

CHAPTER SEVEN

THE JEWISH CALENDAR REPRESENTED IN THE ZODIAC DESIGN

The calendar plays a significant role in the determination of the annual life cycle of the Jewish people—the agricultural schedule, the festivals, the months, and the weeks. This importance is expressed in the zodiac design depicted on various synagogue mosaic pavements and some stone carvings.

I. THE CALENDAR

The Jewish calendar is lunisolar, based on twelve lunar months of twenty-nine or thirty days each. A lunar month is added seven times (about once every two to three years) in every nineteen-year cycle to synchronize this calendar with the slightly longer solar year. During the Second Temple period the Judean calendar was a lunar calendar “derived from the Babylonian lunar calendar based on sighting of the new moon,” which also served other Near East countries as the official calendar (Wiesenberg 1971; Segal 1982:197–208 and bibliography; S. Stern 2001; 2010:243).

The lunisolar year is best described in Gen. 1:14: “Let there be lights in the expanse of the sky to separate day from night; they shall serve as signs for the set times—the days and the years.” The importance of the calendar in the economy and ruling is expressed in 1 Kings 4:7: “Solomon had twelve prefects governing all, who provided food for the king and his household; each had to provide food for one month in the year.”

Natural forces and the agricultural seasons determined the division of the year: Two seasons were observed in ancient Israel: summer and winter, which corresponded to the agricultural activities of ploughing and harvest (Gen. 45:6). The two main and most ancient festivals, Passover and *Succoth*, occur on the spring and autumn equinoxes and begin on the night of the full moon.

Traditionally, each Jewish lunar month starts with the “new moon”—the day on which the first visible crescent of the moon is observed. Each visible crescent arises about 29 or 30 days after the preceding one. Each new lunar crescent had to be sighted and confirmed by witnesses. The importance of the new moon as the first day of the month is emphasized in Num. 10:10 and Num. 28:11 “And on . . . your . . . new moons you shall sound the trumpets over your burnt offerings and your sacrifices . . .” The month is divided into weeks, each weekly cycle consisting of seven days based on the Genesis story of creation (Gen. 1, 2:1–3). Every day is named for its order in the week and the seventh day is called Sabbath שבת (the day to cease from working). The days commence at sunset.

In contrast to the Jewish mainstream calendar of 354 days, the Qumran solar year contained exactly 364 days (fifty-two weeks) and was subdivided into four quarters of three months each (thirteen weeks or 91 days). Each of the first two months of a *tequfah*—a quarter—numbered thirty days. One additional day with a special cultic significance was added to the last month of the quarter, that is the third, sixth, ninth and twelfth months of the year, and thus numbers thirty-one days. A mnemonic calendrical composition (6Q17i. 1–2) records this basic structure.

The Qumran community’s solar calendar was a substantial and striking indication of the separation between it and the other Jewish communities during the Second Temple period; the rejection of the lunar calendar was the core of the intense controversy and division between mainstream Judaism and the covenanters (Talmon 2000:108–117). S. Stern (2010:249–50) draws a different conclusion: that the Qumran’s 364-day calendar “should be regarded as just one of many peculiarities

of the Qumran literature and perhaps community. But it does not appear, in Qumran sources, as a polemic issue, nor does it appear to have played a particular role in forging the Qumran community's sectarian identity."

The calendar content, form, structure, and especially the names of the seasons and the months appear in the literary sources: the Bible, Josephus's writings, and in later Mishnaic and Talmudic literature as well as in the form of archaeological finds such as inscriptions and mosaic pavement designs.

The Hebrew calendar referred to in the Bible identifies different names of the months of the year.

1.1 *The Gezer Calendar*

The earliest archaeological source for the Hebrew calendar is the Gezer calendar, inscribed on a small limestone plaque (7.2 × 11.1 cm.) that was found in the excavations at the ancient city of Gezer. It presents an annual agricultural schedule based on the solar year, listing the months in chronological order according to their agricultural activities, the seasons and the harvest periods, beginning with the autumn equinox.

The Gezer Calendar is either an Israelite or Canaanite seven-line inscription in Paleo-Hebrew script, dated ca. 10th century BCE¹ (Cassuto M.D. 1954; Macalister 1912, II:24–28; Albright 1943; Talmon 1963; Ahituv 1992:149–52; Young 1992; Yardeni 1997:15–17; Sivan 1998).

The Paleo-Hebrew inscription in seven lines reads:

ירחו אספ ירחו ז	1
רע ירחו לקש	2
ירח עצד פשת	3
ירח קצר שערמ	4
ירח קצר וכל	5
ירחו זמר	6
ירח קצ	7
אביה	8

1	Two months of harvest Two months of sowing, planting	— <i>Tishri</i> and <i>Marheshvan</i> ; — <i>Kislev</i> and <i>Tevet</i> .
2	Two months of late sowing or plants beginning to sprout ([Amos 7:1])	— <i>Shevat</i> and <i>Adar</i> .
3	A month of flax picking	— <i>Nisan</i>
4	A month of barley harvest	— <i>Iyar</i>
5	A month of harvest and festival	— <i>Sivan</i>
6	Two months of grape harvesting (vine pruning or harvest)	— <i>Tammuz</i> and <i>Av</i> .
7	A month of summer fruit	— <i>Elul</i> .

A personal name *Aby[jah]* written vertically on the lower left margin, possibly the owner or the author.

¹ The calendar was discovered in Gezer by R.A.S. Macalister in 1908. The Gezer Calendar is displayed in the Museum of the Ancient Orient in Istanbul.

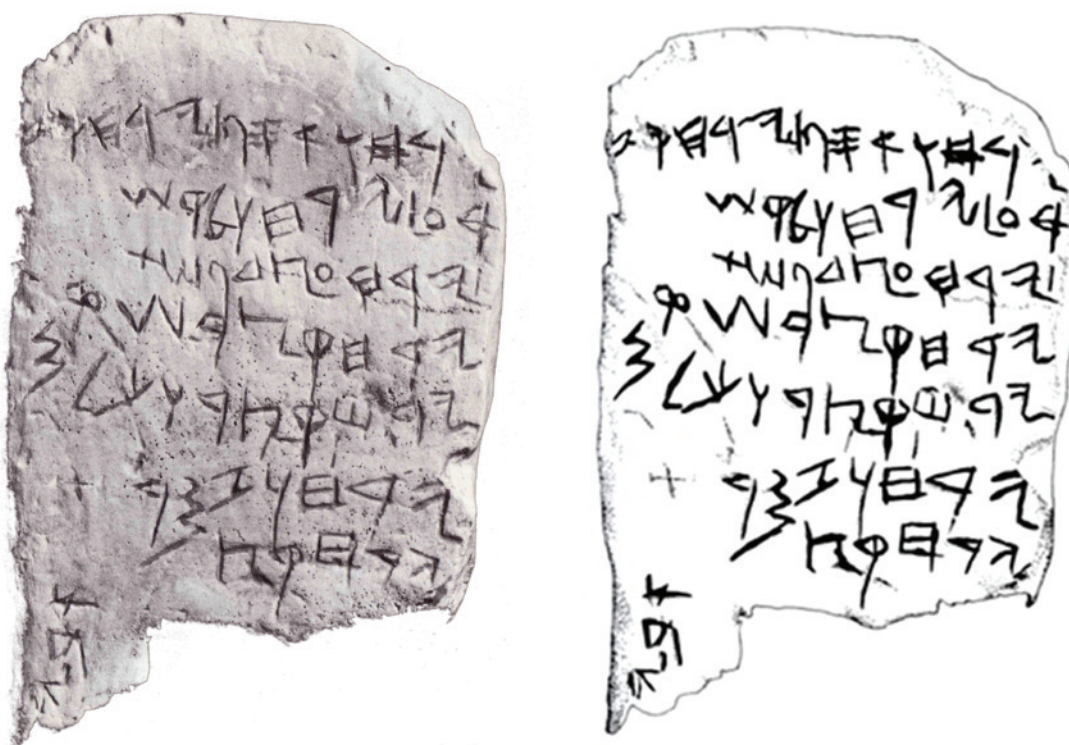


Figure VII-1. The Gezer calendar.

Each line of the calendar's inscription begins with the word ירח *yrh* ("month") or ירחו *yrhw* ("two months") which precedes the description of each month. It seems all twelve months are accounted for in the agricultural activities.

The character and function of the calendar is not exactly clear, and different interpretations have been proposed: (1) The Gezer calendar was an annual cycle of agricultural activities that appears to begin with the month of *Tishri*. (2) The calendar was an official calendar mentioning the important tasks and seasons of the months. (3) The Gezer calendar was designated for the collection of taxes from farmers. (4) The calendar was a writing exercise of a schoolboy based on the fact that the script is rather crude. (5) The content of the inscription was a popular folk song, recording the months of the year according to the agricultural seasons (Macalister 1912:24–28; Cassuto 1954 and bibliography there; Talmon 1963; Ahituv 1992:149–52; Emerson 1999).

The major changes in the Hebrew/Jewish calendar, which altered the form of the seasons and adopted Babylonian names for the months of the year, were those made after the Jews returned from the Babylonian exile.

1.1.1 *The Months*

The names of the months changed during the history of the Hebrew/Jewish calendar. In biblical texts relating to the pre-exilic period four names of months are preserved: אביב *Aviv*—the first month of the year, literally means "spring", originally probably meaning "the ripening of grain, barley and wheat" (Ex. 13:4, 23:15, 34:18; Deut. 16:1); ירח זיו *Ziv*—the second month, literally means "light, radiance, splendor" (I Kings 6:1, 37); ירח איתנים *Ethanim*—the seventh month, literally means in

plural “strong”, perhaps referring to strong rains (I Kings 8:2); and *Yerah Bul* בּוֹל—the eighth month (I Kings 6:38). The three months *Ziv*, *Ethanim*, and *Bul* are mentioned in connection to the building of the Temple by King Solomon and are probably Canaanite designations. It is interesting to note that in these citations both the name *yerah* (which appears also in the Gezer inscription) and the actual name of the month are used.

The names of the months changed in the period of the return from the Babylonian exile (6th c. BCE) and occur primarily in the post-exilic books. The returnees are alleged to have brought back the new names (JT, Rosh Hashana 1:56d) which refer to *Nisan* (the first month of the spring) as the first month of the year; only six other months names are mentioned (Zec. 1:7, 2:1; Est. 2:16, 3:7, 13, 8:9, 12, 9:1, 15, 17, 19, 21; Neh. 1:1, 2:1) (see Table VII-1). The Jewish calendar from then on used the Babylonian month names and continued during Late Antiquity to allude to *Nisan* as the month which begins the year.

In the Dead Sea scrolls, the months are identified by ordinal numbers rather than by name, in keeping with the ancient Israelite, biblical tradition; neither the Canaanite appellations (such as *Aviv*, *yerah*, *Ziv*) nor the Babylonian month names are found, except in one magical text, the fragmentary Zodiology and Brontology (4Q318, Alexander 2000:504). The Babylonian month name *Shevat* is mentioned once in a small fragment of Historical Work (4Q333) (Talmon 2000:109). The month names in the Books of the Maccabees are occasionally indicated by ordinal numbers though the Babylonian month names also occur in the names of the months *Nisan* and *Iyar* (2 Enoch 24:7, 9).

1.1.2 *The Seasons*

One of the most important elements of the calendar is the seasons. After the Babylonian exile the division of the Jewish year into four seasons was the accepted form. The four seasons in Rabbinical literature—*Nisan*, *Tamuz*, *Tishri*, and *Tevet* (M. San. 12:2–13:1; Tos. San. 2:2; JT San. a, b) mark the turning of the sun, the beginning of each season, and include the equinoxes and solstices (Segal 1982:207; Wiesenberg 1971:46–48; Di Segni 2005:212–213). This division was apparently influenced by the Babylonian and Greek cultures.

The four *tekufot* and their corresponding zodiac signs are (see Table VII-1):

ניסן תקופת נישן *Tekufat Nisan*—Spring (*vernal*) equinox, the beginning of spring.

‘עת הזרע’ (seed-time), day and night are equal; the sun enters *Aries*.

תמוז תקופת תמוז *Tekufat Tammuz*—Summer solstice; the summer season.

‘עת הקציר’ (harvest-time), the longest day in the year; the sun enters *Cancer*.

תשרי תקופת תשרי *Tekufat Tishri*—Autumn equinox, autumn season, ‘עת הבציר’ (vintage-time), the day again equals the night, the sun enters *Libra*.

טבת תקופת טבת *Tekufat Tevet*—Winter solstice, the beginning of winter.

‘עת החורף’ (stripping-time), the longest night of the year, the sun enters *Capricornus*.

The Dead Sea Scrolls, in the Rule of the Community (1QSx.7), recorded the four annual seasons as corresponding to four main agricultural seasons: זרע ודשא, קיץ, קציר which are ‘The season of reaping to [that of] of summer [fruits]; the season of sowing to the season of [cutting] green fodder’ (Talmon 2000:109). This wording repeats the description of the agricultural seasons in the Gezer Calendar and in Amos 7:1–4, 8:1–2 (a similar though longer description appears in 1 Enoch 82:16–19). It is possible that the start of each of these quarters was indicated by special prayers and marked by festivals.

According to Talmudic sources, more changes in the Jewish calendar were made in the 4th c. CE. The publication or the limited regulations of the Jewish calendar was effected by the patriarch

Hillel II in 358/9 CE and presented mainly a change from a calendar based on the sighting of the moon and the seasons to a calculated and fixed calendar (S. Stern 2001:139–140, 164–172). It is possible that the mosaic pavement of Hammath Tiberias B, which depicts the primary elements of the calendar, is related to this innovation (Sternberg 1972:72–103; Levine 2003c:110–115).

1.1.3 *New Year, the Start of the Year*

In the ancient (biblical) Israelite tradition, the Jewish year began in the spring and the first month was named **חֹדֶשׁ הַאֲבִיב** ‘the month of the spring’ (Ex. 13:4, 23:15, 34:18; Deut. 16:1). The months were indicated by ordinal numbers, so that the ‘First month’ was the first spring month (Ex. 40:2, 17; Lev. 23:5; Num. 28:16). Exodus 12:2 states: “This month shall mark for you the beginning of the months; it shall be the first of the months of the year for you.” Other months are referred to as the Second, Fifth, Seventh and Ninth (see Table VII-1). Almost all the festival dates in the Torah relate to the calendar which begins in the spring. However, the 10th c. BCE Gezer calendar begins in the fall.

Other sources, such as Josephus and the *Mishna*, state some interesting facts on the first month of the year:

Josephus Antiquities 1.81 states:

Moses . . . appointed Nisan (Xanthikos = the Macedonian month) . . . as the first month for the festivals . . . the commencement of the year for everything relating to divine worship, but for selling and buying and other ordinary affairs he preserved the ancient order [i.e. the year beginning with Tishrei]. (Josephus, Antiquities 1.81, Loeb Classical Library, 1930)

The Mishna *Rosh Hashanah* 1.1 is based on a tradition citing *Nisan* as the new year but identified three other new-year dates:

The 1st of *Nisan* is the new year for kings and feasts; the 1st of *Elul* is the new year for the tithe of cattle . . . the 1st of *Tishri* is the new year for years, of the years of release and jubilee years, for the planting and for vegetables; and the 1st of *Shevat* is the new year for trees- so the school of Shammai; and the school of Hillel say: On the 15th thereof.

That *Nisan*, the spring month, begins the year is further proved by the late 6th-century ‘En Gedi synagogue western aisle mosaic inscription (Fig. XI-4). The second panel lists the Hebrew names of the zodiac signs, followed by their corresponding months in the same order (Fig. VII-2), beginning with *Nisan* and its corresponding zodiac sign *Taleh*/Ram/Aries (Mazar 1970; Barag et al. 1981). The ‘En Gedi inscription also proves that even in the late 6th century the Jewish year started with *Nisan* (and its zodiac sign *Taleh*), the first month of the spring.

The zodiac depiction at Beth Alpha indicates as much by adding the letter *vav* (‘and’) to both *Deli* (Aquarius) and *Dagim* (Pisces), thereby designating them the last signs of the zodiac (Fig. VII-7); this in fact attests that the next zodiac sign, *Taleh* (Aries) for the month of *Nisan*, is the beginning of the year. The tradition is preserved in later literature, such as in Ha-Kalir’s poems, where the names of months are parallel to the zodiac signs (Avi-Yonah 1964:55; Mirsky 1971).

Pagan and Christian New Years: The Macedonian solar calendar was first introduced in the Near East with the victory of Alexander the Great. It was basically the Babylonian calendar, in which the Macedonian names of the months replaced the Babylonian ones. The year began on the first of Dios (October). In some of the sites, such as Antioch, the year began with Hyperberetarios (Tishri, September–October) and in other cities, it began with Gorpiais (August–September), in the autumn (see Table VII-1). The Macedonian months are used frequently by Josephus in correspondence to the Hebrew months (Ant. 1.81, Shalit 1978:notes 55–57).

The difference between the Jewish and Christian calendar representations was quite striking in design and concept. On church mosaics the calendar order was different. The distinction between



Figure VII-2. 'En Gedi inscription.

synagogue and church was perceived in the order of the months and their effect on the calendar, namely when the year begins. The Jewish year began in the spring, while the Christian year began either in January or in the autumn.

The Christian calendar appears on mosaic pavements in churches at Gerasa and in a funerary chapel and a monastery at Beth She'an (Hachlili 2009:191–193). These two mosaic pavements from Beth She'an prove that in the 6th century the Christians used the Julian calendar (Hachlili 2009:191–193): On the narthex of the mid-6th funerary chapel of the El-Hammam Beth She'an mosaic pavement, the main panel shows representations of the twelve months depicted in two rows of six, each row divided into two separate groups (Fig. VII-32b) (Avi-Yonah 1936:22–26, Pl. xv). The left part of the mosaic depicting the first six months is badly damaged. January appears as the first month; the figure is almost completely destroyed, but part of the inscription survived.

In the Beth She'an Monastery of Lady Mary, the personifications of the labors of the months with their Latin names appear in the outer circle in the center of the carpet in Hall A (Fig. VII-32a). The inner circle contains the personifications of the sun and the moon as female busts bearing torches (Fitzgerald 1939:6, Pls. vi–viii). It can be assumed from the similarity with the El-Hammam mosaic pavement that here also, the New Year was in January.

The Latin names of the months of the Julian calendar are found only in Byzantine mosaics in northern Palestine; in southern Palestine, the Negev, and Gerasa (Jordan) the inscribed names of the months remain Macedonian through the Byzantine period and later (Avi-Yonah 1936:22–25, note 2, p. 25).

The Jewish calendar is represented on synagogue mosaic pavements of Late Antiquity as a zodiac design comprised of a single identical scheme consisting of three sections: the four seasons signify the year, the months are represented by the zodiac signs, and the sun god with its background of a half moon and stars symbolizes day and night. The Jews seem to have preferred to represent the calendar with the combined symbolism of the seasons, the zodiac signs, and the sun god in one single composition embodying an annual liturgical calendar (Hachlili 1977; 1988:394–395; 2002; 2009:54–6), while the church pavements show that Christians chose for their calendar the human labor of each month with the seasons in separate designs. Both, however, followed the traditions and general repertoire of the Graeco-Roman calendars.

The Hebrew/Jewish calendar went through several major changes: in the biblical period the agricultural calendar illustrated the varied activities of the seasons and months. In the Second Temple period, the Jewish calendar altered under the influence of the Babylonian lunar calendar, resulting in

a change of the month names to the Babylonian names, which are still in use today. The last transformation was generated in the 4th c. CE, when a fixed and calculated calendar was published.

2. THE ZODIAC IN JEWISH ART

The zodiac originated in Babylonia and evolved slowly between 1300 BCE and 500 BCE. The Greek scheme of 12 zodiac constellations and sign names are in fact translated or modified Babylonian names, proving that it was adapted from the Babylonian scheme circa 500 BCE. During the 5th century BCE the constellation zodiac developed into 12 equal divisions of 30 degree signs. This was the basis of the theoretical division of the year into 12 months of 30 days each (van der Waerden 1952–3:225–228; Thompson 2010).

The pictorial signs of the zodiac are known from renditions on seals from Seleucid Uruk and they probably already presented their astrological aspects. Several signs, such as Sagittarius, Capricornus, and Aquarius, which appear on the round zodiac of Dendra (a mix of the Greek zodiac and the Babylonian original), are similar to those depicted on Babylonian boundary stones (van der Waerden 1952–3:226–227, Figs. 4–9). In the 2nd century BCE, the Greek astronomer Hipparchus of Rhodes was the first to reclassify the boundaries of the 12 signs. He placed the beginning of the (Greek) sign of Aries at the vernal equinox, which was the starting point for the zodiacal division of 12 equal signs.

The zodiac in Jewish sources: The only biblical reference to the zodiac is in II Kings 23:5: המקטרים השמים וכל צבא השמים לבעל לשמש ולירח ולמזלות ולכל צבא השמים “and those made offerings to Baal, to the sun and moon and constellations—all (*Mazalot*) the host of heaven”. The meaning of the word *Mazalot* could be the planets or groups of stars which belong to the zodiac. *Mazalot* מזלות apparently was synonymous with כוכבים stars. The Septuagint translates this word as μαζουρωθ (also Job 38:32 “Can you lead out Mazzaroth [apparently a constellation] in its season, conduct the Bear with her sons”); the Vulgata uses “duodecum signa” = the twelve (zodiac) signs (Plesner and Licht 1962:45). Isa. 13:10 describes the destruction in heaven as follows: “The stars and constellations of heaven shall not give off their light; The sun shall be dark when it rises, and the moon shall diffuse no glow.”

Interesting descriptions of the sun, moon, stars, and zodiac signs are cited in the Books of Enoch. The image of the sun riding the chariot is described in 1 Enoch 72:4–5, 75:4 (the Ethiopic version) and 2 Enoch, 1 Enoch 72:4–5 (R.H. Charles, 1917):

4. And first there goes forth the great luminary, named the Sun, and his circumference is like the circumference of the heaven, and he is quite filled with illuminating and heating fire. 5. The chariot on which he ascends, the wind drives, and the sun goes down from the heaven and returns.

2 Enoch, Chapter 30 (Slavonic, English translation by W.R. Morfill 1896, Oxford, Clarendon Press, *The book of the Secrets of Enoch*):

5. and I placed the sun to give light to the day, and the moon and stars to give light to the night; the sun that he should go according to each sign of the zodiac; and the course of the moon through the twelve signs of the zodiac.

An appropriate description in 2 Enoch (Slavonic, Hebrew)² illustrates quite accurately the design of the zodiac as it is depicted on the synagogue mosaic pavements:

² Enoch 2 was probably originally written in Hebrew (see the Hebrew names of the months Enoch 2 24:7, 9—Iyar, Nisan) in Jerusalem? Translated into Greek in Egypt; it was preserved in a Slavonic church translation of the Greek. The translation used is by Sokolov 1899 (Kahana 1960:103–4).

והשמש יהי הולך בכל-עגול-המזלות; ושנים עשר עגולי מזלות לסב את הירח

(Enoch II:11:51; Kahana 1959:119) “The sun is moving through the entire zodiac wheel; and the twelve signs of the zodiac shall encircle the moon” (my translation). It is important to note that the phrases in the Bible and Enoch refer to the sun, moon, stars, and zodiac signs, and these are the essential elements of the zodiac design in Jewish art.

The study of astrology is forbidden in the Bible as proved by Deuteronomy 4:19: “And when you look up to the sky and behold the sun and the moon and the stars, the whole heavenly host, you must not be lured into bowing down to them or serving them . . .”; Isaiah 47:13 “You are helpless, despite all your art. Let them stand up and help you now, the scanners of heaven, the star-gazers who announce, month by month, whatever will come upon you.” The Dead Sea Scrolls mention the zodiac signs in some works on the horoscope (4Q183, 4Q186, 4Q318, 4Q561; Albani 2000:370–371; Alexander 2000:504). Some scholars suggest that the appearance of the zodiac derives from priestly literature and early mystical themes. Philo (*On the Life of Moses* II 24:123–124) suggested that the twelve stones on the breastplate of the high priest Aharon and their division into four sections actually represented the four seasons and the twelve signs of the zodiac.

2.1 *The Zodiac Panel Design in Synagogues*

Zodiac panels have been found in six 4th to 6th century CE synagogues on mosaic floors with typical tripartite scheme compositions. The zodiac is the central panel in the scheme of these mosaics, all of which share a similar zodiac cycle design, with some exceptions at Sepphoris (Hachlili 1977; 1988:301–309; 2002; 2009:35–56).

The zodiac panel is designed as a square frame containing two concentric circles. The central circle is depicted with an image of the sun god riding his chariot drawn by four horses. The outer, larger circle is divided into twelve radial units, each containing one of the signs and bearing its Hebrew name. In the corners of the square frame, busts of the four seasons are portrayed symbolically. These are named in Hebrew, after the month with which the season begins.

Each synagogue mosaic zodiac design evinces differences in the depiction and the execution of the figures. These underline the development of a distinctive scheme and model. The composition of each mosaic is harmonious and balanced, each section having a significant and integral place in the design (Figs. VII-3–4; Tables VII-1–3).

At Sepphoris, the most recently discovered (Figs. VII-5, V-30, VII-3b), this panel is found on the fifth of the seven bands of the 5th century nave hall mosaic floor (Weiss & Netzer 1996:14–15; Weiss 2005:104–141).

The Severus synagogue of Hammath Tiberias B is the earliest with mosaic pavements, dating to the 4th century (Dothan 1983:39–49). The zodiac is the central panel of the tripartite nave design (Figs. V-28, VII-3a, VII-6).

The zodiac at the Beth Alpha synagogue is the central panel of the tripartite nave design (Figs. V-29, VII-3d, VII-7) which, according to the Aramaic inscription, dates from the time of Justin I (518–527 CE, the preferred date) or Justin II (565–578) (see Sukenik 1932:57–58).

In the late 6th-century Na‘aran synagogue the zodiac (Figs. V-31, VII-3e, VII-8) is the central panel of the tripartite nave design (Vincent 1919; 1921; 1961).

At the Huseifa synagogue (Figs. V-34, VII-3c, VII-9) the zodiac is rendered on the upper panel of the nave mosaic dating to the late 5th-century (Avi-Yonah 1934).

The 6th century Susiya synagogue (Gutman et al. 1981:126) did contain at one time a mosaic floor with a central zodiac panel which was later changed into a geometric pattern (Fig. IV-47, VII-10). The only surviving part is a corner of the zodiac showing a wing, possibly of one of the seasons.

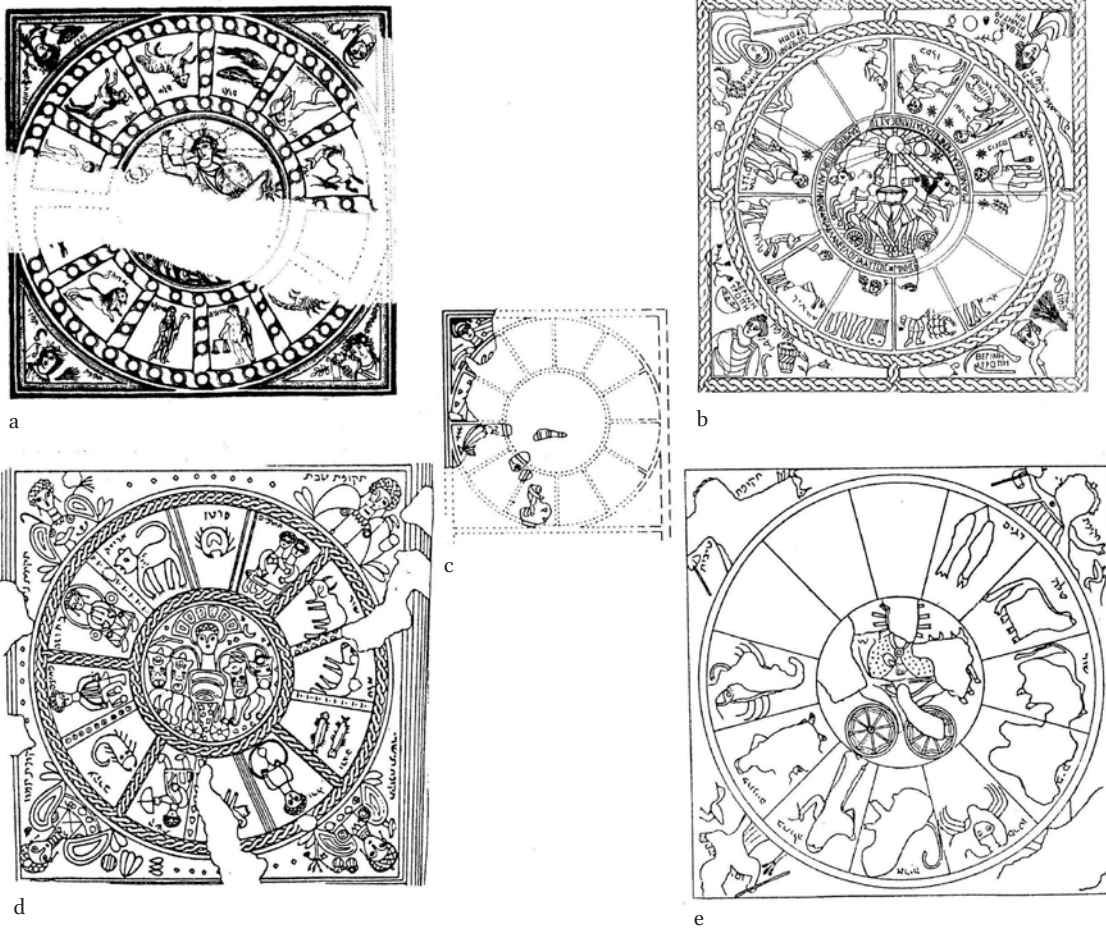


Figure VII-3. Illustrations of the zodiac panel: a. Hammath Tiberias B; b. Sephoris; c. Huseifa; d. Beth Alpha; e. Na'aran.

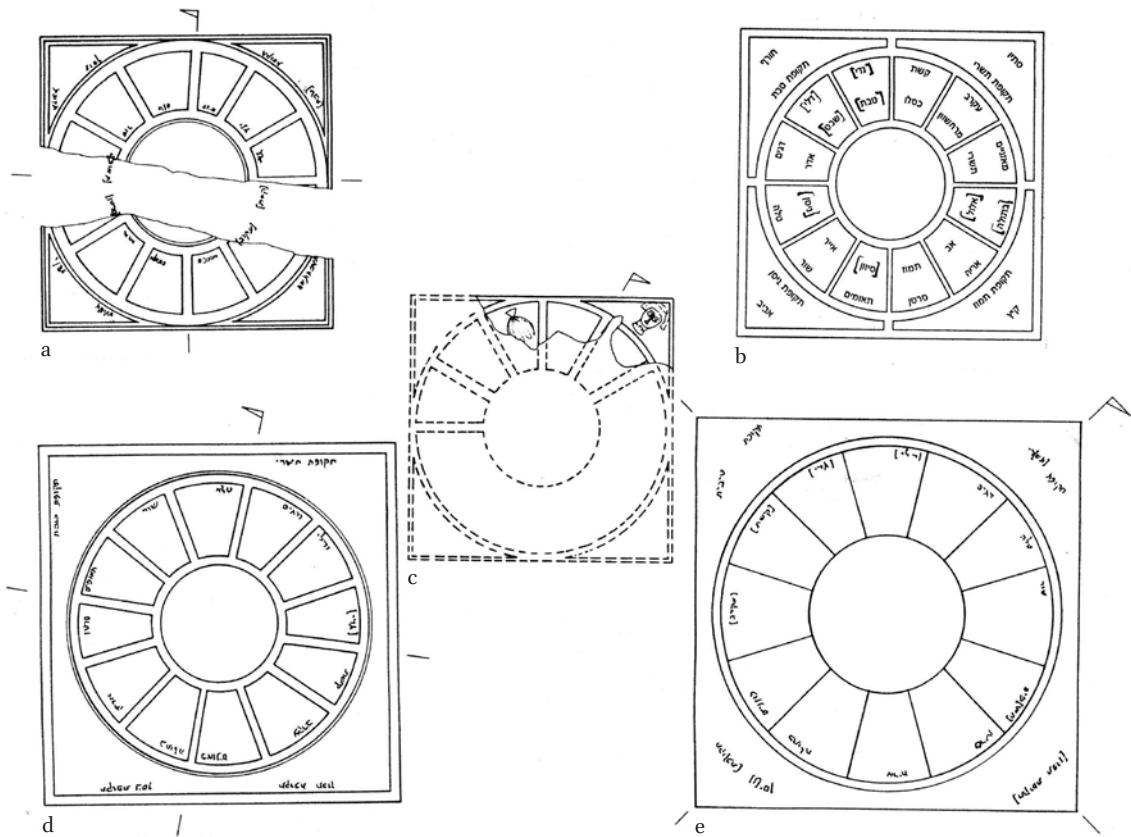


Figure VII-4. Schematic illustrations of the zodiac panel: a. Hammath Tiberias B; b. Sepphoris; c. Huseifa; d. Beth Alpha; e. Na'aran.



Figure VII-5. The Sephoris zodiac.



Figure VII-6. Hammath Tiberias B zodiac.



Figure VII-7. Beth Alpha zodiac.



Figure VII-8. Na'aran zodiac.

A possible zodiac design might have decorated the center of the nave of the Khirbet Wadi Hammam synagogue; however, little of it survived (Leibner and Miller 2010:239–240).

The characteristic design of these mosaics was expressed differently on the western aisle mosaic pavement of the 'En Gedi synagogue, dating to the late 6th century. It shows a Hebrew inscription, the second panel of which displays the names of the signs of the zodiac, followed by the names of the corresponding Jewish months (Fig. VII-2).

Some damaged engraved zodiac signs on stone have been discovered: at the Meroth synagogue, badly damaged signs of the zodiac were found on five slabs of an arch originally placed above the lintel of the main entrance (Fig. V-46); each slab probably showed one of the signs (Ilan and Damati 1987:47). A stone relief fragment from the Bar'am synagogue (Fig. IX-41) was considered by Sukenik (1932:57) to depict some of the zodiac signs, but this view has since been refuted, and rightly so, by Amiran (1954:181). On marble slabs at Beth She'arim, incisions of a ram, a lion, a water-bearer, and fish are considered by the excavator to be signs of the zodiac (Maisler 1941:12)

The zodiac signs correspond to the seasons at Hammath Tiberias B and Sepphoris, while at Huseifa, Beth Alpha, and Na'aran they do not (Pls. III-1–3a, Figs. III-3, 4, Table III-1). The zodiac circles



Figure VII-9. Remains of the zodiac, Huseifa.

at Hammath Tiberias B, Sepphoris, and Beth Alpha are counter-clockwise, whereas at Na'aran and Huseifa they run clockwise. At Hammath Tiberias B, Huseifa, and Sepphoris the zodiac figures are directed inwards, with their heads towards the central circle, while at Beth Alpha and Na'aran they are directed outwards with their feet toward the central circle (see Figs. VII-3, 5–8, Tables VII-2, 3).

The general form and content of the recently published Sepphoris mosaic shows a zodiac similar to the other synagogue zodiacs, yet with some noteworthy different iconographic details and featural variations (Hachlili 2002:226–7; 2009:47–48). The Sepphoris zodiac is located differently in the nave composition. The long narrow hall of the Sepphoris synagogue is paved with a mosaic carpet divided into seven horizontal bands (Fig. V-30). Unlike most zodiacs, which are positioned in the central panel, here the zodiac is placed in the fifth and broadest band of the mosaic (Weiss & Netzer 1996:14; Weiss 2005:104).

The central zodiac circle at Sepphoris (Fig. VII-5) renders the sun (not the sun god) suspended in the centre; its ten rays radiate light, the central one being joined to the chariot (Weiss & Netzer 1996:26; Weiss 2005:104–110). Each sign is accompanied by its Hebrew name, but here the Hebrew



Figure VII-10. Remains of the zodiac, Susiya.

name of the month is added. The names of the zodiac signs are more randomly located, below or beside the figure and not above as in the other pavements.

2.2 *The Four Seasons: The Outer Square Frame*

The square outer frame of the zodiac scheme contains the four seasons, placed diagonally in the four spandrels (Figs. VII-3–10, Tables VII-1, VII-3). Each season is represented by a bust of a woman wearing jewellery and is equipped with attributes and objects representing the activities of the season (Sukenik 1932:39; Goodenough 1953, I:249; Hachlili 1977:70–71; 2002:225–226; 2009:44–47, 184–191; Dothan 1983:43–45; Weiss & Netzer 1996:27–28; Weiss 2005:123–139).

The seasons, except at Huseifa, are accompanied by the Hebrew name of the first month, which stands for the appropriate season (*Tekufah* in Hebrew): *Tekufat Nisan* = Spring, *Tekufat Tammuz* = Summer, *Tekufat Tishri* = Autumn, *Tekufat Tevet* = Winter, referring to the turning of the sun at both the solstices and the equinoxes (Di Segni 2005:212–214). Only at Sepphoris are the four seasons accompanied by the names of the first month of each season in Hebrew as well as by the inscribed Greek term *τροπαί tropai*.

The four seasons' representations in each zodiac are similar in their facial features, eyes, some of their jewellery, and their dress. Only their particular attributes and inscription identify them.

At Sepphoris the four seasons are depicted in the same manner with the heads turning left. Spring and Autumn have the same hairstyle, with the hair combed to the sides and clasped at the top with a clip, and they are adorned with a small earring (Figs. VII-5, X-19). The *Tevet* season (Winter) is wearing a cloak that covers her head, while Summer, albeit with the same facial features, wears a round hat with a button on the top. The assemblage of attributes at Sepphoris, which is richer than that found in the other mosaics, is portrayed alongside the seasons' heads. None of the four hold objects in their hands.

At Hammath Tiberias B, the four seasons are alike. Their oval-shaped heads are crowned by wreaths, with different plants characterizing each season (Figs. VII-6, X-14). Their large open eyes

Table VII-1. The seasons.

Seasons	Seasons on zodiac design	Seasons in Greek at Sepphoris	Turning of the Sun	Sun enters zodiac signs	Agricultural seasons	Dead Sea Scrolls: Rule of the Community (IQSx.7)	Attributes illustrated on the synagogue mosaics
Spring	<i>Tekufat Nisan</i> תְּקוּפַת נִיסָן	Μεθ[σ]πωρινή τροπή	Vernal equinox	Aries	Seeding-time עַת הַזֶּרַע	Seasons of reaping קִצִיר	Plate of fruit; shepherd's crook
Summer	<i>Tekufat Tammuz</i> תְּקוּפַת תַּמּוּז	Χ[ε]ϊμερινή τροπή	Summer Solstice	Cancer	Harvest-time עַת הַקִּצִיר	Summer [fruits] קִיץ	Sickle; fruit Sheaf of wheat or corn
Autumn	<i>Tekufat Tishrei</i> תְּקוּפַת תִּשְׁרֵי	[Εα]ρινή τροπή	Autumn equinox	Libra	Vintage-time עַת הַבְּצִיר	Season of sowing זֶרַע	Pomegranate; grapes; Ears of corn; crook? <i>Shofar</i> ?
Winter	<i>Tekufat Tevet</i> תְּקוּפַת טֵבֵת	Θερινή τροπή	Winter Solstice	Capricorn	Stripping-time עַת הַחֹזֶרֶף	[cutting] green fodder דֵשָׁא	Amphora, branch

gaze towards the upper left. Each season wears a sleeveless tunic, fastened at the shoulders by a clasp; each is adorned by a necklace, earrings, and bracelets. Each holds in its right hand an appropriate object, with another object to the left. The exception is the partly damaged season of *Tevet*, which, like its Sepphoris counterpart, wears a mantle (*pallium*) draped over its head and is adorned with earrings. The postures of the Sepphoris and Hammath Tiberias B figures, with their left-turned faces and seasonal attributes, are quite similar.

The four Beth Alpha seasons are winged female busts rendered in a stylized and schematic fashion *en face*, with identical features and hairstyles, and they are richly jewelled with necklaces and earrings (Figs. VII-7, X-21); only their accompanying attributes identify them. Wortzman (2008) suggests that the two lines ending with two circles rendered down the front chest of the winter image and the sign of *Virgo* indicate the breasts. This same pattern appears on the breast of the fully-dressed servant in the Binding of Isaac image (Fig. XIII-4). Wortzman contends that this figure could be interpreted as Sarah, who was present at the scene according to the Midrash, rather than as a servant. It seems more likely that this pattern was some kind of an addition to the necklace, though it is strange to see it on the servants' breast.

At Na'aran, the seasons (Figs. VII-8, 13) show similarity in their general shape and dress, despite their badly damaged state: the figures are associated with the appropriate attribute, each appears to be holding a wand in its right hand, and an inverted bird appears at its left.

The following descriptions of the seasons emphasize the similarities and differences in the separate mosaic figures and their attributes:

- *Tekufat Nisan*—*Spring* (Figs. VII-11, 12). The *Nisan* figure at Sepphoris has wavy hair gathered with a clip, a wreath beneath the hair, an earring in her left ear, and wears a sleeveless tunic; a sickle, a flower basket and lilies are on the right, a bowl with flowers and a rose branch are on the left (quite similar to Hammath Tiberias B). The Hammath Tiberias B figure is crowned with a wreath of two large flowers and holds a bowl of fruit in her right hand, with a rose placed next to her on the left. The Beth Alpha winged Spring figure is adorned with a chain and an emerald necklace with three triangular pendants around her neck, and has long bead earrings ending with a drop. Spring at Beth Alpha and Na'aran shows similar attributes: the Beth Alpha winged figure has a shepherd's crook (*pedum*) and a bird. At Na'aran the figure is not winged, but it does hold a shepherd's crook, with a sheaf of corn and an upside-down bird placed on either side of the image (Fig. VII-13a). The


















	Hammath-Tiberias	Sepphoris	Huseifa	Beth-Alpha	Na'aran
Spring <i>Nisan</i> תקופת ניסן					
Summer <i>Tammuz</i> תקופת תמוז					
Autumn <i>Tishri</i> תקופת תשרי					
Winter <i>Tevet</i> תקופת טבת					

Figure VII-11. Illustrated table of the seasons on the mosaic pavements at Hammath Tiberias B, Sepphoris, Huseifa, Beth Alpha, and Na'aran.

figures at Hammath Tiberias B and Beth Alpha are adorned with necklaces, bracelets, and earrings. It seems that the symbol of Spring in these zodiac mosaic designs is the plate of fruit or the shepherd's crook. Similar symbols for spring appear in representations of the seasons in Roman art (Hachlili 2009:46).

- *Tekufat Tammuz—Summer* (Fig. VII-11, 12). Summer in the Sepphoris mosaic is a figure dressed in a tunic that exposes her right breast. She wears a dome-shaped cap with a button on top over her braided hair that is gathered in a bun; a sickle and some other tool are on the left, a sheaf of corn and some fruits on the right. The Sepphoris Summer shares features with the figure of Summer on the church mosaic from Petra (B8): there too, her right breast is bare, she wears a similar hat, and she holds the same objects—a sickle and a sheaf of wheat (Waliszewski 2001:255–256, 319). Summer at the mosaic of Hammath Tiberias B is a jewelled female bust crowned with olive branches, holding a sheaf of corn in her left hand and a sickle in her right. The Beth Alpha Summer is a winged and jewelled female bust, with fruits and field produce in front of and beside her. The Na'aran figure is completely destroyed. The Hammath Tiberias B and Sepphoris Summers are illustrated with the same attributes, the sickle and sheaf of wheat, while the Beth Alpha Summer attribute is fruit. Similar seasonal attributes appear on other mosaics in the region (Hachlili 2009:47).
- *Tekufat Tishri—Autumn* (Figs. VII-11, 12). The figure at Sepphoris is similar to *Nisan* (Spring) in her dress, her wavy hair combed to the sides gathered with a clip, and the small earring on her left ear. Two pomegranates, a fig, and a round fruit are beside the figure on the right; only a vine branch has survived on the left. The Hammath Tiberias B mosaic portrays a jewelled figure holding a cluster of grapes and crowned with pomegranates and an olive branch. At Beth Alpha the winged figure is jewelled and crowned, and surrounded by pomegranates, a cluster of grapes, figs, apples, a palm



Figure VII-12. Illustrated table of the seasons on the mosaic pavements at Hammath Tiberias B, Sepphoris, Huseifa, and Beth Alpha.

tree, and a bird. The Na'aran figure, whose face is damaged, holds a shofar and crook in her right hand and has a bird at her side. At Huseifa, only Autumn remains (Figs. VII-9); the other seasons were apparently destroyed. She wears a necklace and a crown and is accompanied by pomegranates, ears of corn, and a sickle (perhaps a *shofar*) or palm leaf on the left and a long object on the right. Avi-Yonah (1934:126) suggested that this 'was meant for a shade (?) or wings (?), and Weiss (2005:137) supposes it is a plowshare similar to the one depicted beside Winter at Sepphoris.

The pomegranate recurs in all personifications of Autumn except that at Na'aran (Fig. VII-13b). The same attributes of pomegranates and a cluster of grapes carried by the figure in her shawl are found together with Autumn in other mosaics in the region (Hachlili 2009:47).

- *Tekufat Tevet—Winter* (Figs. VII-11, 12). The Sepphoris winter is a figure fully draped in a gray cloak that covers her body and head; she has a sickle, a tree with a fallen branch, and a plowshare on the right, and a double-bladed axe on the left. The figure of Winter at Hammath Tiberias B is draped, with a scarf over her head, and she has an amphora with water flowing from it at her left. The jewelled figure at Beth Alpha is accompanied only by a branch with two leaves and a cylindrical object; her wings are much darker than those of the other seasons. The Na'aran figure is almost completely destroyed. She holds a wand in her right hand and an upside-down bird is to her left. Similar representations of Winter appear in other mosaics in the area (Hachlili 2009:47).

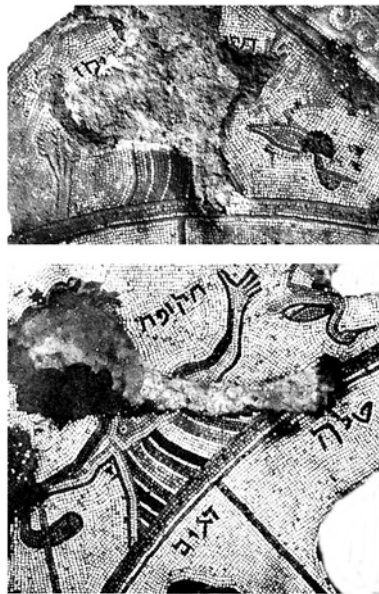


Figure VII-13. Remains of the seasons, Na'aran: a. Spring; b. Autumn.

The symbols and representations of the figures of the seasons in the Hammath Tiberias B and Sepphoris zodiacs are similar to those on Roman and Byzantine floors, whereas those on the mosaic floors at Beth Alpha and Na'aran have unique attributes and representations, underlining a distinctive Jewish style. Only the Beth Alpha seasons are winged.

The representations of the seasons have specific attributes which can be compared to those found in the pagan world on mosaic pavements of the 2nd—6th centuries CE (Hanfmann 1951, I:192–196). Many of these seasons are winged busts and they are usually crowned. Though their attributes are similar, they are not exactly identical with those of the Jewish seasons.

The personifications of the seasons draw directly on models and patterns from the classical Graeco-Roman repertoire. In all the mosaics they are alike in manner, style, and details of face and eyes, but they differ in dress, jewellery, and attributes, to mark each different season. The seasons on the pagan and church pavements are either isolated or part of a group within a larger design. Only those on synagogue pavements are an integral part of the entire zodiac design.

The seasons rendered on synagogue and church mosaics in all probability represented the year's cycle—the renewal of nature and the agriculture cycle—presented with their typical attributes and the iconography of agricultural activities (Hanfmann 1951, I:227–280; Maguire 1987:27; Merrony 1998:469).³

2.3 *The Signs of the Zodiac: The Outer Circle*

The outer circle is apportioned into twelve radial units, one for every zodiac sign; each sign is followed by its name in Hebrew and matches precisely one of the twelve months of the Jewish year; only at Sepphoris is the Hebrew name of the month added to each sign (Tables VII-2, VII-3).

The zodiac signs vary widely in style from synagogue to synagogue. At Huseifa only fragments of five signs were found and no inscriptions, and at Na'aran little survived as most of the signs had been

³ But see Roussin's assertion (1985:114) that the use of the seasons on these mosaics was 'primarily decorative'.

Table VII-2. The Hebrew Calendar: Zodiac signs and the names of the months.

No.	Zodiac signs	Post-exile Hebrew months	Original Babylonian months	Post-exile Hebrew months cited in Bible	Gezer Calendar	Biblical pre-exile month names	Macedonian months	Julian months
1	סלֵה <i>Aries</i> Lamb	נִיסָן Nisan	<i>Nisanu</i>	Neh. 2:1, Est. 3:7	יֶרֶחַ עֵצֶד פִּשְׁתָּה flax picking harvest	<i>Aviv</i> אֲבִיב (Ex. 13:4, 23:15, 34:18; Deut. 15:1)	<u>Ξανθικός or</u> <u>Ξανθικός</u> Xanthikos	March–April
2	שׁוֹר <i>Taurus</i> Bull	אֲיָר/אֵיָר Iyar	<i>Ayaru</i>		יֶרֶחַ קֶצֶר שְׂעֵרָמ barley harvest	יֶרֶחַ זֵיו (I Kings 6:1, 6:37)	<u>Ἀρτεμισίος or</u> <u>Ἀρτεμισίος</u> Artemisios	April–May
3	תְּאוֹמִים <i>Gemini</i> Twins	סִיבָן Sivan	<i>Simanu</i>	Est. 8:9	יֶרֶחַ קֶצֶר וּכְל wheat harvest		<u>Δαΐσιος</u> Daisios	May–June
4	סַרְסָן <i>Cancer</i> Crab	תַּמְמוֹז Tammuz	<i>Du'uzu</i>		יֶרֶחַ זֵמֶר vine pruning or vintage		<u>Πάναιμος</u> Panamos	June–July
5	אֲרִיֶה <i>Leo</i> Lion	אָב Av	<i>Abu</i>		יֶרֶחַ קֶץ summer fruit picking or drying of figs		<u>Λαΐσιος</u> Loios	July–August
6	בְּתוּלָה <i>Virgo</i> Virgin	אֶלּוּל Elul	<i>Ululu</i>				<u>Γορπαιΐος</u> Gorpaaios	August– September

Table VII-2 (cont.)

No.	Zodiac signs	Post-exile Hebrew months	Original Babylonian months	Post-exile Hebrew months cited in Bible	Gezer Calendar	Biblical pre-exile month names	Macedonian months	Julian months
7	כַּאֲזוּזִים כּוֹזְנִים <i>Libra Scales</i>	תִּשְׁרִי Tishri	<i>Tashritu</i>			<i>Ethanim</i> יָרַח אֶתְנַיִם (1 Kings 8:2)	Ἰπερβεταῖος Hyperbetarios	September– October
8	עֲקֹרֵב <i>Scorpio Scorpion</i>	מְרַחֲשָׁן/הַשָּׁן Marheshvan/ heshvan	<i>Arakhsamna</i>	יָרַח אֶסָף יָרַח ז' fruit picking		Seventh month (Gen. 8:4; Lev. 16:29, 23:24, 26, 29:7; Num. 29:1; Ezra 3:1; Neh. 7:73; II Chr. 5:3)	Ἄϊος Dios	October– November
9	קֶשֶׁת <i>Sagittarius Archer</i>	כִּסְלֵו Kislev	<i>Kislimu</i>	Zec. 7:1, Neh. 1:1	רַע יָרַח לַקֵּשׁ grain sowing	Ninth month (Ezra 10:9)	Ἀπελλαῖος Apellaios	November– December
10	גְּדִי <i>Capricorn Goat</i>	טֵבֶת Tebet	<i>Tebetu</i>	Est. 2:16		Tenth month (Gen. 8:5)	Ἀυδυναῖος Audunaios	December– January
11	דְּלִי <i>Aquarius</i> Water-bearer	שֵׁבַט Shevat	<i>Shabatu</i>	Zec. 1:7	רַע יָרַח לַקֵּשׁ late sowing		Περίτιος Peritios	January– February
12	דְּגִים <i>Pisces Fish</i>	אָדָר *Adar	<i>Adaru</i>	Est. 3:7, 13, 8:12, 9:1, 15, 17, 19, 21			Δύστρος Dystros	February– March

* In leap years, Adar has 30 days. In non-leap years, Adar has 29 days. The extra month is called אָדָר אֶלֶף (*first Adar*) and is added before אָדָר אֶתְנַיִם (*second Adar*), which then becomes אָדָר בֵּת (*Adar Bet* (second Adar)).

damaged by iconoclasts. In all the zodiacs the animals are drawn in profile, facing forwards (Figs. VII-5–10). The human figures for the signs have the same face and body features and similar hairstyles. At Sepphoris the zodiac signs (of which only four are well-preserved) are each accompanied by a star at the top and by uniform figures of either draped or almost naked young men, all barefoot except one. Some of these youths—Aquarius, Libra, Sagittarius, and Pisces (Fig. X-20)—are an integral part of the sign and are rendered in an active posture, holding the same objects as in other synagogue zodiacs. The other youths are depicted simply standing in front of the signs of Aries, Taurus, and Leo or standing next to Cancer and Scorpio. Weiss (2005:122) maintains that in addition to being part of the zodiac sign, the youths personify the months. A star accompanies each zodiac sign at the top on the right or left (Weiss [2005:122] contends that the stars serve as an astral symbol). A similar appearance of a star rendered next to each of the four surviving zodiac signs from Palmyra is noted in the 1st-century CE stone ceiling relief there (Fig. VII-25; Gundel 1992:no. 45; Hachlili 2009:50, Fig. III-12). It is possible that the stars depicted on the Sepphoris signs express the association with the *masalot* (the planets/zodiac signs) which seems to be expressed in II Kings 23:5. The human and animal figures of the Hammath Tiberias B floor are in motion; the male figures have similar features and are naked (Fig. VII-6). At Huseifa, what remains of the figure of Sagittarius shows that he too was apparently naked (Avi-Yonah 1934:125). At Beth Alpha, Na'aran, and Sepphoris, on the other hand, the figures are clothed and almost motionless.

2.4 *The Zodiac Signs*

Aries (Lamb, טלה). At Sepphoris the sign shows the lamb and the remains of a youth standing in front of the animal. At Hammath Tiberias B and Sepphoris the lamb is shown in profile, running, while at Beth Alpha and Na'aran the ram is standing. The last letter of the sign's Hebrew name at Beth Alpha is *aleph* instead of *he*. At Huseifa the two hind legs of the lamb survived (Figs. VII-14, 15, Table VII-3).

Taurus (Bull, שור). At Sepphoris only the forelegs of the running bull survived, with the remains of a youth holding a staff standing in front. At Hammath Tiberias B the bull in profile is rendered running left; at Beth Alpha the bull is shown in profile standing (Figs. VII-14, 15).

Gemini (Twins, תאומים). At Sepphoris, the remains of two naked youths are shown, one on the right holding a lyre and the other on the left holding a club. At Hammath Tiberias B only one naked youth remains intact; at Beth Alpha two embracing youths with a connected body are depicted (Figs. VII-14, 15). At Huseifa and Na'aran the sign is destroyed.

Cancer (Crab, סרטן). At Sepphoris the crab turns to the right and is accompanied by a youth dressed in a tunic and black shoes. Only the end of the crab's claws have survived at Hammath Tiberias B. At Beth Alpha and Na'aran the crab is shown frontally, as if walking forward (Figs. VII-16, 17), a posture that some scholars consider significant (Sonne 1953–4:10). At Huseifa the sign is completely destroyed.

Leo (Lion, אריה). At Sepphoris little has survived—only the tail of the lion and the legs of a youth next to it. At Hammath Tiberias B the lion is leaping forward, at Beth Alpha it is walking, and at Na'aran, sitting. In all three examples the lion's tail is turned up (Figs. VII-16, 17). At Huseifa and Na'aran the sign is destroyed.

Virgo (Virgin, בתולה). *Virgo* at Hammath Tiberias B is shown robed as a Greek *Kore*, with a covered head and a torch in her hand. At Beth Alpha there is a unique *Virgo* figure, seated on a throne depicted by an arched top and round side handle. She wears a decorated garment and red shoes and is ornamented with long earrings, a necklace, and bracelets on both arms. The throne and the shoes indicate royal rank (Sukenik 1932:37). At Na'aran the *Virgo*, which is damaged, stands holding





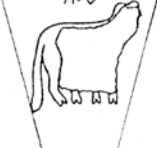





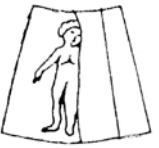




	Hammath Tiberias	Sepphoris	Huseifa	Beth Alpha	Na'aran
Aries Ram טלה ♈					
Taurus Bull שור ♉					
Gemini Twins תאומים ♊					

Figure VII-14. Illustrated table of three zodiac signs—Aries, Taurus, and Gemini—on mosaic pavements at Hammath Tiberias B, Sepphoris, Huseifa, Beth Alpha, and Na'aran.

a plant. At Sepphoris only two ears of wheat and part of a star have survived (Figs. VII-16, 17). At Huseifa the sign is destroyed.

Libra (Scales, מאזניים—מוזנים). At Hammath Tiberias B, Sepphoris, and Na'aran the Hebrew name of the sign, *Moznayim*, is inscribed with a *vav* (מוזנים) instead of an *alef* (מאזניים) as it appears at Beth Alpha. In all the synagogue mosaics, the sign of Libra is shown as a human figure holding a pair of scales. At Sepphoris the youth wears a cloak, while at Hammath Tiberias B the figure is naked and also has a sceptre. In the Beth Alpha mosaic, Libra holds the scales very awkwardly, standing on one leg; the artist omitted the second leg to allow enough room for the scales. The remains of Libra at Na'aran show a figure standing and holding the scales in his right hand (Figs. VII-18, 19). At Huseifa and Na'aran the sign is destroyed (for comparisons in Roman art see Hachlili 2009:42).

Scorpio (Scorpion, עקרב). At Sepphoris and Hammath Tiberias B Scorpio is moving forwards to the right, but at Sepphoris with the addition of a cloak-wrapped youth walking behind. At Beth Alpha, the scorpion is moving to the left. The partly destroyed scorpion at Na'aran is depicted frontally, standing on its tail (Figs. VII-18, 19). At Huseifa the sign is destroyed.

Sagittarius (Archer, קשת). At Sepphoris, Sagittarius appears as a leaping centaur archer similar to pagan representations which usually show a centaur, a half human-half animal figure, shooting with an arrow from a bow (Hachlili 2009:42–43). At Huseifa, the surviving figure of the archer is portrayed naked, “turning right and shooting with his right arm raised” (Avi-Yonah 1934:125). At Beth Alpha the archer is shown in human form, holding a bow and arrow in his left hand (Figs. VII-18, 19). The Jewish communities at the two sites of Beth Alpha and Huseifa might have been reluctant to depict Sagittarius in its pagan form as a centaur, and preferred a human archer, which would have been adequate to symbolize the Hebrew name of the sign קשת *Qashat* = archer; or else the mosaicist might have made the sign as a human archer because he took the meaning of *qashat* literally. At Na'aran the sign is destroyed.



Hammath Tiberias

Sepphoris

Beth Alpha

Figure VII-15. Illustrated table of three zodiac signs—Aries, Taurus, and Gemini—on mosaic pavements at Hammath Tiberias B, Sepphoris, and Beth Alpha.

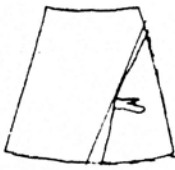











	Hammath Tiberias	Sepphoris	Huseifa	Beth Alpha	Na'aran
Cancer Cancer סרטן ♋					
Leo Lion אריה ♌					
Virgo Virgin בתולה ♍					

Figure VII-16. Illustrated table of three zodiac signs—Cancer, Leo, and Virgo—on mosaic pavements at Hammath Tiberias B, Sepphoris, Huseifa, Beth Alpha, and Na'aran.

Capricorn (Goat, גדי). At Sepphoris a kneeling youth holding a kid's hindquarters has survived, while in the Huseifa mosaic only the raised horns of Capricorn remain. At Hammath Tiberias B, Capricorn is depicted as a horned goat with a fish's tail, which is the common pagan form in Roman art (Hachlili 2009:43). The sign is depicted as a partially destroyed kid at Beth Alpha (Figs. VII-20, 21). At Na'aran the sign is destroyed.

Aquarius (Water-bearer, דלי). Each zodiac mosaic depicts this sign differently. At Sepphoris all that has survived is some flowing water at the lower edge. At Hammath Tiberias B a naked figure pours water from an amphora, following most of the common depictions of Aquarius in Roman art (Hachlili 2009:43). The Huseifa Aquarius—better preserved than the other signs of the mosaic—is represented by a large amphora with water pouring out of it. The Beth Alpha sign is unique in that Aquarius is shown as a figure drawing water from a well with a bucket, which is an illustration of the Hebrew word דלי *deli*. This is a literal depiction of דלי *deli* (Aquarius) as a container of water and its carrier, like the amphora and water at Huseifa and the drawing of water at Beth Alpha (Figs. VII-20, 21). Comparable depictions of water being drawn from a well occur in 13th- and 14th-century Jewish from Germany and on a 17th-century illuminated Jewish *Sefer Evronot* (Fig. VII-37) (see below; Fishof 2001:139, Fig. 19, Figs. on pp. 134, 138). At Na'aran the sign is destroyed.

At Hammath Tiberias B the Hebrew word דלי *deli* is depicted in mirror writing, for which different interpretations were given: the mosaicist may not have known Hebrew (Dothan 1983:53) or it might have had some magical effect, adding power to the text (Naveh 1989:303). Talgam (2010:71)



Figure VII-17. Illustrated table of three zodiac signs—Cancer, Leo, and Virgo—on mosaic pavements at Hammath Tiberias B, Sepphoris, and Beth Alpha.














	Hammath Tiberias	Sepphoris	Huseifa	Beth Alpha	Na'aran
Libra Scales מאזניים לח 					
Scorpio Scorpion עקרב מ 					
Sagittari usArcher קשת → 					

Figure VII-18. Illustrated table of three zodiac signs—Libra, Scorpio, and Sagittarius—on the mosaic pavements at Hammath Tiberias B, Sepphoris, Huseifa, Beth Alpha, and Na'aran.

suggests an unlikely interpretation: that the reversed writing signified the change in the regulations of the calendar and that the Hammath Tiberias B mosaicist was clarifying that the zodiac depiction represented a solar-lunar calendar.

Pisces (Fish, דגים). At Sepphoris a cloaked youth holds two suspended fish. The Hebrew sign name is misspelled, דגגים *Dgagim* instead of דגים *Dagim*. At Hammath Tiberias B and Beth Alpha the sign is rendered similarly, as a pair of fish shown head to tail. A fragment of a triangular tail and a small fin are all that have survived from the Huseifa sign. At Na'aran only the outline of a pair of suspended fish appears (Fig. VII-20).

2.5 The Sun God, Moon and Stars: The Central (Inner) Circle

The circular central motif in each of the synagogue zodiacs is the sun god in frontal position (*en face*), a crown on his head and a nimbus with rays emanating from it; he is riding his *quadriga* (a chariot with two wheels in front) drawn by four horses, two on either side (Figs. VII-22, 23, Table VII-3).

The central circle of the Sepphoris zodiac is different. The sun is shown with ten rays of light, suspended in the centre; its central ray is attached to the chariot (Weiss & Netzer 1996:26; Weiss 2005:104–110). The chariot is rendered in frontal position with two wheels harnessed to four galloping horses. There are wavy blue lines on the lower part, between the horses' legs. A moon and a star are shown to the right of the sun, with the moon rendered as a full circle with its crescent highlighted (Fig. VII-22a).



Hammath Tiberias

Sepphoris

Beth Alpha

Figure VII-19. Illustrated table of three zodiac signs—Libra, Scorpio, and Sagittarius—on mosaic pavements at Hammath Tiberias B, Sepphoris, and Beth Alpha.



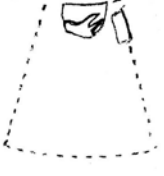







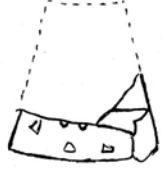

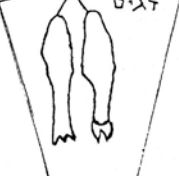
	Hammath Tiberias	Sepphoris	Huseifa	Beth Alpha	Na'aran
Capricorn Goat גדי ♄					
Aquarius Water- Bearer דלי ♋					
Pisces Fish דיגים ♓					

Figure VII-20. Illustrated table of three zodiac signs—Capricorn, Aquarius, and Pisces—on the mosaic pavements at Hammath Tiberias B, Sepphoris, Huseifa, Beth Alpha, and Na'aran.

The representation at Hammath Tiberias B shows the central figure driving the solar chariot (Fig. VII-22b): a young man with a crown and a halo with seven rays emanating from it looks up towards his raised right hand, while in his left hand he holds a globe and whip. Very little remains of the chariot, and only tips of hooves have survived in the lower part. A star on the right and the crescent moon on the left are rendered flanking the central figure in the upper background. The Hammath Tiberias B sun god has all the attributes of *Sol invictus* (as suggested by Dothan 1983:39–43; see also Levine 2003:103–108). Comparable depictions appear on various pagan examples (Hachlili 2002:221; 2009:37–40).

At Beth-Alpha and Na'aran (Figs. VII-22c–d, 23c–d) the sun god is represented only by his bust and rayed crown, the chariot by its front nonproportional two wheels, and the horses by their heads and legs. At Huseifa the inner circle did not survive.

The background of all these inner circle representations should be noted: it shows a crescent moon and one or more stars. At Sepphoris, a moon and a star are shown to the right of the sun, with the moon rendered as a full circle with a highlighted crescent. A crescent moon to the left and star to the right of the whip are rendered in the Hammath Tiberias B zodiac.

At Beth Alpha the background is dark, with a crescent moon in the right corner and dispersed stars. At Na'aran, the celestial bodies are on the figure's cape, with the crescent moon near his thumb. This scheme is used for similar figures in Roman art and is often connected to solar iconography (Dunbabin 1982:84–85), but none of the Roman figures include the background of the crescent moon and stars that is depicted in the Jewish design.⁴

⁴ Foerster 1985:388, n. 100, records examples on two gems and a copper tablet, but none on mosaic pavements.



Hammath Tiberias

Sepphoris

Beth Alpha

Figure VII-21. Illustrated table of three zodiac signs—Capricorn, Aquarius, and Pisces—on mosaic pavements at Hammath Tiberias B, Sepphoris, and Beth Alpha.

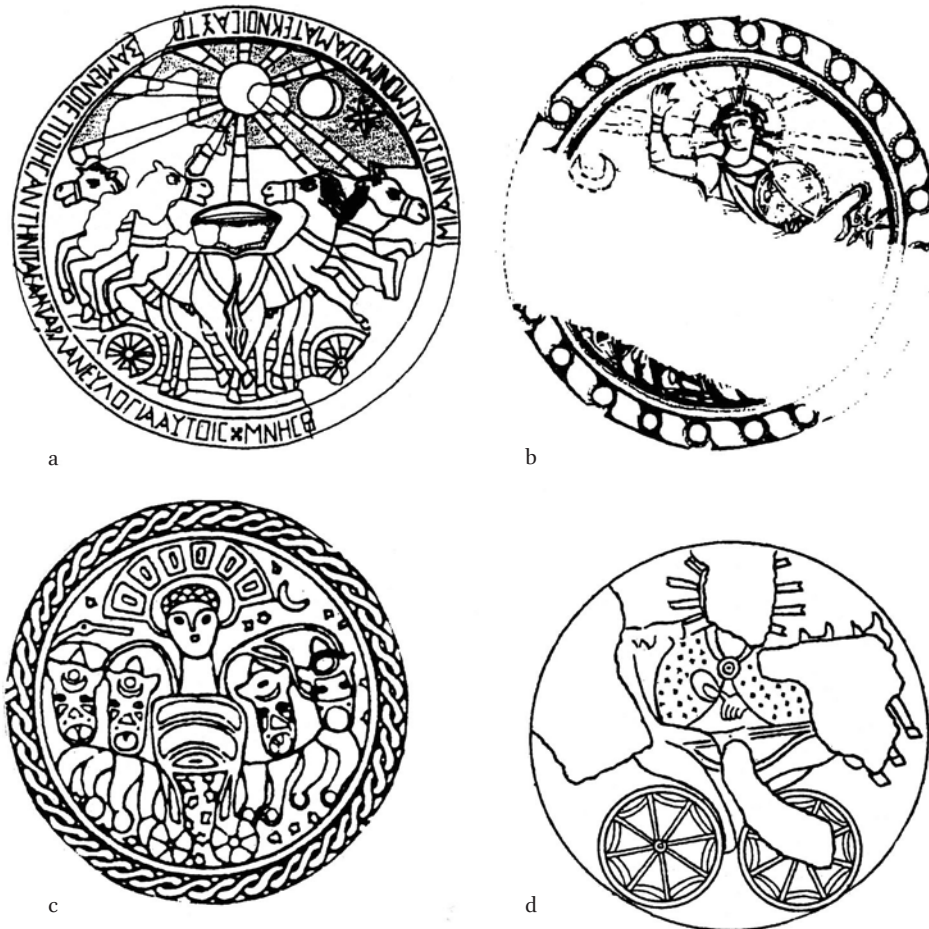


Figure VII-22. The sun god design: a. Sepphoris, the sun; b. Hammath Tiberias B; c. Beth Alpha; d. Na'aran.

The sun god in the synagogue zodiacs eventually developed into a stylized, more abstract and restrained design, though the earliest depiction at Hammath Tiberias B is similar to renditions in Roman art. The Hammath Tiberias B sun god is natural and full-featured, like a picture placed in the center of a frame, with specific details related to *Sol Invictus*. The Sepphoris inner circle is unique in that it renders the sun instead of the sun god. The sun god of Beth Alpha, however, is integrated totally and is harmonious with the rest of the design.

The zodiac depicted at Hammath Tiberias B and Sepphoris is influenced by similar pagan designs as is evidenced in signs such as Virgo, Sagittarius, and Aquarius. The Hammath Tiberias B design might have been carried out by an artist from Antioch. The Beth Alpha zodiac is very different; not only was it created by two Jewish artists but it was also guided by the Hebrew names of the signs and seasons, with no pagan influences.

These zodiac panel mosaics indicate the development of a distinctive Jewish design, although the synagogues differ from one another in their depiction and execution of the figures. The exceptional and unmistakable conception of the figures in the three parts of the design, the seasons in the corners of the square, the zodiac signs in the outer circle, and the sun god (or sun) in the central circle—all point to their meaning and significance for the Jewish worshippers.



Figure VII-23. The sun god: a. Hammath Tiberias B; b. Sepphoris; c. Beth Alpha; d. Na'aran.

Table VII-3. Comparative chart of the zodiac panels in the synagogues.

Mosaics	Zodiac parts	Hammath Tiberias B	Sepphoris	Huseifa	Beth Alpha	Na'aran
Date CE		4th c.	5th–6th c.	Late 5th	6th c.	6th c.
Inner circle	Sun god in chariot	-x	x		x	-x
Signs of the Zodiac	<i>Aries</i> , Ram	x	-x	x	x	-x
Outer circle	<i>Taurus</i> , Bull	x	-x		x	-x
	<i>Gemini</i> , Twins	-x	-x		x	
	<i>Cancer</i> , Crab		x		x	-x
	<i>Leo</i> , Lion	x			x	-x
	<i>Virgo</i> , Virgin	x			x	-x
	<i>Libra</i> , Scales	x	x		x	-x
	<i>Scorpio</i> , Scorpion	-x	x		x	-x
	<i>Sagittarius</i> , Archer		x	-x	x	
	<i>Capricorn</i> , Goat	x		-x	-x	
	<i>Aquarius</i> , Water-Bearer	x	-x	-x	x	
	<i>Pisces</i> , Fish	x	x	-x	x	-x
	Youth		x			
	Star		x			
	Name of sign, Hebrew	x	x		x	x
	Name of Month, Hebrew		x			
The Seasons	Spring, <i>Nisan</i>	x	x		x	-x
	Summer, <i>Tammuz</i>	x	x		x	
	Autumn, <i>Tishrei</i>	x	x	x	x	-x
	Winter, <i>Tevet</i>	-x	x		x	-x
	Name of seasons, Hebrew	x	x		x	x
	Name of seasons, Greek		x			
Zodiac clockwise				x		x
Zodiac counter-clockwise		x	x		x	
Figures outwards					x	x
Figures inwards		x	x	x		
Seasons and signs correspond		x	x			
Seasons and signs do not correspond				x	x	x

x = entirely preserved; -x = partly preserved

The recurrence of the zodiac design in a number of synagogue mosaics indicates its relevance to religious thought and calls for analysis of its place and importance in synagogue art (Hachlili 2002: 227–8). The zodiac forms on the synagogue mosaics are alike and were probably based on a common prototype. The seasons and signs did not follow the same model; they have little in common except for the obvious meaning of each season or sign. The Jewish designs evince differences in the depiction and execution of the figures in each part, underlining the development of a distinctive design (Figs. VII-3–8, Table VII-3).

The basic form of the Jewish zodiac design and the Roman examples that preceded it is the same: a square with two concentric circles within it. Hanfmann (1951:246–247) termed this an “abstract” type, saying that it “expresses the annual course of the sun by placing a circle of zodiacal signs or the months (or both) around the central figure of the sun and distributing the seasons in the four corners of the panel”.

A main stylistic feature of the zodiac mosaics is their frontality, part of the Roman and Byzantine heritage. In all the zodiacs the animals are depicted in profile, facing forward. The human figures have no individuality: at Sepphoris most of the figures are active and are draped, although some are almost naked. At Hammath Tiberias B the figures are shown in movement and the surviving males are portrayed nude. At Huseifa the remains indicate that the figure of Sagittarius was also naked (Avi-Yonah 1934:125). The figures at Beth Alpha and Na‘aran are shown as static portraits and are clothed. Hebrew names are rendered above the zodiac signs, except at Sepphoris where the names appear below the sign or beside it, with the addition of the name of the month in Greek. At Huseifa there were no names or, at least, none have remained.

There is a development in the stylistic execution of the Jewish zodiac from the naturalistic ideal style of the earliest Hammath Tiberias B and Sepphoris synagogues to the reserved stylization at Beth Alpha and Na‘aran during the 4th to 6th centuries (Hachlili 1977:74, 76). Outstanding stylistically is the Beth Alpha zodiac which defies placement in any artistic category of the period.

Two changes mark the transition in Jewish zodiac design. The first is from the natural-voluminous to the ornamental-linear style. The second is from the imitation of nature to stylization, with emphasis on the outline of the design. At Sepphoris the figures are simple; they lack details and sometimes the proportions are inaccurate and two-dimensional (Fig. VII-5) (Weiss 2005:169–170). At Hammath Tiberias B (Fig. VII-6) the Hellenistic influence is clear; the figures and their movements are natural and the faces are full-featured and expressive. A three-dimensional appearance is created through the artist’s use of shadowing. In the linear style, at Beth Alpha, the figures are *en face* and two-dimensional and their limbs have a doll-like appearance (Fig. VII-7). The legs are directed to the side, not oriented frontally with the upper trunk of the body. There is no indication of age or sex, women differ from men by their jewelry, and color is used only to emphasize the different parts of the body. The artist used only the essential lines to portray the figures; the human face is expressed by one continuous line outlining the eyebrows and nose, a square for the mouth, and simple circles for the eyes. Generally, the style is standardized, disproportionate, and lacking in concern for anatomical accuracy. Each synagogue employed its own mosaic artists, who utilized the same general form of the zodiac and filled in the details according to their particular style. The uniqueness and meanings of the Jewish design, especially the representations of the various figures, clarify their origin and inspiration.

2.6 Comparable Zodiac Designs

Such designs exist on ceilings and mosaic floors of Roman villas, each with its unique design in terms of form, content, and harmony (Table III-2). Often, different figures are to be found in the various parts of the design. The contents of the central circle differ frequently. Several examples have representations of the months rather than of the zodiacal signs. In some cases the balance differs, with one section dominating the others (Hachlili 2002:229–232; 2009:49–53). The number of zodiac and calendar representations on pagan mosaic floors proves the increasing attraction of the cyclic movement of time (Lehman 1945:5, 8–9).

The basic form was usually, but not always, the same: two concentric circles within a square. What changed was the composition of the various parts and the balance among them. A central circle



Figure VII-24. Stone ceiling with zodiac, Palmyra.



Figure VII-25. Part of a stone ceiling with zodiac, Palmyra.

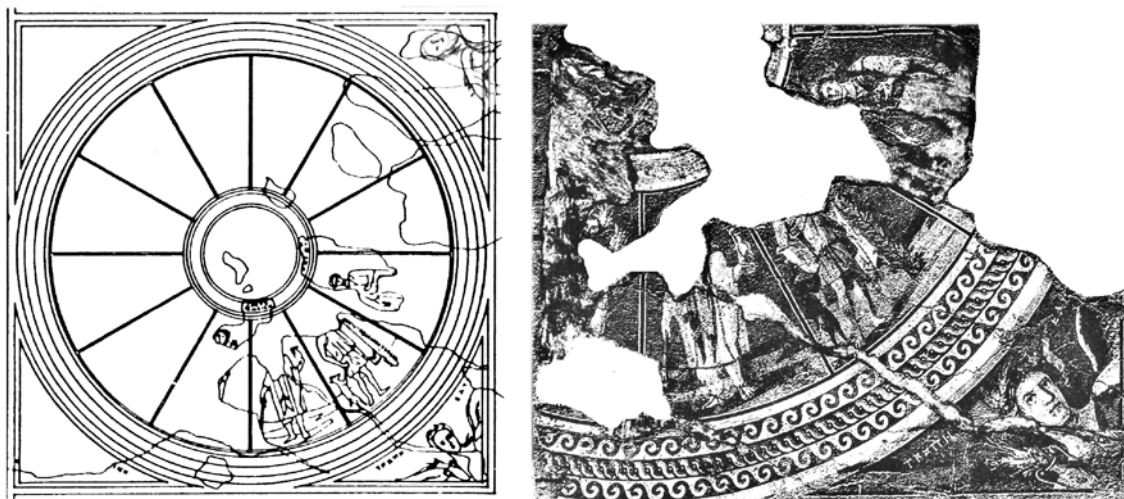


Figure VII-26. 'House of the Calendar' triclinium mosaic, Antioch.

containing the planets in a geometric design underwent a transition to a center with the sun god. A continuous running zodiac in the outer circle was transformed gradually into one divided into radial units with a zodiac sign in each. The purely esthetic design of sirens or fishes in the corners of the square was replaced by the functional, but still esthetic, design of the seasons. In the zodiac designs of Roman art we can trace three stages of development of the radial zodiac composition, illustrated by two stone ceiling relief decorations from 1st-century CE Palmyra (Figs. VII-24, 25): the Münster mosaic floor, and the Antioch mosaic floor (Fig. VII-26).

The development of the scheme originated on the ceiling and was later projected onto the mosaic floor (Lehman 1945:5). Eventually the total design developed from those of Palmyra and Münster, where the central circle section predominated (Figs. VII-24, 26–27, Table VII-4), to the more harmoniously balanced design of the 2nd-century mosaic floor from the triclinium in the 'House of the Calendar' at Antioch (Fig. VII-26). The central circle has become smaller, the outer circle larger (Webster 1938:26, 119, Pl. 2:2; Levi 1941:251, 281, Fig. 3; 1947:36–38; Stern 1953:224–227, 256–258, 296, Pl. XLII, 2; Campbell 1988:60–62, Fig. 24–25, Pls. 183–185; Hachlili 2009:51). The Antioch mosaic pavement depicts the representations of the months rather than the zodiac signs. The outer circle is divided into radial units containing the figures of the months, while the corners contain representations of the seasons, of which only Spring and Winter partially survived. The inner circle did not survive.

The Jewish zodiac mosaic design seems to be a continuation of this general development: thus the earliest Hammath Tiberias B panel seems related to the Antioch school and has its origins in Roman art. Each part of the design (central circle, outer circle, corners of the square) has comparable representations in the art of the preceding Roman period.

The most striking resemblances to the Jewish zodiac are found on three contemporary Roman-Byzantine mosaic pavements in Greece (Fig. VII-27–31, Table VII-4): A Roman villa at Odos Triakosion in Sparta (Catling 1983–84:27; Touchais 1984:763, Fig. 48; Gundel 1992:no. 85) displays a 4th-century dining room mosaic in the familiar zodiac design of a square with two circles (Fig. VII-27). The inner circle contains busts of the youthful Selene and Helios, with no attributes; the outer circle contains the twelve signs of the zodiac, with the four winds in the corners of the square. No inscriptions accompany the details of the design.



Figure VII-27. Zodiac on mosaic, Sparta.



Figure VII-28. Zodiac design on Tallaras Baths mosaic, Astypalaea: a. the zodiac; b. Summer season; c. personification of a month.

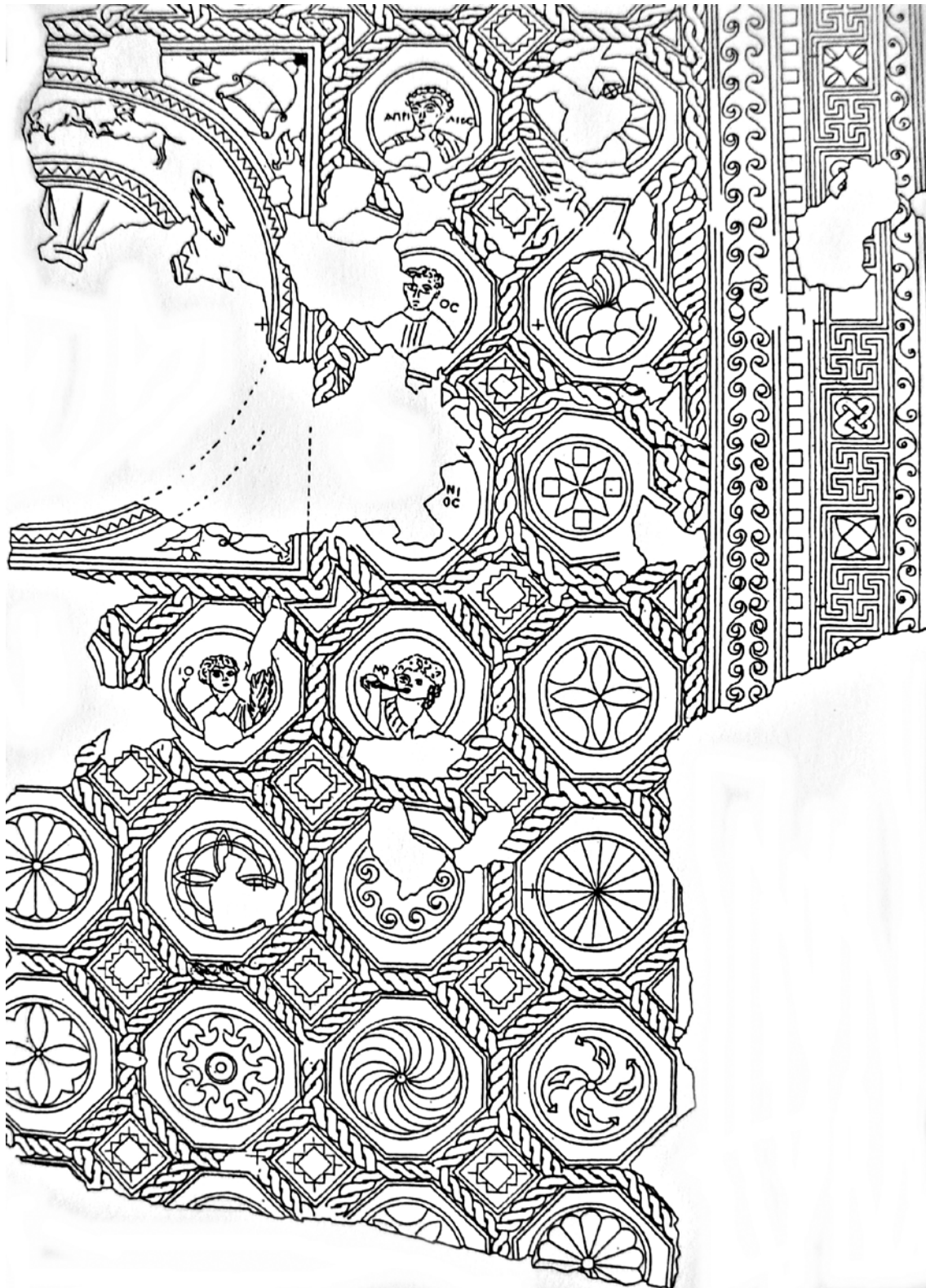


Figure VII-29. General design with zodiac on villa mosaic, Thessaloniki.



Figure VII-30. Zodiac design on a villa mosaic, Thessaloniki.

The only extant similar composition on synagogue mosaics is found on a 5th-century pavement in the main hall of the Tallaras Baths on the island of Astypalaea (Pelecanidis and Atzaka 1988:46–7, Pls. 4, 5; Jacoby 2001; Assimakopoulou-Atzaka 2003/2010:94, Fig. 109). In the center of a geometric carpet is a zodiac design of two circles within a square (Fig. VII-28). The central circle contains a bust of Helios crowned with rays. He holds a globe in his left hand, and his right hand is raised in a blessing gesture; the twelve signs of the zodiac are in the outer circle. The corners of the square contain the four seasons rendered as busts of women with their typical attributes. Summer, for instance, holds a sickle in her right hand and an ear of grain in her left, and they correspond to the signs (Fig. VII-28b). Within the geometric carpet are twelve squares holding the twelve personifications of the months arranged in four groups, three in a row, facing the center (Fig. VII-28c). Here too, no inscriptions accompany the details of the design and Helios's chariot is missing.

Another interesting mosaic pavement shows a zodiac design surrounded by octagons containing personifications of the twelve months and the four winds. This mosaic was found in the triclinium of a partially excavated urban villa dated to the first half of the 5th c. CE at Aioulou St. Thessaloniki (Marki 1998, 2000; Assimakopoulou-Atzaka 2003/2010:150–151, Fig. 163).⁵ The mosaic shows a design of two concentric circles within a square, in the center of a geometric carpet (Figs. VII-29, 30).

The central circle is completely destroyed and the excavator proposes it contained a personification of the sun. The outer circle contains zodiac signs in a continuous line in an anti-clockwise direction; the only surviving signs are the fish-Pisces, the ram-Aries and the bull-Taurus (Fig. VII-30).

Each corner of the square contains a vase flanked by a pair of birds. The zodiac design was surrounded originally by an outside scheme arranged with twelve octagons that enclosed circles, each of which contained the personification of a particular month, and another four corner octagons

⁵ My thanks to Anastasia Pliota, a postgraduate PhD student in the University of Athens, and to Prof. Assimakopoulou-Atzaka at the Byzantine Research Center in Thessaloniki, for presenting me with the data, bibliography, and photos.



Figure VII-31. Three months: April, May, June, and the South Wind on the villa mosaic, Thessaloniki.

containing the personifications of the four winds (Fig. VII-29). Only five octagons survived, and they enclosed four months and one wind: April, May, and very little of June in a row with the South Wind (on the right), with July next to it. All are depicted with their inscribed names (Fig. VII-31).

The iconography and design of this building's mosaics are unique in Thessaloniki. The excavator notes that the rendition of the months is uneven and suggests that they were executed by different hands. He believes that the building belonged to a high-ranking official, perhaps the eparch himself, as it appears to be the largest building of its kind excavated in the city so far. According to Marki (1998:141) the design symbolizes Christ's (the sun) protection of the house owner throughout the year.

The mosaic pavement on the main panel of the narthex of the mid-6th CE Christian funerary chapel at El-Hammam depicts the twelve months laid out in two rows of six. The months consist of active, full-length standing figures, each with its Latin name and number of days inscribed in Greek (Fig. VII-32b). The left part of the mosaic with the first six months, though badly damaged, shows that the first month is January (Avi-Yonah 1936:22–26, Pl. xv).

The mosaic floor of Hall A of the 6th-century Monastery of the Lady Mary at Beth-She'an shows a central composition consisting of two concentric circles, the outer divided into twelve units (Fig. VII-32a, Table VII-4). Within each unit is a single figure in frontal pose and in full activity; at its feet is the name of the relevant Julian calendar month and the number of its days in Greek letters. The inner circle contains personifications of the Sun and Moon as female busts bearing torches (Fitzgerald 1939:6–7, Pls. vi–viii). It can be assumed from the similarity with the El-Hammam mosaic pavement that here also, the new year was in January.



Figure VII-32. Calendar mosaics at Beth-She'an: a. Monastery of the Lady Mary; b. funerary chapel at El-Hammam.

Table VII-4. Comparison chart of zodiac and calendar designs

Site	Palmyra I Syria	Palmyra II Syria	Antioch Syria	Münster Germany	Sparta Greece	Astypalaea Greece	Thessaloniki Greece	Beth She'an Monastery Israel
	Stone ceiling Temple of Bell	Stone ceiling	Mosaic floor House triclinum	Mosaic floor	Mosaic floor Villa	Mosaic floor Baths	Mosaic floor Villa triclinum	Mosaic floor Monastery
Date CE	1st cent.	1st cent.	2nd cent.	3rd cent.	4th cent.	5th cent.	5th cent.	6th cent.
Radial Design	+	+	+	+	+	+	+	+
Inner circle	7 planets	Dionysus?	?	Helios in chariot	Helios, Selene	Helios	?	Helios, Selene
Outer circle	Zodiac signs	Zodiac signs	Labors of the Months	Zodiac signs	Zodiac signs	Zodiac signs	Zodiac signs	Labors of the Months
Corners of the square	Sirens? Eagles?	Wind	Four Seasons	Fishes, dolphins flanking vase	Four Winds	Four Seasons	Kantharos flanked by birds	—

The Roman seasons–zodiac signs (or labors of the months at Antioch and Beth She'an) and sun god model design show similarities as well as differences with the Jewish synagogue mosaic pavements (Table VII-4). The compared examples are similar in design, consisting of two concentric circles within a square. However, the balance of the zodiac composition in the Roman examples usually varies, with one section dominating the others. This imbalance is found in, for instance, the inner circle at Palmyra and Münster, which is larger than the outer circle, and the Greek examples at Astypalaea, Sparta, Thessaloniki, and Antioch (Syria) where the outer circle is larger. In some Roman designs the figures of the months are accompanied by their names whereas the zodiac signs are not (on the personifications of the seasons and the months, see Hachlili 2009:184–197).

Zodiacs and calendars appear in Roman art, but each has its own use; they are not integrated into one design. The zodiac has a cosmic and astronomical meaning, as evidenced in the following illustrations: the god holding the zodiacal wheel or circled by it (Levi 1944:287–314; Glueck 1952:5; 1965: Pls. 46, 48); the zodiac wheel circling the seven plants (Palmyra and Bir-Chana), and the zodiac circling the sun god (Münster, Tivoli, Sparta and Astypalaea (Table VII-4)).

In the Greek mosaics, both the mosaic pavements at Astypalaea (depicting the zodiac signs and the four seasons) and the partly destroyed mosaic at Thessaloniki (depicting the zodiac signs) render a unique combination: the zodiac design is enclosed by busts personifying the twelve months and, at Thessaloniki, by the four winds at the corners as well (Figs. VII-28–31). The mosaic of the Roman villa at Odos Triakosion in Sparta displays the four winds at the four corners of the zodiac square (Fig. VII-27). Comparative motifs of the four seasons, four winds, and twelve months, all rendered as busts accompanied by their inscribed Greek names, appear in a different design of two rows of medallions that decorate the two side aisles of the church of Qabr Hiram (Donceel-Voute 1988:412–413, Figs. 402, 404).

The illustrated activities associated with the months encompass principal religious and civil events of the year and represent a civil and agricultural calendar (Levi 1941:276). Examples include the 2nd and 3rd-century Roman calendars in the mosaics of Antioch, Carthage, and the 6th-century Christian mosaic floors of the Beth-She'an monastery and the El-Hammam tomb chamber (Figs. VII-26, 32;

Table VII-4). In Roman calendars, the iconography for any specific month differs from calendar to calendar. In the Roman and Christian calendars the personification of each month is a single figure, “but a figure always depicted in full activity and never as a symbol” (Levi 1941:288).

The two Christian examples, from pavements at El Hammam and the Monastery of Lady Mary at Beth-She’an (Fig. VII-32a, b), are different in their basic form but similar in the general depiction of the personified Labors of the Months. The Latin names of the months and the number of days written in Greek letters are identical. The emphasis in these personifications is on the figures’ rural occupations. The attributes for each month are different in the mosaics. These Christian pavements at Beth-She’an represent civil and agricultural calendars, probably following earlier Roman calendar designs. It should be noted that except for the Beth She’an monastery, all the comparable mosaic pavements decorate civic or domestic buildings, while the Jewish zodiac designs ornament synagogues.

In the Jewish zodiacs/calendars, conversely, the zodiacal signs symbolize the equivalent Hebrew months, as they do also in Jewish thought, art, and literature. The form of the design is two balanced concentric circles within a square; the three parts are identical in size. The major distinction is that only the Jewish zodiacs follow one particular scheme.

The reason for the use of zodiacal signs and not representations of the labors associated with the months is probably that the Jewish community preferred abstract symbols to direct representations of human activity. This underlines the Jewish zodiac’s religious nature and liturgical purpose. Therefore the Jewish calendar, which integrates the zodiacal wheel with its twelve signs which represent the Hebrew months, the sun and the moon representing day and night, and the four seasons, is an independent variety in form, design, and meaning.

2.7 *The Zodiac in Later Jewish Art (13th–19th c.)*

The zodiac/calendar continued to be used for the decoration of various Jewish art objects throughout later periods. These included *Mahzorim* (Hebrew prayer books) from the 13th–14th c., as illustrations for the prayers for rain and some *piyytim* and copies of *Sefer Ebronot* (A Book of Intercalations), produced in Germany, of which several illustrated parchment manuscripts from the 17th and 18th centuries are extant. In the latter, the zodiac illustrates the contents of the book, which deal with the calendar, the zodiac signs, the seasons, the new moon, and the calculation of leap years. In other Jewish art objects, such as printed books, Scrolls of Esther, silver and pewter plates, amulets, wooden synagogue ceilings, the zodiac was probably used as an ornamental motif. In Italian Ketubboth (marriage contracts), *Mazal Tov* (good luck) and *Besiman Tov* (in an auspicious hour) is commonly written in Aramaic or Hebrew and the contract is often decorated with the twelve signs of the zodiac; sometimes the symbols of the twelve tribes and/or the labors of the months appear as an alternative (Fishof 2001:53–95, Figs. 4, 5, 19–21, 23, 26–27, 29, 31–33, 36–41, 43, 46, 49–54; A. Cohen 2001; Idel 2001).

An interesting page from the Oppenheim Mahzor (illuminated parchment manuscript, Germany, 1342, Bodelian Library, Oxford, Ms. Opp.161; Fishof 2001:Fig. 19) shows a design with three concentric circles, similar to the ancient synagogue mosaic pavements. The central circle has a geometric design with the outer circle divided into twelve radial units of different sizes, one for every zodiac sign; the signs are followed by their names in Hebrew written in the very narrow circle between them. It is interesting that the Capricorn sign is missing and was replaced by a crescent moon and a black star which is signed in Hebrew כוכב *kokhav* (star). The depicted signs are quite unique but probably represent contemporary fashion.

Another interesting zodiac design appears in one of the *Sefer Evronot* manuscripts (dated to the late 17th c., Hebrew Union College Library, Cincinnati, Ms.906; Fishof 2001:73, Fig. 39). The design here consists of three concentric circles encircled by the illustrated zodiac signs (Fig. VII-33): the outer circle depicts the Hebrew names of the signs, the inner circle depicts the Hebrew names of the planets, and there is a colored rosette in the small central inner circle. The signs of Libra and Sagittarius include a figure holding a scale and a bow respectively, while Aquarius is displayed as a well with a hanging bucket.

The title page from yet another copy of *Sefer Evronot* (written and illustrated in Germany, 1619, the National and University Library, Jerusalem), shows the zodiac signs in ten squares, five on each side of the page, with two rectangular signs at the top and bottom of the page. Each sign is accompanied by its Hebrew name. The animals in the signs are depicted realistically, a scale represents Libra, Sagittarius is a figure using a bow and arrow, and Aquarius is a figure pouring water from a big vessel.

A zodiac design in an 18th century *Seder Shemirat Shabbat*—a booklet of Sabbath prayers (illustrated parchment manuscript from Moravia (?), 18th century, The Israel Museum, Jerusalem, 180/11) shows a rectangle enclosing two concentric circles (Fig. VII-34) (Fishof 2001:72, Fig. 36), somewhat similar in design to the ancient synagogues mosaic form (Fig. VII-4). The inner circle displays the blessing of the moon by a group of figures and the outer circle depicts the twelve signs, each in a small circle beginning at the top and moving counter-clockwise. In the four spandrels are identical four-winged figures.



Figure VII-33. Zodiac design, *Sefer Evronot*, Germany, late 17th c.

Libra, Sagittarius, and Aquarius are rendered in some later examples of Jewish zodiacs as inanimate objects on broadsheet with the Blessing of the Moon from Poland, 1850 (Fig. VII-35) (Fishof 2001:Fig. 19). Two depictions in 13th century German *mahzorim* show the combined signs of Capricorn and Aquarius.

Libra is often symbolically represented by the scales alone as it is rendered on the broadsheet with the Blessing of the Moon, Poland, 1850 (Fig. VII-35a) (Fishof 2001:Figs. 20, 27, 43). Two examples are noteworthy for their additions: the scales on the *Sefer Evronot* (from Halberstadt Germany, 1716, show the Hebrew word זכאי 'innocent,' on the left scale and the word חייב 'guilty' on the right scale (Fishof 2001:121). The scales in a German *mahzor* (ca. 1290, Sächsische Landsbibliothek Dresden, Ms.46a) represent the notion of weighing souls: on the left an angel tries to raise the scale on which a man is seated, while on the right a satanic figure is pulling the scale downwards (Fishof 2001:122–123, Fig. 1).

Sagittarius is depicted in several ways: the original pagan centaur with bow and arrow appears in several illuminated manuscripts from the 15th century (Fishof 2001:131, Figs. 23, 25); a more common depiction is that of a human archer (Fig. VII-33), a hunter, or a figure with a bird's head—a more literal representation of קשת *qashat* (the archer) (see also the sign in Figs. VII-18, 19). Sometimes the illustration consists simply of a bow and arrow representing the Hebrew קשת (*qeshet*) (Fig. VII-35b).



Figure VII-34. Zodiac design, *Seder Shemirat Shabbat*, Moravia (?), 18th c.



Figure VII-35. Broadsheet with the Blessing of the Moon, Poland, 1850: Libra, Sagittarius, and Aquarius.

Aquarius in many of these later Jewish examples is portrayed as a pail being drawn out of a well (Fig. VII-33), similar to the Beth Alpha mosaic depiction (Fig. VII-21) but more realistic; on the broadsheet with the Blessing of the Moon, Poland, 1850 (Fig. VII-35c), Aquarius is rendered as a pail hanging at the well with a pitcher placed next to it. Elaborate designs of Aquarius, showing a woman drawing water from a well with a bucket, appear in two examples of the *Sefer Evronot*, from Frankfurt-am-Main, 1624 and from Halberstadt, Germany, 1716 (the Jewish National and University Library, Jerusalem, nos. 8 2380 and 8 3247) (Fishof 2001:134–135, 138–139).

The later Jewish illustrations indicate selective continuity in the details of the zodiac designs, both in form and content. However, no examples exist similar to the ancient synagogues mosaics, in which all three components of the design are illustrated. In the later works, the sun and moon and the seasons are missing, and the similarity is articulated in the rendition of the zodiac signs, especially Libra, Sagittarius, and Aquarius, which sometimes follow the traditional portrayal of the sign and sometimes illustrate graphically the Hebrew name of the sign, or depict it in the fashion of the period.

3. MEANING AND SIGNIFICANCE

It is surprising to find the zodiac design depicted on synagogue mosaic pavements in view of its pagan origin, and all the more so as the mosaics, lying inside the main entrances, would have been immediately visible to anyone entering the synagogue. This widespread use of a 'pagan' motif over several centuries invites many questions as to its meaning and function in the synagogue.

These questions are still being debated. Scholars have offered various explanations: some explain these mosaics as symbolic, others interpret the zodiac panels as having astrological meanings; others yet view the zodiac panel as a representation of the Jewish calendar (Hachlili 1977:72–76; 2002:232–237; 2009:55–6).

The symbolic approach is articulated by a number of scholars: Goodenough (1953, I:3–6; 1958, VIII:168, 171, 214–215) maintains that "Helios and the chariot symbolized the divine charioteer of Hellenistic Judaism, God himself." He held that despite pagan influences it would be wrong to conclude from the zodiac mosaics that the Jewish community had an interest in astrology. Avigad (1976:283) suggested that "the figure in the chariot was the sun, itself a component of the cycle of cosmic forces depicted in the zodiac." Foerster (1985:383, 388; 1987:231–232) contends that the zodiac represents the Divine and heavenly order of the universe, the regularity in the courses of sun and moon. Furthermore, the significance of the zodiac as a personification of the universe or cosmos is described by Jewish sources. The zodiac is an illustration, a key to the *piyyutim* (liturgical poems) of Eretz Israel; it is a substitute for the prayers, or functions as some kind of alternative prayer book (Yahalom 1986:313–322; Kühnel 2000:36; Ness 1995:131). Naveh (1989:303; 1992:156) maintains that the zodiac design and inscription is evidence of the penetration of the belief in magical powers into the synagogue; he also assumes that the Jews saw Helios as an angel rather than a god. Berliner (1995:179) proposes that the scientific map of the northern sky was used by the Jews in the decorative pattern of the zodiac circle. Weiss and Netzer (1996:35) argue that "the zodiac symbolized the blessing implicit in the divine order of the universe. This order is expressed in the seasons, zodiac signs, the months and the celestial bodies, which are all responsible for the cyclical patterns of nature, for growth and for harvest." Weiss (2005:231–23; 2007:25*5; 2009b:369–377) maintains the zodiac panel illustrates the centrality of God in the Creation and argues that the motif of the zodiac "allegorically symbolizes the power and ability of God as the *Cosmocrator*, the sole ruler of the universe and of creation." Engelrad (2000:42–48) contends that the synagogue mosaics filled a didactic function: the zodiac on these mosaic pavements served as a visual reminder to the Jewish worshippers of the eternal covenant made by God with the Davidic dynasty and the priests. It expressed the longing for the revival of Israel and the restoration of the Temple. Schwartz (2000:175–6) suggests that the zodiac cycle at Sepphoris "may have been meant to facilitate as a horoscopic aid." Magness (2005:49–50) proposes "that Helios and the zodiac cycle symbolized sacred time and sacred space." Friedman (2005:62) contends that "the zodiac panel thus offers an eschatological and messianic meaning . . . The general theme alludes to the End of Days, the rebuilding of the Temple, world peace, and the fulfillment of God's promise to his people and their salvation . . ." Talgam (2010:73–75) maintains that the zodiac, the sun, and the seasons on these synagogue pavements indicate their conversion into a symbolic cosmic temple. The Christian church acquired the same symbolism, though expressing it in other ways.

The astrological interpretation indicates a widespread belief of the Jews of that time in the zodiac signs (Sukenik 1934:64–67; Renov 1954:189–201; Goldman 1966:59–60; Sonne 1953:9–11; Lifshitz 1974:102–3; S. Stern 1996:400–403). Ness (1990) concludes that "the synagogue zodiacs are astrological, the zodiacs symbolize God, His care for His universe, and especially for His people, the Jews." Other scholars dispute this assumption: Wilkinson (1977–78:22–24), in his interpretation of the Beth

Alpha mosaic pavement, argued that it was unlikely the zodiac design was placed there for astrological purposes; rather it was connected with Platonic cosmology. Charlesworth (1977:195) claims that by the 4th century there is archaeological evidence of Jewish interest in zodiac images, but this must not be equated with astrological beliefs.

The most plausible interpretation for the combination seasons—zodiac signs—sun god design is that the Jewish zodiac mosaic functioned as a calendar (Hanfmann 1951:194; Avi-Yonah [1964:56–57] suggested this in connection with the list of the priestly courses). In the zodiac design at Hammath Tiberias B, scholars found links with Hillel II's publication of the rules for determining the Hebrew calendar in the 4th century CE (Dothan 1967:134; 1983:47–49; Sternberg 1972:72–87; Levine 2003c:110–114). Fine (2005:199–205) maintains there is a connection between the zodiac design and the Jewish calendar. Talgam (2000:101, 104; 2012:449–452) agrees with the interpretation of the zodiac as a calendar but also with the suggestion that the zodiac symbolizes the connection with the ceremony of declaring the new moon. She (2010:67–73; 2012:446–451) suggests also that the two early zodiac pavements of Hammath Tiberias B and Sepphoris are an illustration for the spring equinox, as they begin with the month of Nisan, the sign of Taleh (Aries). She further contends that the timing of the zodiac's appearance on the synagogue pavement was intended as a challenge to the Christian establishment's effort to undermine the credibility of the Hebrew calendar.⁶ Levine (2012:333–336) assumes that the 4th c. Hammath Tiberias B pavement was the origin for the zodiac motif and proposes that it represents “a profound example of Jewish resilience under Byzantine Christianity”

The portrayal of the zodiac-calendar had three required sections: (a) the four seasons, representing the year; (b) the twelve signs of the zodiac, representing the months; (c) the sun god, symbolizing the day, the night being denoted by the background of the moon and stars. According to the Jewish calendar the twelve months correspond exactly to the stations and signs of the zodiac (see Table). The earliest listing of all the Jewish calendar months (whose names are Babylonian in origin) in succession appears in *Megillath Ta'anith* (probably 1st–2nd century CE). Jewish tradition has many references to the zodiac signs as monthly representations. The tradition is preserved in later literature, such as in Ha-Kalir's poems, where the names of the months parallel the zodiac signs (Avi-Yonah 1964:55; Mirsky 1971). Explicit evidence of this correlation and additional support for this interpretation are provided by the Sepphoris synagogue mosaic, which displays the names of the months in addition to the names of the zodiac signs. Moreover, in the zodiac depiction at Beth Alpha, both *Deli* (Aquarius) and *Dagim* (Pisces) have the letter *vav* ('and') added, thereby designating them the last signs of the zodiac. This in fact attests that the next zodiac sign, *Taleh* (Aries), representing the month of *Nisan*, is the beginning of the year. The late 6th-century 'En Gedi synagogue mosaic inscription indicates the same (Fig. VII-2). It contains the names of the zodiac signs followed by their corresponding months, proving that the Jewish year started with *Nisan* (and its zodiac sign *Taleh-Aries*), the first month of the spring. The 'En Gedi written inscription must have replaced the illustrated zodiac mosaic during this later period.

⁶ The most improbable interpretations are argued by two scholars: Roussin (1997:93; 2001:55) holds an implausible suggestion that “Helios on synagogue pavements represents a minor deity to whom some members of the congregation might have addressed prayers—not to the image itself, but to the deity it represents” and that the “Helios-in-zodiac panel in the center represents the celestial sphere”. Wadeson (2008, following Wischnitzer 1971:90) interprets the zodiac central circle and the signs according to the rather dubious notion that it represents Elijah and the 12 tribes. The description of Elijah (Kings II 2:11) has only the chariot in common with the central circle of the zodiac (but without the fire), and there is no other evidence. Furthermore, why would one use the names of the months to represent the tribes?

In the Roman world, zodiac signs had cosmic and astronomical significance. In Christian art, as in Roman, the calendar was sometimes represented by the Labors of the Months (Table VII-4). Jewish art used the same form of the radial design and outer spandrels and rendered the similar three components of the zodiac circle, modifying it to convey the Jewish conception of the annual calendar. It was transformed into a Jewish calendar by marking the signs and seasons with their Hebrew names. At Sepphoris the Hebrew names of the months were added, and at Beth Alpha the signs were given some unique interpretations. To safeguard the religious nature of the calendar, Jewish art preferred an abstract and symbolic zodiac, rather than the naturalistic representation of human activity depicted in the Roman and Christian examples.

The radial composition evidently conveys a visual, figured calendar by placing a circle of zodiac signs, representing the months, around the central figure of the sun god accompanied by the moon and stars, embodying day and night, and allocating the seasons in the four corners of the panel. The whole scheme conveys and illustrates the year.

The Jewish zodiac-calendar panel design on these synagogue mosaic pavements, widely separated in space and time, is identical in form, composition, content, and balance, suggesting the existence of a prototype for the general design. The fact that they are only found in Jewish synagogal art attests to the existence of sketch books. Differences in style and execution may be put down to the variability of the individual artist's skill and style (Hachlili 1988:391, 394; 2002:236; 2009:55).

The Jewish zodiac-calendar is unique in its balanced and harmonious conflation of the three parts. The basic design of the Jewish calendar was probably drawn from the Antioch school. The likeness to Roman mosaic calendars rendered with the Labors of the Months is perceived in the circular form and in the addition of the inscribed names of the months and seasons. The design had its roots in the art of the preceding period and the two major schemes that comprise the Jewish calendar: the astronomical zodiac and the agricultural calendar. The Jewish model unified these two into a distinctive design containing the seasons, zodiac signs, and sun god and signifying a liturgical calendar. When the synagogue replaced the Temple, the annual ritual acts, performed previously by the priests, came to be represented symbolically in synagogue art. The calendar became the frame of the annual rites, now enacted by the community. Thus, it was guaranteed a central location in synagogue mosaic floors.

The fact that the zodiac mosaic was used more than once makes it obvious that the Jewish community was not interested merely in a purely decorative design for its floors. There must have been something unique about this particular design that caused the community to wish to adopt it. Probably it regarded the zodiac as a suitable vehicle for expressing conceptual needs. The Jewish community assigned great importance to a design that expressed significant concepts and had more than a merely decorative function. The integrated representation of these three symbolic elements successfully united design and significance in Jewish art, achieving decorativeness as well as symbolic vitality. Thus the fundamentally pagan zodiac cycle came to serve the Jewish community as a popular, symbolic, figured calendar, and was employed as a significant framework for the annual synagogue rituals.