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-Is a Degenerated Ashtoreth Plaque an 8-Year Lunisolar Calendar?

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Abstract: The development of calendars was mainly made in three steps: the lunar, the lunisolar and the solar ones. The Egyptians appear to have developed a 12-month solar calendar of 30 days each, plus 5 celebration days at the end of the year, Chatley. The Babylonians followed about the same solar calendar around 2400 BCE, but later, in 2100 BCE they returned to their previously used lunisolar calendar, Britannica on line. Nevertheless, no artifacts of these Babylonian calendars have been found so far in the region to support this argument. Such artifacts either never existed or the Babylonians kept calendars on perishable materials. However, even if they did exist and they have been found, they may not have been decoded, up to now. The citizens of Gezer were under the influence of Babylon and most probably they used its lunisolar calendar. In the city of Gezer, near Jerusalem, R.A.S. Macalister [4] unearthed a degenerated ceramic plaque of the goddess Ashtoreth. She was the fertility goddess of the Zidonians and of the Phoenicians (1200-200 BCE), Fig. 1. The plaque bears (8+30+29+2=) 69 cups of different diameters which have not been decoded so far. However, it is decoded here, as an 8-year lunisolar calendar for the first time worldwide.

Key words: Gezer · Ashtoreth · Solar Calendars · Egyptian Calendar · Babylonian Calendar · Lunisolar Calendar · Intercalation Process

INTRODUCTION

Prehistoric peoples (hunters and gatherers) started counting time with the help of the phases of the moon between 23000 and 10000 years BCE. Because of their dangerous hunting expeditions, they probably honored their helping gods with celebrations, around the dates of the phases of the moon (religious duties). Calendrical artifacts and figures have been found, depicted on the rocks of the Francocatabrian caves, Marshack [1]. They have been deciphered by the author, but they have not been published yet. Later, when humans settled down in communities and started cultivating land, about 10000-6000 BCE, they needed a solar calendar (365 days) to follow the agricultural seasons, for their agricultural duties. That is why a combination of a lunar calendar (12 lunar months make 354 days) and a solar calendar (365 days) had to be invented, which was called lunisolar. The discrepancy of 11 days per solar year (365-354=) had to be bridged by an additional 30-day lunar month inserted at the end of some lunar years every now and then. In a lunisolar calendar the lunar months are counted according to the phases of the moon, but the years are counted as solar. This lunisolar calendar is considered to have been invented in Babylon, in the 21st century BCE, but such artifacts have not been found so far. The lunisolar calendar which presented the smallest deviation from the seasons was the 8-year one. The duration of 8 solar years (or 2,922 days) is equivalent, in days, to 8 lunar years (96 lunar months) + 3 intercalated lunar months, i. e. 99 lunar months (or 2,923.5 days). An Aegean artifact, found on Keros Island by Doumas [2] and decoded by the author, shows that the Aegeans had been using an 8-year lunisolar calendar between 2800 and 2300 BCE, Pliakos [3]. The Minoans had been using the same 8-year lunisolar calendar since 2100 BCE. Pliakos [4]. The ceramic artifact, dedicated to the fertility goddess of Ashtoreth, Macalister [5], had been honored by the Zidonians and Phoenicians since 1200 BCE. The artifact itself has been decoded by the author, as an 8-year lunisolar calendar.

The Description of the Artifact of Ashtoreth: As it can be seen in Fig. 1, the artifact comprises two circular discs; the first one, on the top, is of 2 inches in diameter and the second one, underneath, is of 3 inches in diameter.

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The two parts are joined together, forming a "head" and a "body" without feet. On the "head" there are 8 small cups, where sticks could be held. There are

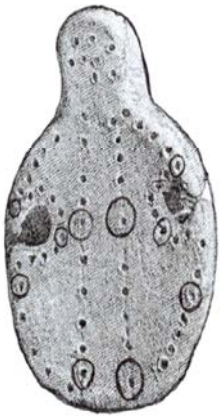

Fig. 1: The cups of Ashtoreth's ceramic artifact, 1200-1100 BCE, Macalister, Gezer.

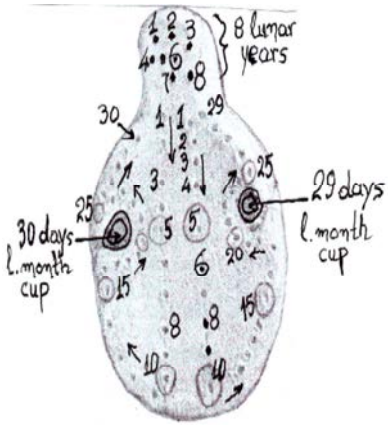

Fig. 1a: The cups of Ashtoreth's ceramic artifact are specified

Two parallel lines of 10 small cups, each one between her two breasts. On the right, in the periphery of the "body", there are 19 holes, whereas on the left there are 20, both forming two sequences of cups. The right side sequence has (10+19=) 29 cups and the left side (10+20=) 30. It is observed that every 5 small cups, there is a small dark red circle surrounding it, see Fig. 1. On Ashtoreth's two breasts there are two bigger cups which could have held a number of pawns counting periods of lunar months [6-8].

The Decipherment of the Artifact: On the eight small cups of Ashtoreth's "head" the eight lunar years, of 12 or 13 lunar months each, can be marked, by one stick or pawn, per cup.

Two lunar months (l.ms.) have 59 days. On agreement, the odd lunar months have 30 days and the even ones 29. Ôhe Egyptian priests changed shifts in 30, 29, 30, 29…. Days. One lunar year has (6 l.ms. x 30 days + 6 l.ms. x 29 days=) 354 days which is behind the solar year (365 days) by 11 days. Therefore, prehistoric and historic peoples, from time to time, had to add one lunar month of 30 days each to their lunisolar calendars to synchronize lunar with solar (agricultural) years. This additional month was called an "intercalated" lunar month.

In the 19th century BCE, the Minoans finally set the rule, according to which three intercalated months had to be added to the end of the third, fifth and eighth lunar year, of an 8-year lunisolar calendar, so that the synchronization could be realized. However, the Sumerians, Babylonians and the peoples of the Fertile Crescent region, where the city of Gezer was, did not have a standard rule to intercalate the additional lunar months.

Here is a relevant quotation from Britannica, Babylonian Calendar: "It was necessary for the lunar year of about 354 days to be brought into line with the solar (agricultural) year of approximately 365 days. This was accomplished by the use of an intercalated month. Thus, in the 21st century BCE a special name for the intercalated month *iti dirig* appears in the Babylonian sources. The intercalation was operated haphazardly, according to real or imagined needs and each Sumerian city inserted months at will—e.g., 11 months in 18 years or two months in the same year. Later the empires centralized the intercalation and as late as 541 BCE, it was proclaimed by royal fiat". It is assumed that it was not proclaimed by a rule.

How Does Ashtoreth's Plaque Function as an 8-Year Lunisolar Calendar?: The inhabitants of Gezer probably followed the Babylonian calendar around 1200-1100 BCE. The lunar year in Babylon started on 1st of Nisanu, around the spring equinox. Therefore the first day, of the first lunar month of the first lunar year can be marked on the Ashtoreth plaque as follows: We mark the first day of a lunar month by placing one small stick into the first of the 30 cups on the left of Ashtoreth's "body". At the same time, we mark the first lunar month by placing one small stick or pawn on her left breast (bigger cup). Since numbers 1, 3, 5…11 are odd, the lunar months have 30 days. On her "head" a small stick, in the first of the 8 holes, denotes that the first lunar year has started.

The 5th, 10th, 15th, 20th, 25th and 30th days are marked with a red cycle which may signify, as in the Babylonian era, a 5-day week, called "hamustu". The counting of the 30 days on the left side of the artifact ends in the evening of the 30th day and these 30 small sticks are withdrawn from the "body" on the left. The sticks will be used to count the 29 days of the 2nd, 4th, 6th … lunar months, on the right side of Ashtoreth's "body". One month-pawn on the right "breast" of Ashtoreth denotes that, the 2nd month has just started. A day-pawn in the 1st of the 29 cups denotes that, the 1st day of the current month has started and so on. When the 12 months have passed, a second small stick is placed into the 2nd hole on the Ashtoreth's "head" denoting that, the second lunar year has started. The days and the months are counted as on the right side of the artifact. Since the calendar-tender, in Gezer, did not have a standard rule of intercalation, he would do as he had been instructed to do or as he had to obey the royal fiat. The importance of intercalation is evident because it minimizes the deviation of the lunar from the solar/ agricultural calendar.

Exercise: How would you read the calendaric distribution of Xs of the Ashtoreth's plaque, in Fig. 2? What is the current day then?

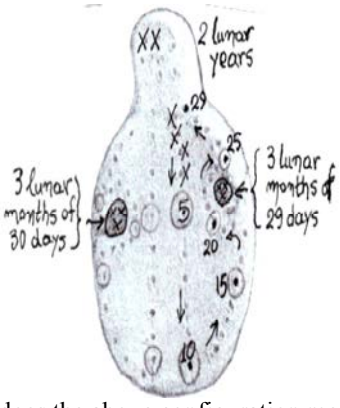

Fig. 2: What does the above configuration mean?

There are two Xs on Ashtoreth's head denoting that, the second lunar year is running. There is not any X on the cups on the left side, where the 30 days are counted. On her breast's bigger cup, there are three Xs denoting that, three 30-day lunar months (the 1st, 3rd and the 5th) have passed. On the right breast bigger cup, there are three Xs denoting that, two 29-day lunar months (the 2nd and the 4th) have passed and the 6th lunar month is running. The 4 Xs marked on the 29-day region denote that, the 4th day of the 6th lunar months of the 2nd lunar year is the current day.

Exercise: How would you read the calendaric distribution of Xs of the Ashtoreth's plaque, in Fg.2? What is the current day then?

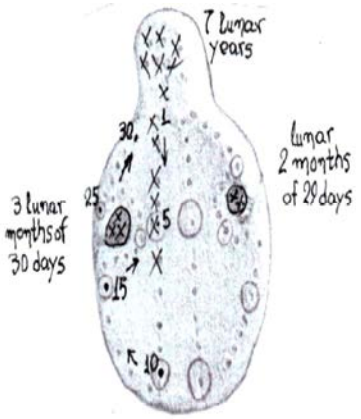

Fig. 3: What does the above configuration mean?

There are seven Xs on Ashtoreth's head denoting that, the seventh lunar year is running. There is not any X on the right side, where the 29 days are counted. On the right breast bigger cup, there are two Xs denoting that, two 29day lunar months (the 2nd and the 4th) have passed. On the left breast bigger cup there are three Xs denoting that, two 30-day lunar months (the 1st and the 3rd) have passed and the 5th l.m, is running. The 6 Xs marked on the 30-day region denote that, the 6th day of the 5th l.m. of the 7th lunar year is the current day.

CONCLUSION

Nevertheless, no artifacts of these Babylonian calendars have been found so far in the region to support this argument. Such artifacts either never existed or the Babylonians kept calendars on perishable materials. However, even if they did exist and they have been found, they may not have been decoded, up to now. The citizens of Gezer were under the influence of Babylon and most probably they used its lunisolar calendar.

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