme" views of the 1920's and 1930's, and has at its disposal a large mass of well marshalled evidence.

An outstanding example of the younger, more flexible scholars with diffusionist leanings is David H. Kelley of the University of Calgary (see Newsletter, 130.2, 131.8). His guest address, delivered at BYU in 1972 before the Twenty-second Annual Symposium on the Archaeology of the Scriptures and published above for the first time seems to us a brilliant statement of one aspect of the evidence at his command.

Latter-day Saint readers will not expect, of course, to find in Dr. Kelley's address any direct support of the Book of Mormon. It is simply that whatever strengthens the case for Diffusionism also enhances the position of Book of Mormon archaeology, which in part consists of evidence of diffusion from the Old World to the New. With such clear indications of overseas contact between the two hemispheres now coming to light as those from ancient India presented above, it no longer seems so strange to contemplate the Nephite account of three small colonies migrating to Mesoamerica from the ancient Near East.

One might raise the question, incidentally, as to whether the Mesoamerican parallels Dr. Kelley sees in ancient India and Greece might not also be found, but in even greater strength, in the Near East. We feel that the possibility would at least bear looking into. RTC.

137.1 ANNUAL SYMPOSIUM A SUCCESS. By Bruce D. Louthan. Good advance publicity, a varied program of papers, and free admission combined to make the Twenty-fourth Annual Symposium on the Archaeology of the Scriptures and Allied Fields, held at BYU on October 26, the best-attended ever. The yearly SEHA meeting was originally scheduled for the Madsen Recital Hall in the Harris Fine Arts Center. A last-minute move to the more spacious Pardoe Drama Theater in the same building made possible the accommodation of the large audience. Between 550 and 600 persons heard 12 addresses and viewed the post-luncheon film.

Guest speaker Keith H. Meservy, assistant professor of ancient scripture at BYU, shed **ARCHAEOLOGICAL LIGHT ON THE "STICK OF JOSEPH" PROPHECY IN EZEKIEL 37.** An expert in comparative Semitics, he traced the history of the Hebrew term usually translated "stick" from its Mesopotamian origin. Among other illustrations he showed slides of rare ivory writing boards recovered by the British archaeologist Max Mallowan from the lowest excavated level of a wall at Nippur. These provide concrete evidence in support of the speaker's previously tentative word-history reconstruction. He also noted that this recently discovered

etymology supports the usual Latter-day Saint interpretation of the Ezekial passage as referring to the Book of Mormon.

In addition to Professor Meservy's guest address, four other papers were heard at the morning session: LeGrande K. Davies, part-time BYU faculty member in religion and graduate student at the Tel Aviv University Institute of Archaeology, **PROGRESS REPORT ON THE EXCAVATIONS AT TEL SHEVA, ISRAEL (BIBLICAL BEERSHEBA)**; John R. Nelson, senior in archaeology at BYU, **ISRAELITE TEMPLES**; David A. Palmer, chemical engineer in the Chicago area, and Bruce W. Warren, Ph.D. candidate in anthropology at the University of Arizona and adviser to the SEHA Board of Trustees, **THE TAPESTRY OF JUCUTACATO: EARLY PICTURES OF A MIGRATION**; and Paul R. Cheesman, BYU associate professor of ancient scripture and SEHA trustee, and Glade L. Burgon, instructor at the LDS Institute of Religion, Utah State University, **PURPORTED ANCIENT OLD-WORLD WRITINGS IN THE NEW WORLD.**

The noon "no-host" luncheon in the Wilkinson Center was followed by the film, **THE BEIT LEHI CAVE**, shown in the Pardoe Theater. Produced by Joseph Ginat, Israeli archaeologist, the film records a tomb near the "ruin of the House of Lehi," southwest of Jerusalem, and is a follow-up of his paper, "The Cave at Khirbet Beit Lehi," delivered before the Annual Symposium in 1971 (Newsletter, 129.0). The film was introduced by Sherman Young, a long-time friend of Mr. Ginat.

The afternoon session heard six papers and a resumé of another: Ray T. Matheny, BYU associate professor of anthropology and archaeology, **ANALYSIS OF THE PADILLA PLATES OF MEXICO**; V. Garth Norman, an Indian-area supervisor of the LDS Seminary System in Arizona, **BOOK OF MORMON ARCHAEOLOGY: ALIVE AND WELL**; John L. Sorenson, chairman of the BYU Department of University Studies, **CULT AND SOCIAL STRUCTURE AMONG THE NEPHITES IN THE LIGHT OF ARCHAEOLOGY**; William L. Walker, Jr., graduate student in Near Eastern studies at the University of Utah, **"SITTING IN THE SEAT": RELATIONSHIPS BETWEEN ANCIENT MESOAMERICA AND THE NEAR EAST**; Robert W. Bass, BYU professor of physics and astronomy, **DOCUMENTARY EVIDENCE OF IDENTITY OF THE MAYA "FIVE WORLD AGES" DOCTRINE AND THE ANCIENT NEAR-EASTERN EQUINOCTINAL PRECESSION DOCTRINE**; Robert Chadwick, assistant professor of sociology and anthropology at East Texas State University, **EZEKIEL 27 and APPARENT TRANSATLANTIC EXPEDITIONS AROUND 500 BC**;

epigraphy, numismatics, and other archaeology of the Christian scripture.

Among other works, Dr. Anderson is the author of *A Plan for Effective Missionary Work* and *Joseph Smith's New England Heritage*. He has also written numerous articles in scholarly and popular journals.

A historian by profession, Dr. Anderson holds the Ph.D. degree in ancient history from the University of California at Berkeley and the JD degree from Harvard Law School. A member of several professional societies, he is a prolific writer as well as a careful and enthusiastic researcher in the history of both the Primitive and the Restored churches. Awards he has received in addition to the Commissioner's Research Fellowship include a Woodrow Wilson Foundation Fellowship in history and the Danforth Teacher Fellowship. He was also awarded the 1970 Annual Prize by the Mormon History Association for a series of articles on the witnesses of the Book of Mormon.

137.4 COMPLIMENTARY MEMBERSHIP AVAILABLE TO BYU ARCHAEOLOGY GRADUATES. A recent change in the bachelor's-degree program of the BYU Department of Anthropology and Archaeology has made necessary a corresponding change in the complimentary membership which the SEHA offers to students graduating in those fields.

Since 1953 several years of membership have been available, free of cost, to BYU students earning degrees in archaeology (Newsletter, 11.11). When the Department was reorganized in 1966 (Newsletter, 98.1), two separate baccalaureate majors were established: that leading to the Bachelor of Arts degree in archaeology and that to the Bachelor of Science degree in anthropology. At that time, complimentary membership in the SEHA was restricted, however, to those earning the archaeology degree.

Beginning with the current academic year the two separate baccalaureate majors have been consolidated into a single one which leads to a "BS degree in anthropology and archaeology." However, any of four distinct programs or areas of specialization within this single major may be selected by the student: (1) general anthropology and archaeology, (2) social anthropology, (3) prehistoric archaeology, and (4) historic archaeology. (Students interested in scriptural matters usually elect the fourth program, historic archaeology.)

At a meeting of the SEHA Board of Trustees held on September 27 it was decided that, effective immediately, any student graduating from BYU with this newly combined bachelor's degree—in any one of its four programs—will receive upon request three years of complimentary membership in the Society.

The same benefit—three years of complimentary membership—will continue to be available, as heretofore,

to those earning the Master of Arts degree in archaeology.

137.5 SECOND GEORGIA SYMPOSIUM HELD ON INDIAN ORIGINS. "Origins and Interrelations of Indian Tribes of the Eastern United States" was the title of the second symposium in the Cultural Heritage Series of Westville Historic Handicrafts, Inc., Lumpkin, Georgia. It was held at Westville Village on October 11 and 12. Two Brigham Young University professors were in attendance: Ross T. Christensen, professor of archaeology and anthropology, and Melvin J. Petersen, associate professor of church history and doctrine.

(The first symposium of the Cultural Heritage Series was held in 1973. Entitled "Evidences of Pre-Columbian Transatlantic Contacts," it was reported briefly on the BYU campus that year at the Twenty-third Annual Symposium on the Archaeology of the Scriptures. A digest of it was published by the SEHA in August. See Newsletter, 135.0.)

The following papers were delivered at the 1974 Symposium: "Pre-Columbian Indians in the Old World," by Vincent H. Cassidy, professor of history at the University of Akron, Akron, Ohio; "The Case for Transatlantic Contacts" (a commentary on Old World influences prior to 1000 BC), by Cyclone Covey, professor of history at Wake Forest University, Winston-Salem, North Carolina; "A Theory Concerning the Melungeons," by Rollin W. Gillespie, McLean, Virginia; "Labyrinth of Daedalus and Related Matters," by Clyde E. Keeler, geneticist, Research Division, Georgia State Hospital, Milledgeville, Georgia; "Linguistic Similarities between Old Norse and Algonquian," by Earl K. Syversen, Sebastopol, California; "Pre-Columbian Norse and Indian Contacts," by Gloria S. Farley, Heavener, Oklahoma; "Traditional Relationships of the Southeastern Indians," by Joseph B. Mahan, executive director of Westville Village and organizer of the symposium (paper read by Douglas C. Braithwaite); "The Religious Beliefs of the Yuchi," by George Watashe, square-ground chief, Tulsa, Oklahoma; "The Newark, Ohio, 'Holy Stones,'" by Y. Lynn Holmes, professor of ancient history, West Georgia College, Carrollton, Georgia; "A Lexico-statistical Analysis of Hebrew and Choctaw," by William James Adams, Jr., lecturer in languages at Davis and Elkins College, Elkins, West Virginia, and former instructor in Semitic languages at Brigham Young University; and a paper on the Green Corn Ceremony of the Indians of southeastern United States, by Dr. Mahan (paper read by Dr. Holmes).

Mrs. Farley and Mr. Adams are members of the SEHA. Mr. Adams is the co-author of a paper read on the BYU campus in 1972 and another in 1973 before the Society's Annual Symposium (Newsletter, 132.1, 132.8, 135.1).

The mailing addresses of many of the authors of papers read at the Georgia symposium may be obtained from the SEHA office.

Also, Dr. Mahan has informed us that the entire set of papers is available at the price of \$6 prepaid. Make checks payable to Westville Historic Handicrafts, Inc., Lumpkin, Georgia 31815.

137.6 DEAD-SEA-SCROLLS LEXICON. Paul Richard Jesclard, a recent graduate student and instructor in Hebrew in the BYU Department of Classical, Biblical, and Middle Eastern Languages, has compiled a 42-page lexicon of the Dead Sea Scrolls, which is now available to SEHA members.

Hebrew-English Frequency Lists of the Non-Biblical Dead Sea Scrolls is a technical study aid, the main purpose of which is "to help the student who is reading the Dead Sea Scrolls [in their original language] for the first time." It was prepared for the use of a class which studied the Scrolls under Mr. Jesclard's direction.

Through the courtesy of the author 85 copies have been placed in the SEHA office, 140 MSRB, BYU, Provo, Utah 84602. The price is \$1.00 per copy (\$.75 to Society members).

Mr. Jesclard is the author of a paper read in 1975 before the SEHA Annual Symposium and published in 1973: "A Comparison of the Nephite Monetary System with the Egyptian System of Measuring Grain" (Newsletter, 134.0).

137.7 TRAVEL LEAFLET EXPLAINED. By arrangement with the SEHA secretary and treasurer, a folder advertising eight "Mormon Tours in Mesoamerica" was mailed to the Society membership in October, together with No. 136 of the *Newsletter and Proceedings*. A negative response from one of the members suggests that a further explanation may be in order.

A year ago, arrangements were made with Western Airlines to distribute such a brochure to SEHA members. This was intended purely as a service: to make known to the members the availability of tours which include the famous "Lehi Tree-of-Life Stone" (Stela 5 at the ruins of Izapa).

When the brochure arrived at the Society office it was apparent that the first page, entitled "Christ in America," contained several inaccuracies. But, because of the valuable information in the remainder of the folder and because of the commitment previously made, it was felt advisable to mail it out as arranged.

The following statement was published in the Newsletter which accompanied the leaflet (136.7): "The Society . . . did not assist in organizing the present airplane tours nor in preparing the brochure." This was felt at the time to be a sufficient disclaimer of the inaccurate statements.

137.8 LIFE MEMBERS LISTED. By Rebecca Christensen. The following persons have become Life Members of the SEHA since the last previous listing in the *Newsletter and Proceedings* (119.8): Charles S. Bagley, Alamogordo, New Mexico; Loyal J. Ball, Marcell, Minnesota; J. Golden Barton, Kaysville; Robert W. Bass, Provo; Albert Galbraith, Calgary, Alberta, Canada; Lynn M. Hilton, Salt Lake City; Mrs. Cecil Lambert, Henderson, Nevada; Jack B. McEwan, Arcadia, California; Robert B. Merrill, Camp Verde, Arizona; Olive D. Osmond, Provo; Ed. J. Pinegar, Provo; Gerwin B. Riding, Springville; Ronald G. Somers, Alhambra, California; Gilbert W. Stoll, Salt Lake City; and David R. Warden, Jr., Kaysville.

There are now 72 Life Members in the Society. Life Membership is obtainable for a fee of \$75.