

God's Calendar part 1

INTRODUCTION

God's calendar is the basis for the celebration of Rosh Chodesh (the new moon) and all of the moedim (festivals). This calendar is derived by astronomical observation and careful calculation. This ability to build a calendar is considered important and necessary, in the oral law: Talmud - Mas. Shabbath 75a ... he who is able to calculate the cycles and planetary courses but does not, one may hold no conversation with him. As it exists today, the Biblical, or Hebrew, calendar is a lunar solar calendar that is based on calculation rather than observation. This calendar is the official calendar of Israel and is the liturgical calendar of the Jewish faith.

The dictionary defines a "calendar" as: cal en dar (kal n d r) n. [[ME calender < L kalendarium , account book < kalendae , CALENDIS]] 1 a system of determining the beginning, length, and divisions of a year and for arranging the year into days, weeks, and months 2 a table or chart that shows such an arrangement, usually for a single year 3 a list or schedule, as of pending court cases, bills coming before a legislature, planned social events, etc. adj. such as that appearing on certain popular, conventional calendars [calendar art, a calendar girl] vt. to enter in a calendar; specif., to schedule ca len dri cal (k len dri k l) or ca len dric (-drik) adj.

In the encyclopedia we find the following enigmatic statement: "CALENDAR. People have kept track of the days by the march of daylight and darkness and of the changing seasons in order to know when to plant crops and to get ready for winter. Sometimes they kept the record by notching a stick or knotting a cord once every day. They also watched the changing positions of the sun and stars, the changes of the moon, and the habits of plants and animals. The making of an exact calendar, however, has perplexed mankind for ages because the divisions of time by days, weeks, months, and years do not seem to fit together properly."

The perplexity men have regarding the calendar is primarily due to a lack of attention to God's word and the oral law. Anyone who has ever desired to observe God's festivals, His moedim, His appointed times, has encountered God's calendar. The scriptures are replete with references to various calendar references. There are the "Rosh Chodeshim", the new moons, the Sabbath, as well as the festivals. In addition to particular days, God's calendar includes months and years. All of these are introduced in: Genesis 1:14-19 And God said, "Let there be lights in the expanse of the sky to separate the day from the night, and let them serve as signs to mark seasons and days and years, And let them be lights in the expanse of the sky to give light on the earth." And it was so. God made two great lights -- the greater light to govern the day and the lesser light to govern the night. He also made the stars. God set them in the expanse of the sky to give light on the earth, To govern the day and the night, and to separate light from darkness. And God saw that it was good. And there was evening, and there was morning--the fourth day.

When God introduces His calendar, He does so by creating the astronomical bodies which will mark off the various seasons, days, and years. God's calendar is completely defined by the sun and the moon. This is in stark contrast to the Gregorian calendar which does not tie its days or months, to either the sun or the moon. In the Gregorian calendar, the days are arbitrarily set to start and end at midnight. This makes it impossible to determine when one day ends, and another day begins, by observation. You must rely on a man made timekeeping device. The Gregorian calendar creates the same problem with months. The Gregorian months are totally arbitrary and have no connection with the sun or the moon. Without a "paper calendar" one can not tell where one month starts and another begins. The months have no intrinsic connection to the sun or the moon, or any other astronomical body.

The Gregorian calendar is a modified version of the Julian calendar. The only difference being the specification of leap years. The Julian calendar specifies that every year that is a multiple of 4 will be a leap year. This leads to a year that is 365.25 days long, but the current accepted value for the tropical year is 365.242199 days. To correct this error in the length of the year and to bring the vernal equinox back to March 21, Pope Gregory XIII issued a papal bull declaring that Thursday October 4, 1582 would be followed by Friday October 15, 1582 and that centennial years would only be a leap year if they were a multiple of 400. This shortened the year by 3 days per 400 years, giving a year of 365.2425 days.

The following chart gives some insights into the Biblical / Hebrew and the Gregorian calendars:

Months of the Year - Gregorian / Western Calendar

January 31 days; from Roman republican calendar month Januarius, named for Janus, god of beginnings and doorways.

February 28 days usually, 29 in leap year; from Roman republican calendar month Februarius, named for Februa, the feast of purification held on the 15th.

March 31 days; from Roman republican calendar month Martius, named for the god Mars.

April 30 days; from Roman republican calendar month Aprilis. The Romans considered the month sacred to the goddess Venus, and its name may derive from that of her Greek equivalent, Aphrodite.

May 31 days; from Roman republican calendar month Maius, probably named for the goddess Maia.
 June 30 days; from Roman republican calendar month Junius, probably named for the goddess Juno.
 July 31 days; from Roman republican calendar month Julius, named for Julius Caesar in 44 BC.
 August 31 days; from Roman republican calendar month Augustus, named for the emperor Augustus in 8 BC.
 September 30 days; seventh month of early Roman republican calendar, from Latin septem, or seven.
 October 31 days; eighth month of early Roman republican calendar, from Latin octo, or eight.
 November 30 days; ninth month of early Roman republican calendar, from Latin nove, or nine.
 December 31 days; tenth month of early Roman republican calendar, from Latin decem, or ten.

Months of the Year -
 Biblical / Jewish Calendar

Tishri (Ethanim) 30 days; Rosh Hashanah and Yom Kippur fall during this month; regarded as birth month of Abraham, Isaac, and Jacob; mazzaroth is the scales, symbolizing the weighing of one's deeds between Rosh Hashanah, the new year and Yom Hakippurim, the Day of Atonement. The tribe associated with this month is Dan.

Heshvan (Bul) 29 or 30 days; mazzaroth is the scorpion. The tribe associated with this month is Naphtali.

Kislev 29 or 30 days; Chanukah begins on 25th day; mazzaroth is the bow. The tribe associated with this month is Gad.

Tevet 29 days; fast of Tevet on 10th day; mazzaroth is the goat. The tribe associated with this month is Asher.

Shevat 30 days; new year for trees, or arbor day, on 15th day; mazzaroth is the water bearer. The tribe associated with this month is Yoseph.

Adar 29 or 30 days; birth and death of Moses on 7th day; fast of Esther on 13th day; Purim on 14th day; mazzaroth is the fish. The tribe associated with this month is Benjamin.

Nisan (Aviv) 30 days; Passover begins on the 15th day; entire month regarded as a prolonged festival and a blessed month in which to die; no public mourning is permitted; mazzaroth is the ram. The tribe associated with this month is Reuben.

Iyar (Zif) 29 days; Israeli Independence Day on 5th; no marriages may be celebrated by the Orthodox until after 17th day; mazzaroth is the bull. The tribe associated with this month is Shimon.

Sivan 30 days; Hag Shavuot, the Feast of Weeks, starts on 6th day; mazzaroth is the twins. The tribe associated with this month is Levi.

Tammuz 29 days; fast of Tammuz on 17th day, commemorating the first breach in the walls of Jerusalem and the breaking of the tablets of the Torah; mazzaroth is the crab. The tribe associated with this month is Judah.

Av 30 days; fast of Av on the 9th day; mazzaroth is the lion. The tribe associated with this month is Issachar.

Elul 29 days; month is devoted to penitence and spiritual preparation for Day of Judgment; mazzaroth is the virgin. The tribe associated with this month is Zebulun.

The names of the Biblical / Jewish months are actually Babylonian and were brought back to Israel by Ezra and Nehemiah after the Babylonian Exile. Until the naming of the Jewish months, they were simply known as the "first month", the "second month", and so on, starting their counting with the month of Nisan (when Passover falls out) and NOT with Tishrei (Rosh Hashanah). So Rosh Hashanah actually happens in the seventh month. We use these Babylonian names to remind us that we are not in Israel, as we should be. It is understood that Messiah will cause the ingathering of all Israel, to the land of Israel, and he will restore the months to a number, rather than the Babylonian names.

BIBLICAL CALENDAR BACKGROUND

The Biblical / Jewish calendar, defined by God's method, is not like the Gregorian calendar. The Biblical calendar uses the sun and the moon to define days, months, and years. This calendar does not start on an arbitrary date determined by some great personality like Caesar or Yeshua, but rather it starts at the creation of the world. This starting point has several obvious advantages:

- A. The calendar does not need to be changed with the coming of another man. This avoids a considerable amount of disruption.
- B. The calendar starts at the "beginning" of the world, which is the first time that there is any need or reference for a calendar.
- C. All of man's beginnings, will coincide with God's beginnings, and the astronomical beginnings.
- D. The year contains a running total of the age of creation, preserved for future generations.

The Biblical calendar shows that the world was created in what is 3762 BC on the Gregorian calendar (The Gregorian calendar will not be invented for thousands of years, though). The years, on the Biblical calendar, are designated "AM" for anno mundi, which is Latin for "year of the world". This system starts its count from the creation of the world. There is, therefore, no designation of BC or AD as there is in the Gregorian calendar.

The Biblical calendar is tied to both the lunar month and the solar year. The lunar cycle is used to derive months, and the lunar cycle is adjusted, via intercalation, to keep synchronized with the solar year.

Because the solar year exceeds 12 lunar months by about 11 days, a 13th month of 30 days is intercalated, or inserted, seven times in each 19-year cycle. Other adjustments to the calendar are required periodically to make sure that the festival of Passover follows the first day of Spring.

The problem with strictly lunar calendars is that there are approximately 12.4 lunar months in every solar year, so a 12-month lunar calendar loses about 11 days every year and a 13-month lunar gains about 19 days every year. The months on such a calendar "drift" relative to the solar year. On a 12 month calendar, the month of Nisan, which is supposed to occur in the Spring, occurs 11 days earlier each year, eventually occurring in the Winter, the Fall, the Summer, and then the Spring again.

To compensate for this drift, an extra month was added, or intercalated: a second month of Adar. The intercalated Adar II, is added seven out of nineteen years. The month of Nissan would occur 11 days earlier for two or three years, and then would jump forward 29 or 30 days, balancing out the drift.

The Biblical year harmonizes the solar and lunar cycle, using the 19-year cycle of Meton (c. 432 B.C.E.) Meton discovered that after nineteen years the years reckoned using the sun and the moon get back into synch (almost.) It corrects so that certain dates should not fall on certain days for religious convenience. The Jewish year has six possible lengths: 353, 354, 355, 383, 384, 385 days, according to the day and time of the new year lunation, and position in the Metonic cycle. Time figures from 6 p.m. the previous night. The lunation of year 1 is calculated to be on a Monday (our Sunday night) at 11:11:20 p.m. The world began with a hypothetical year 0, corresponding to 3762 B.C.E. Calculations for the calendar are figured in the ancient Babylonian unit of halaqim "parts" of the hour = 1/1080 hour.

According to Jewish tradition, the year 1 of the Biblical calendar was the time of tohu and bohu, "formless and void", referred to in Genesis 1:1. Nothing was yet created, and only a virtual clock started to tick on the first day of that year, heard, as it were, only by the Creator. On the first day of the week (Sunday) the twenty-fourth day of Elul, corresponding to August 22, 3760 AM. He said: Let there be light! And creation began. It concluded by the following Sabbath (Saturday) which was the first day of Tishri, year 2.

Deuteronomy 4:5-6 See, I have taught you decrees and laws as Hashem my God commanded me, so that you may follow them in the land you are entering to take possession of it. You shall guard and You shall do them, for this will show your wisdom and understanding to the nations, who will hear about all these decrees and say, "Surely this great nation is a wise and understanding people."

"You shall guard and you shall do..." Rabbi Shmuel bar Nahman said in the name of Rebbe Yonatan, from where do we know that it is a mitzvah for each man to calculate the seasons and the months? It is written, "You shall guard and you shall do, for it is evidence, in the eyes of the nations, of the wisdom and understanding that has been given to you." What is the wisdom and understanding that Israel possesses "in the eyes of the nations"? We must say that it refers to the calculation of the seasons and months. Concerning one who knows how to calculate and does not do so, the verse says, "They did not contemplate God's deeds, and they have not paid attention to the work of His hands." (Yeshaya 5:12). The midrash also gives us some insight into the Biblical understanding of the calendar:

Midrash Rabbah - Esther IV:1 1. THEN THE KING SAID TO THE WISE MEN, WHO KNEW THE TIMES (1, 13). Who were these? R. Simon said: These were the tribe of Issachar, as it says, And of the children of Issachar, men that had understanding of the times, to know what Israel ought to do (I Chronicles XII, 32). R. Tanhuma said: This means, for fixing the calendar: R. Jose b. Kazrath said: For intercalation. (' To know what Israel ought to do ':

I Chronicles 12:23-38 These are the numbers of the men armed for battle who came to David at Hebron to turn Saul's kingdom over to him, as the LORD had said: Men of Judah, carrying shield and spear--6,800 armed for battle; Men of Simeon, warriors ready for battle--7,100; Men of Levi--4,600, Including Jehoiada, leader of the family of Aaron, with 3,700 men, And Zadok, a brave young warrior, with 22 officers from his family; Men of Benjamin, Saul's kinsmen--3,000, most of whom had remained loyal to Saul's house until then; Men of Ephraim, brave warriors, famous in their own clans--20,800; Men of half the tribe of Manasseh, designated by name to come and make David king--18,000; Men of Issachar, who understood the times and knew what Israel should do--200 chiefs, with all their relatives under their command; Men of Zebulun, experienced soldiers prepared for battle with every type of weapon, to help David with undivided loyalty-- 50,000; Men of Naphtali--1,000 officers, together with 37,000 men carrying shields and spears; Men of Dan, ready for battle--28,600; Men of Asher, experienced soldiers prepared for battle--40,000; And from east of the Jordan, men of Reuben, Gad and the half-tribe of Manasseh, armed with every type of weapon--120,000. All these were fighting men who volunteered to serve in the ranks. They came to Hebron fully determined to make David king over all Israel. All the rest of the Israelites were also of one mind to make David king.

Midrash Rabbah - Genesis VI:1 1. AND GOD SAID: LET THERE BE LIGHTS (I, 14). R. Johanan began thus: Who appointest the moon for seasons (Ps. CIV, 19). R. Johanan commented: The orb of the sun alone was created to give light. If so, why was the moon created? 'For seasons': in order to sanctify new moons and years thereby. R.

Shila of Kefar Temarta said in R. Johanan's name: Yet even so, The sun knoweth its coming (ib.): from the sun one knows its coming [sc. of the month], for we count the beginning of the month only from sunset. Justa Habra said in R. Berekiah's name: And they journeyed from Rameses in the first month, on the fifteenth day of the first month, etc. (Num. XXXIII, 3): but if you count by the moon, then so far there were only thirteen sunsets? Hence it follows that we count not from the moon but from sunset.

Midrash Rabbah - Genesis VI:3 3. R. Tanhum and R. Phinehas in R. Simon's name said: After calling them GREAT, He actually casts a slur [on one by writing] THE GREAT LIGHT... AND THE SMALL LIGHT (I, 16)! The reason is because it penetrated into its neighbour's territory. R. Phinehas said: In respect of all other sacrifices it is written, And one he-goat for a sin-offering, whereas in respect of New Moon it is written, And one he-goat for a sin-offering for the Lord (Num. XXVIII,15):

The Holy One, blessed be He, said: 'It was I who caused it to enter its neighbor's domain.' Then if that [sc. the moon] which entered with permission was thus disparaged by Holy Writ, think how much more one is deserving of this who enters without permission!

R. Levi said in the name of R. Jose b. Lai: It is but natural that the great should count by the great, and the small by the small. Esau counts [time] by the sun, which is large, and Jacob by the moon, which is small. Said R. Nahman: That is a happy augury. Esau counts by the sun, which is large: just as the sun rules by day but not by night, so does Esau enjoy this world, but has nought in the World to Come. Jacob counts by the moon, which is small: just as the moon rules by day and by night, so has Jacob a portion in this world and in the World to Come. R. Nahman made another observation, thus: R. Nahman said: As long as the light of the greater luminary functions, the light of the smaller one is not noticeable, but when the light of the greater one sets, the light of the smaller one becomes noticeable; even so, as long as the light of Esau prevails, the light of Jacob cannot be distinguished; but when the light of Esau sets, that of Jacob shall be distinguished, as it is written, Arise, shine,... For, behold, darkness shall cover the earth, and gross darkness the peoples, but upon thee the Lord will arise, and His glory shall be seen upon thee (Isaiah 60:1).

HISTORY

The Jewish calendar is primarily lunar, with each month beginning on the new moon, when the first sliver of moon becomes visible, after the dark of the moon. In ancient times, the new months used to be determined by observation. When people observed the new moon, they would notify the Sanhedrin. When the Sanhedrin heard testimony from two independent, reliable eyewitnesses that the new moon occurred on a certain date, they would declare the Rosh Chodesh (first of the month) and send out messengers to tell people when the month began.

With the decline of the Sanhedrin, calendrical matters were decided by the Palestinian patriarchate (the official heads of the Jewish community under Roman rule). Jewish persecution under Constantius II (reigned 337-361) and advances in Astronomical science led to the gradual replacement of observation by calculation. According to Hai ben Sherira (died 1038)--the head of a leading Talmudic academy in Babylonia--Hillel II, a Palestinian patriarch, introduced a fixed a continuous calendar in 359 CE. A summary of the regulations governing the present calendar is provided by Maimonides, the great medieval philosopher and legalist, in his Code: Sanctification of the New Moon, chapters 6-10.

In the fourth century, Hillel II established a fixed calendar based on mathematical and astronomical calculations. This calendar, still in use, standardized the length of months and the addition of months over the course of a 19 year cycle, so that the lunar calendar realigns with the solar years. Adar II is added in the 3rd, 6th, 8th, 11th, 14th, 17th and 19th years of the cycle. The new year that began Thursday, October 2, 1997 AD (Jewish calendar year 5758 AM) was the first year of the cycle.

The year number on the Jewish calendar represents the number of years since creation, as calculated by adding up the ages of people in the Bible back to the time of creation. However, it is important to note that this date is not necessarily supposed to represent a scientific fact. There is some evidence to suggest that the AM years need to have 240 / 241 years added, to coincide with actuality. It is this authors opinion that the AM years were adjusted to preclude the Messiahship of Yeshua. Jews do not generally use the words "A.D." and "B.C." to refer to the years on the Gregorian calendar. "A.D." means "the year of our L-rd," and most Jews do not believe Yeshua is the L-rd. Instead, we use the abbreviations C.E. (Common or Christian Era) and B.C.E. (Before the Common Era).

Months of the Jewish Year

The "first month" of the Jewish calendar is the month of Nissan, in the spring, when Passover occurs. However, the Jewish New Year is in Tishri, the seventh month, and that is when the year number is increased. This concept of different starting points for a year is not as strange as it might seem at first glance. The American "new year" starts in January, but the new "school year" starts in September, and many businesses have "fiscal years" that start at various times of the year. Similarly, the Jewish calendar has different starting points for different purposes.

The Biblical / Jewish calendar has the following months:

Month	Length	Gregorian Equivalent
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Nissan	30 days	March-April
Iyar	29 days	April-May
Sivan	30 days	May-June
Tammuz	29 days	June-July
Av	30 days	July-August
Elul	29 days	August-September
Tishri	30 days	September-October
Heshvan	29 or 30 days	October-November
Kislev	30 or 29 days	November-December
Tevet	29 days	December-January
Shevat	30 days	January-February
Adar	29 or 30 days	February-March
Adar II	2	March-April

In leap years, Adar has 30 days. In non-leap years, Adar has 29 days.

The length of Heshvan and Kislev are determined by complex calculations involving the time of day of the full moon of the following year's Tishri and the day of the week that Tishri would occur in the following year.

Note that the number of days between Nissan and Tishri is always the same. Because of this, the time from the first major festival (Passover in Nissan) to the last major festival (Sukkoth in Tishri) is always the same.

The Hebrew calendar is a lunar calendar. Before I get into the calculation, let me try to explain lunar calendars. Each month goes from new moon to new moon. Between moladot (new moons) is (according to Hebrew calendar) 29 days, 12 hours (abbreviated h) and 793 (of 1080) chalakim (parts abbreviated p). If one knows one new moon, they could find any other new moon by adding or subtracting this interval. It also happens that every 19 solar years corresponds to exactly 235 lunar months. This means you can devise a 19 lunar year cycle made up of 12 years of 12 lunar months and 7 years of 13 lunar months that corresponds to an equivalent 19 solar years. The Hebrew calendar has 13 month (leap) years in the 3rd, 6th, 8th, 11th, 14th, 17th and 19th years of this cycle. In the Hebrew calendar the leap month is done by adding a second Adar of 30 days.

Now if the Hebrew calendar was based only on this, we could easily calculate one Rosh Hashanah to the next, and the months would alternate 29 and 30 days. Things would be easy, but this is not the case. First the extra 793 chalakim ,parts, have to be balanced off. Also Rosh Hashanah must be moved to prevent certain calendar facts from happening (like Yom Hakippurim, the Day of Atonement, from landing on Friday or Sunday). These reasons mean a year can have 353, 354, 355 days in non-leap-years, and 383, 384 and 385 in leap-years. To balance this off, in short years (353 and 383 days) Kislev is shortened to 29 days and in long years (355 and 385 days) Heshvan is lengthened to 30 days. Now before things get really hopeless, there is a simple method here.

For any year, find the day of the molad of Rosh Hashanah and apply the rules to get the real Rosh Hashanah.

Do the same for the following year.

Find the number of days between to get the year length.

Use the table to find out the adjustments.

Year length	leap year	Heshvan length	Kislev length
353	No	29	29
354	No	29	30
355	No	30	30
383	Yes	29	29
384	Yes	29	30
385	Yes	30	30

The inter-calculation of the Gregorian and the Hebrew date is not that complex. The trick is not to calculate one from the other, but to set some base date to calculate from. To convert one to the other you first calculate the number of days from the base date, and then calculate the other from that number of days.

In order for the Jewish calendar to operate accurately, two factors have to be taken into account.

Firstly, the Torah commands: 'Shamor Et Chodesh Ha'aviv..' 'Observe the month of Aviv..':

Deuteronomy 16:1 Observe the month of Aviv and celebrate the Passover of the LORD your God, because in the month of Abib he brought you out of Egypt by night.

Aviv ,which is the first of the year, and today is called Nisan, is the month in which the festival of Pesach (Passover) occurs and since the word Aviv also means "Spring" we learn that Pesach must always fall in the Spring. In order to achieve this, the position of the sun has to be known in order to calculate the seasons. Secondly, the Mitzvah 'Uverashei Chodsheichem Takrivu Ola..' 'On your New Moons you shall offer..etc':

Numbers 28:11 "On the first of every month, present to the LORD a burnt offering of two young bulls, one ram and seven male lambs a year old, all without defect.

This shows that the months have to be calculated according to the position of the moon. Hence we have a LUNAR SOLAR system, one that is determined by both the sun and the moon.

The Bible generally designates the months by number, 'First Month, Fifth Month, etc. However, there are four months actually named in the Bible, so it is probable that, originally, they all had designated names. The four we know are:

Aviv

The 1st month (Deuteronomy 16.1)

Ziv

The second month (1 Kings 6:1)

Bul

The 8th month (1 Kings 6:38)

Ethnaim

The 7th month (1 Kings 8:2)

The Palestinian Talmud states that the names of the months, as we know them today, were adopted at the time of the Babylonian exile.

THE FOUR NEW YEARS

The Mishna, in Tractate Rosh Hashanah, discusses four 'New Years.' They are:

1st Tishri

1st Nisan

1st Elul

15th Shevat.

1st Tishrei; The new year for years: Simply the birthday of the world.

1st Nisan: The New Year for Kings: Whenever a new king came to the throne, the beginning of his reign was dated from Nisan 1st, irrespective of when he really started to reign.

1st Elul; The New Year for Animals: The beginning of the tax year for tithing animals

15th Shevat; The New Year for Trees: The beginning of the tax year for tithing produce

How the Months were determined

In the Torah, The first day of the new month, known as Rosh Chodesh (the New Moon), is placed on par with festivals. The silver trumpets were blown in the Temple, shofars were blown throughout the land, and special Additional Sacrifices were offered. We can see from the Bible how important this day was. From the book of Samuel, we see that they had a festive meal, from the book of Amos, we see that no business was done and from the book of Kings, we see that people went to visit the prophets, on this day.

The exact day of the new month was determined by observation of the moon and by seeing when the new crescent actually appeared...

On the 30th of each month the members of the High Court, the Sanhedrin, assembled in a particular courtyard in Jerusalem (Beit Ya'azek) and waited to receive testimony from two reliable witnesses. If they came, then the moon was sanctified. It was considered a very great Mitzvah to come to Jerusalem to give evidence that you had seen the first crescent of the moon, and even Shabbat could be desecrated in order to fulfill this obligation. If no-one came because the moon wasn't visible, then the new month, Rosh Chodesh, was automatically declared to begin on the next day, i.e. the 31st day after the beginning of the last month. Beacons were kindled on the Mount of Olives and on designated mountains throughout the land, to inform everyone.