Ambassador College and Recent Calendar History

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Until the latter part of the 1980's, our holy day calendars were based on Arthur Spier's book *The Comprehensive Hebrew Calendar*. Spier's calendars covered the years 1899 to 2099. These calendars were fine for listing the yearly dates of the holy days; however, they were useless when it came to research.

Research on calendar dates before 1899 had to be done by lengthy hand calculations. The best scholars in biblical and calendric studies had trouble with such computations, often disagreeing with each other regarding the dates of various biblical events.

In 1974, Fred and I were working on the first edition of *A Harmony of the Gospels*. Fred wished to publish a list of the dates of all the holy days during the life of Christ and the apostles. Hand computation would have been an interminable task, so Fred requested that Keith Hunter, head of data processing at Ambassador College, consider assigning some programmers to code software based on John Kossey's work *The Hebrew Calendar: A Mathematical Introduction*. Keith obliged, and the first automated Hebrew Calendar was produced by the Churches of God. This program could only be run on an IBM 360/370 Series and was probably written in PL1. There were no microcomputers at that time.

Fourteen years later, in 1988/89, Ambassador College issued an automated Hebrew Calendar that could be run on new microcomputer technology. (The program was written in DOS, which was the prevalent language of the day.) This calendar was a giant leap forward in that it was possible to generate a six-month calendar for any year back to 3761 BC and forward to 2034 AD. The Molad of Tishri was also displayed for the day of the week, the month, the day of the month and by Hebrew Calendar hours and parts.

Although this Ambassador College calendar had great advantages over previous calendars, it also had great disadvantages. The calendar utilized the wrong intercalary cycle from 142 AD back through the time of Christ and into the BC period, thereby resulting in many errors. For example, Passover in 31 AD was placed on Wednesday, April 25, when in reality it took place on Monday, March 26. This particular error gave false support to the teaching that Christ was crucified in 31 AD.

In addition, calculations for the Molad of Tishri were based on Roman calendar midnight-to-midnight reckoning. The Hebrew Calendar actually utilizes a 6pm-to-6pm

day from sunset to sunset. Because of this difference, the Molad calculation was 6 hours early. For example, in the year 2003 the Molad was placed on Friday, September 26, at 4 hours and 491 parts when it should have been placed 6 hours later at 10 hours and 491 parts. Other deficiencies of the Ambassador College calendar were not identifying the postponement rules that were applied, the year of the 19-year lunar cycle, the Hebrew civil year and the length of the Hebrew year.

We no longer have access to the DOS program source code or compiled code that was used to create the Ambassador calendar. This means that needed improvements or corrections to the basic code cannot be made. In addition, Ambassador College no longer exists, so no possible support for this calendar is available unless the original programmers come forth.

About the same time that the Ambassador calendar was created, an Ambassador College programmer by the name of Robert Newman issued a private version of the Hebrew Calendar. This calendar was written in Turbo Pascal, a very popular language of the time. Newman based his Molad calculations on a 6pm-to-6pm Hebrew day, which was an improvement over the Ambassador calendar. He also listed the value of the Molad of Tishri, the date of Wave Sheaf Sunday, the Hebrew civil year, the length of the Hebrew year, and the year of the 19-year lunar cycle. In addition, holy day information from January 1, 5053 BC to 5000 AD could be calculated from Newman's calendar.

Newman's calendar was a definite improvement over the Ambassador calendar; however, he maintained the intercalary cycle error of the Ambassador calendar and even compounded the problem by utilizing the wrong cycle beginning at 256 AD back through the time of Christ and into the BC period. The false Passover date for 31 AD was also perpetuated.

Subsequently, the programming language of Robert Newman's calendar, Turbo Pascal, has fallen into disuse. All attempts to locate Newman have failed. In addition, we no longer have access to the program source code or compiled code (although this information was published at one time); therefore, neither improvements nor corrections to Newman's calendar can be made.

Since the middle 1980's, others in the Church of God fellowship have written and released versions of the Hebrew Calendar in various programming languages. However, none of these calendars utilize postponements or the correct intercalary cycle, nor do they set the holy days based on the Molad of Tishri. Consequently, many of our brethren are observing the holy days on dates that differ from the God-given dates. Some of the most vocal adversaries of the calendar insist that Passover cannot be observed before the spring equinox. (This is the same heresy that very early in Christian history led to the replacement of a Passover in remembrance of Christ's death with a celebration of the resurrection of Christ on Easter Sunday.)

Our New CBCG Holy Day Calendar
August 2003

On November 9, 2002, while attending an elder's conference in Cincinnati, Ohio, I approached Fred with the possibility of producing our own automated holy day calendar. After explaining the great need for such a calendar and the blessing it would be to our brethren, Fred agreed. As suggested, I contacted Alan Ruth, asking if he would be interested in working with me in the design, coding and implementation of a new calendar for the brethren of CBCG and the church at large. Alan readily accepted the challenge.

I had been utilizing a Hebrew Calendar program in my research for some years, but it had a number of problems.   Both Alan and I felt we could use this calendar as a model by which we could develop a calendar specifically tailored to our needs. This calendar was the brainchild of Rafi Stern, a young engineer living in Tel Aviv, Israel, and was written in a state-of-the-art programming language called *JavaScript*.

However, it wasn't long before Alan documented major problems with Stern's code. Consequently, Alan wrote the following email to me addressing the issue of Pope Gregory XIII's modification of the Julian calendar in 1582 AD:

> *Rafi's calendar does NOT make the transition from Julian to Gregorian dates/dating until January 1, 1583. Of course, the calendar went "officially" from Julian to Gregorian when October 4, 1582 was followed by October 15, 1582.*
>
> *Rafi accepts a Zero (0) year input in his program (solar to lunar), which corresponds to Hebrew year 3760. Also, his code DOES transition from Julian dating (at January 1, 1583) to Gregorian dating.*
>
> *Rafi continues to number calendar dates in the Julian method for the last half of October and all of November and December 1582. On his calendar, October 4, 1582 (Tishri 18) is followed by October 5, 1582 (Tishri 19).*
>
> *His Julian numbering has in his December 1582 calendar showing December 22 (Saturday) as being the same as Tevet 7. He continues to number days for December (along with Hebrew days) until the end of the month (which on his calendar falls on December 31/Tevet 16, which is a Monday). He transitions to the correct Gregorian/Hebrew date by going from December 31, 1582/Tevet 16 (a Monday) to January 1, 1583 (and going BACK to Tevet 7), which is a Saturday.*
>
> *This means that for half of October and all of November/December, Rafi's calendar does not output the correct Gregorian/Hebrew date pairs but begins the correct pairs on January 1, 1583.*

Alan also posed and resolved other questions such as the following:

1) Rafi's calendar states Passover is on Nisan 15. He starts "unleavened bread" therefore on Nisan 16 but marks it off for only SIX days (ending on Nisan 21). Suffice to say, we need to change his code to mark Passover on Nisan 14 and have "unleavened bread" from Nisan 15 to Nisan 21. Correct? Anything else about this issue that needs to be considered?

2) Rafi's calendar has Pentecost on a fixed date: Sivan 6. We obviously don't keep a fixed date but count 50 days. What formula needs to be used to determine the CORRECT date of Pentecost—especially for those "special" years where counting from which Sabbath to determine Pentecost has been debated in the church of God? (I'm not too familiar with all the particulars of this issue. I just know folks have fought over where to begin counting for Pentecost for certain years that have Passover falling on a certain day. Excuse my ignorance on this issue! Anyway, we obviously need a formula to take into account the correct day to begin the Pentecost count in any given year...).

3) How should the Hebrew months be spelled? For example, Rafi's program spells the month after Tammuz— "AV." AC's program spells it "AV." Your calendar paper spells it "AB" (page 22, etc.). The Calendrical Calculations book spells it "AV." Another difference is for the spelling of "Nisan." The Calendrical book, AC's program, and your calendar paper spell it with one "s"—"Nisan." However, Rafi's calendar output spells it "Nissan"—with two "s." HELP! I need a Hebrew spelling lesson!

The Ambassador College calendar DOES correctly transition from the Julian to Gregorian by having October 4, 1582 followed by October 15, 1582. The printable calendar output (Cntrl-P in A.C. pgm) has the correct Gregorian/Hebrew date pairs right from the beginning of the switch. (October 15 matches Tishri 19 correctly.)

Other problems soon surfaced, and it became apparent that Alan would have to do some major programming. Many problems were overcome during the winter and spring of 2003. The changes that were made show that our new calendar:

Highlights the correct holy days for any given year and correctly calculates Pentecost.

Has "AD" and "BC" for Julian/Gregorian years.

Fixes the 1582 Julian-to-Gregorian transition problem.

Arrives at correct leap years for Hebrew and Julian/Gregorian calendars.

Does not have to have the user key in a negative number for BC years. One can just choose either the BC or AD radio button.

Transitions correctly from 1 BC to 1 AD with no year 0.

Lists ALL Hebrew months that may occur within one Julian/Gregorian month (i.e., for March 70 AD, going solar to lunar, Rafi's code only listed the months of Adar I and Nisan. However, parts of Adar I, Adar II and Nisan are within this month. The calendar now shows all THREE months at the top of the calendar output).

Alan also programmed a smooth and accurate transition from AD to BC and vice versa. That is to say, when Rafi's program transitioned to BC, the date was actually a year off (1 BC was actually 2 BC), as Rafi utilized the Julian dating system used by astronomers.

Once the basic framework of the calendar had been coded, Alan could tackle the problem of calculating six separate monthly calendars and grouping them into a six-month format. The resulting calendar placed all the holy days into the common Roman calendar format that all of us are familiar with.

When loaded onto a personal computer, the initial calendar screen comes up. All one has to do is check either the BC or AD box, enter the date desired and click on "Get Calendar." The program has been designed to produce a six-month calendar, which can be printed in *Landscape* format. (*Portrait* format is too small for printer output.)

Located on the six-month calendar are four buttons, which are the gateway to the inner workings of our new CBCG calendar. The buttons include:

> *Trumpets Declaration*
> *Postponement Rules*
> *Hebrew Format*
> *Roman Format*

The Molad of Tishri values that appear on the calendar pop-up screen *Trumpets Declaration* are based on a day calculated from 6pm to 6pm. (As previously mentioned, this Hebrew Calendar format is different from the format used in the Ambassador College program of 1988/89, which displays Molad times based on a midnight-to-midnight configuration.)

The Day-of-Week value for Molad times is also based on the Hebrew day, 6pm to 6pm, and not on a midnight-to-midnight day.

The output value for the Molad of Tishri, 5 BC, Civil Year 3757 is:

Friday, September 1, 23 hours, 219 parts. The Molad thus occurs after 5pm Friday, just before end of day at 6pm.

Note that a midnight-to-midnight day would render an inaccurate Molad value of Friday, September 1, 17 hours, 19 parts, placing the Molad much too early.

The *Trumpets Declaration* pop-up also calculates and lists:

The occurrence of the Molad of Tishri by day of the week, month, day of the month, year, Hebrew Calendar hours and parts.

The postponement rule(s) that might apply.

The actual date of the declaration of Trumpets based on the application of postponement rules.

The ending of the old civil year and beginning of the new civil year.

The Trumpets to Trumpets boundaries of the new Hebrew Civil year.

The year of the 19-year cycle.

The number of days in the current Hebrew year.

The remaining buttons are self-explanatory except for the *Hebrew Format* button. This button gives the user access to one of the most valuable and versatile features of the calendar. To use this feature, one must check box BC or AD, enter the year, and then click the *Calculate* button. On all other calendars the user must know the Hebrew Calendar civil year in order to access the Roman year in question. Not so with this new calendar!

The *Hebrew Format* pop-up calculator displays the month of Tishri, but any Hebrew month can be selected before clicking on the *Calculate* button. Once the *Hebrew Format* calendar pops up, the user will see that the Hebrew month and days are presented in blue, while the Roman month(s) and days are presented in red. In addition, the user can navigate forward and backward in any number of months or years, adding greatly to the capability of biblical, historical and calendric research.

A further feature, which we hope to expand greatly in the coming months and years, is the ability to display messages of biblical or historical significance in the window at the bottom of the *Hebrew Format* pop-up. For example, one might begin by asking the program to calculate the Hebrew month of Nisan, 30 AD. If one were then to place the mouse pointer over Nisan 13, 14 and 17, messages specific to the Passover observance of

Christ and the apostles, Christ's trial and day of crucifixion, and His resurrection at sunset Nisan 17 would appear. If the mouse pointer were placed over Nisan 24, the message "Day 7 Toward Pentecost" would appear. Advancing the calendar to the next month of Iyar and placing the pointer over Iyar 1, 8, 15, 22 and 29 would reveal each 7-day incremental count to Pentecost. Advancing the calendar again to the next month of Sivan and placing the pointer over Sivan 7 would reveal the message "Day 49 Toward Pentecost." The message "Pentecost" would appear when the mouse pointer is placed over Sivan 8, thus illustrating the entire count from Wave Sheaf Sunday to Pentecost.

Advancing to Tishri and placing the mouse pointer over Tishri 1, 10, 15 and 22 would bring up the name of each of the holy days in the little window at the bottom of the pop-up.

If the number "34" was entered in the year box and the button "Years Backward" was clicked, one would be taken to the month of Tishri, 5 BC. Placing the mouse pointer over Tishri 1 would reveal the message "Feast of Trumpets—birth of Christ."

In the future, we can add key dates and Scripture references from the history of the Old Testament and the New Testament down to the present. The very powerful *JavaScript* language makes all of this possible. Having taken the best design features of all other calendars and correcting the errors of each, we now have a simple to use, accurate Hebrew calendar that can also double for Bible study and research. In addition, we have a computer programmer who is in our fellowship, versed with *JavaScript,* and able to provide updates and improvements as necessary. And last but not least, we have both source and compiled code in our possession—something we've never had before!

This calendar with features is available to people all over the world at our CBCG Website. The calendar has also been placed on stand-alone CD's, which can be used anywhere in the world at anytime by anyone with access to a computer.

The CBCG Holy Day Calendar Program is unique among the Churches of God and indeed, the entire world. Alan Ruth reports that he has visited more than 200 Church of God websites, and not one has anything to compare with this new calendar.

- This document taken from the *Christian Biblical Church of God* web site at:
  http://www.cbcg.org/

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