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Understanding The Jewish Leap Year

Based on an article by Nachum Mohl, the online Jewish magazine

We are familiar with the concept of a leap year. In our solar calendar the month of February will have twenty-nine days instead of the usual twenty-eight. This comes once every four years. The Jewish calendar has a concept of a leap year too, but it is radically different than the common calendar leap year. Instead of an extra day, we add another month!

DEFINING THE SECULAR YEAR

To understand how the Jewish leap year works, we must first define a year. Simply speaking, in our secular calendar a year passes by when the sun's position in the sky returns to the exact position that it was in relative to the season. Each day when we go outdoors, the sun is constantly shifting in the sky, moving up and down in the heavens, shifting its position from where it rises in the east and where it sets in the west, and how high it rises in the south. This solar cycle takes 365 days and a little under six hours.

DEFINING THE JEWISH YEAR

But the Torah has fixed the Jewish month based on the moon – not on the sun. At the beginning of each Jewish month, the moon appears as a thin crescent and gradually grows fuller each night until it is perfectly full and round. The full moon marks the middle of the Jewish month. Then the moon begins its gradual reduction until it disappears only to reappear again at the beginning of the new month. When the moon first appears as a narrow crescent it is called the New Moon or the beginning of a new month, in Hebrew: Rosh Chodesh.

WHY IS IT THAT ROSH CHODESH IS SOMETIMES ONE DAY AND SOMETIMES TWO DAYS?

It takes the moon a little over 29 ½ days for it to complete its monthly cycle. Since we cannot have part of a day belonging to one month and part of the day belonging to another, the calendar is arranged so that some months are 29 days long and some months are 30 days long. A month is never more than 30 days nor less than 29 days.

This explains why we sometimes have two days of Rosh Chodesh (the beginning of the month) and sometimes only one day of Rosh Chodesh. When we have one day of Rosh Chodesh it means that the outgoing month had 29 days.

When there are two days of Rosh Chodesh it means that the first day of Rosh Chodesh is the last day of the outgoing month and the second day is the first day of the incoming month. The only exception to this rule is the month of Tishri when the Rosh Chodesh is Rosh Hashanah; then the first two days of Rosh Chodesh are Rosh Hashanah which are the first and second days of the New Year.

WHY DO WE MAKE A LEAP MONTH? ISN'T THIS MAKING THINGS TOO COMPLICATED?

Not really because Torah insists that the holiday of Passover occur in the spring. So we have a problem. The Hebrew months are organized according to the moon's cycle, but in order to create a seasonal calendar, we must reconcile the holidays not to the moon cycle, but to cycle of the sun. The moon's cycle has no relation to the seasons, but the sun's cycle is related to the seasonal experience. Since the holiday of Passover must be observed in the spring, we must reconcile the counting of the months so that the month of Nisan (in which Passover comes) is always in the spring.

So how do we make this accommodation? We keep the festivals on track by adding an extra month once in about every three years. This extra month is added after the month of Sh'vat and before the month of Adar (the Purim month). We call this month Adar I and the Adar of Purim is called Adar II.

We do this so that the month of Nissan, the Passover month is pushed back into its rightful place in the sequence of the seasons. Once Nissan is in its proper place, then all the subsequent months and their festivals, such as Shavuot and Succot, fall into their proper places.

HOW DO WE KNOW WHEN TO ADD THE EXTRA MONTH OF ADAR?

The sages who worked out this calendar were wise in astronomy and mathematics and fixed it for all generations. The following is their method of calculation: **A leap year cycle is a nineteen year cycle**. During this period of time there are seven leap years: the 3rd, 6th, 8th, 11th, 14th, 17th, and 19th years in the cycle are the leap years.

We can figure out if the year is a leap year by dividing the present Hebrew year by 19. If the remainder is one of the above numbers or zero (in the place of 19) then it is a leap year. For example, this year is 5770; if we divide it by 19, we get 303 with a remainder of 13, which tells us that this is the 13th year in the 19 year cycle. The next leap year will be in the 14th year (next year, 5771/2010).

HOW DID OUR ANCESTORS FEEL ABOUT A LEAP YEAR?

In Hebrew, the leap year is called "shanah meuberet," the "pregnant year." Since our sages tell us that we increase joy and never decrease it, the next year (with two Adars in it) is considered a joyous year, filled with happiness and mazel.