

THE 610TH ORDINARY MEETING,

HELD IN COMMITTEE ROOM B, THE CENTRAL HALL,  
WESTMINSTER, ON MONDAY, JUNE 2ND, 1919,  
AT 4.30 P.M.

THE REV. PROFESSOR D. S. MARGOLIOUTH, D.LITT.,  
IN THE CHAIR.

The Minutes of the previous Meeting were read, confirmed and signed.

The SECRETARY, MR. SEWELL, announced the election of the Rev. Canon Berry, formerly an Associate, to be a Member, and the election of Major P. J. Wiseman and Mr. Herbert A. Hall as Associates. He also announced the death of Sir T. F. Victor Buxton, Bart., a Member.

It was also announced that owing to the serious illness of Lady Halsbury, Lord Halsbury would be unable to deliver the Annual Address on June 16th. Lt.-Col. Mackinlay had very kindly undertaken to deliver the Annual Address, his subject being the Literary Marvels of St. Luke.

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“*THE MOSAIC CALENDAR.*” By E. WALTER MAUNDER,  
Esq., F.R.A.S., Superintendent of the Solar Department,  
Royal Observatory, Greenwich.

BY “The Mosaic Calendar” I wish to denote the complete circle of national religious observances enjoined by the Law ascribed to Moses, and recorded in the Pentateuch. I have no desire to deal with the ritual laid down for these observances, or with the typical, prophetic, or theological significance attaching to them. But these ordinances have a special interest for me in connection with my own profession, since they have a specific relation to the heavenly bodies. Thus in Genesis i, 14–15, we read :—

“And God said, Let there be lights in the firmament of the heaven to divide the day from the night ; and let them be for signs, and for appointed assemblies, and for days, and years : and let them be for lights in the firmament of the heaven to give light upon the earth : and it was so.”

“SEASONS.”

In our English versions, the word which I have rendered “appointed assemblies” is given as “seasons.” There is no doubt as to its meaning. In the great majority of cases where we meet with it in the Old Testament, it is translated

“congregation,” but here, and in Leviticus xxiii, 4—“these are feasts of the Lord, even holy convocations, which ye shall proclaim in their seasons”—the “seasons” are the “times appointed” for the assembling of the people in acts of worship.

The purposes, therefore, for which the lights of heaven were ordained, were not only to give light upon the earth, to divide the day from the night, and to be measurers of time for all the nations under heaven—that is to say, “to be for days and years”—they were to be “for signs and for appointed assemblies;” signals when men should gather together to worship God.

This general principle, therefore, is laid down in the first chapter of the Book of Genesis. The Book of Exodus exhibits the principle put into practice. It records how the children of Israel were delivered from their bondage in Egypt, and how Jehovah called them to enter into Covenant relation with Him as His Chosen People. This new relationship began at that strange supper, eaten standing and in haste, before they were called to start on their moonlight march toward the wilderness. Then came the passage of the Red Sea, by which the chains of their slavery were struck from off them, and a few weeks later, an enfranchised people, they entered into solemn Covenant with Jehovah at Mount Sinai. Then with all possible speed the means for seemly public worship were provided: the tabernacle with its furniture was constructed; the priesthood appointed and the altar consecrated. This done there follows, without a moment’s pause, the record of the appointment of the “continual burnt offering” :—

“Now this is that which thou shalt offer upon the altar; two lambs of the first year day by day continually. The one lamb thou shalt offer in the morning; and the other lamb thou shalt offer at even: . . . This shall be a continual burnt offering throughout your generations at the door of the tabernacle of the congregation (appointed assemblies) before the Lord: where I will meet you, to speak there unto thee . . . and I will dwell among the children of Israel, and will be their God. And they shall know that I am the Lord their God, that brought them forth out of the land of Egypt, that I may dwell among them: I am the Lord their God.” (Exodus xxix, 38–46.)

We find the same observance commanded in the Book of Numbers, chapter xxviii, 1–4 :—

“ And the Lord spake unto Moses, saying, Command the children of Israel, and say unto them, My offering, and my bread for my sacrifices made by fire, for a sweet savour unto me, shall ye observe to offer unto me in their appointed time of assembly (due season).”

#### THE DAY AND THE YEAR.

Thus each day was marked out and sanctified by an act of worship at its beginning and by another at its close. And the times for these two daily services were indicated by the sun, which by its rising called men to set in order the morning sacrifice, and as it sank to its setting to offer the evening oblation. The sun was for the two “ seasons,” the two “ appointed assemblies,” of the “ continual burnt offering.”

But the sun was for both “ days and years ” ; the day being a miniature of the year, and the year a day on a longer, fuller scale. As, therefore, the day is divided into two portions, the light portion which we call “ day,” and the dark portion which we call “ night,” so the year is divided into a bright, warm portion, the summer, and a cold, dark portion, the winter. And carrying out the analogy of the two acts of daily worship, the morning and the evening sacrifices, two great religious ordinances were instituted in the year, the one at the beginning of summer, the other as the summer drew to its close. And as we use the word “ day ” sometimes to designate a complete period of twenty-four hours, including the hours of both day and night, and sometimes as referring only to the hours of light, so the word “ year,” which usually denotes the complete round of the seasons, is employed in connection with these two great annual religious celebrations, as if it were confined to the summer half. One of these, the Passover, with the connected week of unleavened bread, was held in spring time, in the beginning of the year :—

“ And the Lord spake unto Moses and Aaron in the land of Egypt, saying, This month shall be unto you the beginning of months : it shall be the first month of the year to you.” (Exodus xii, 1-2.)

“ These are the feasts of the Lord, even holy convocations, which ye shall proclaim in their appointed times (seasons). In the fourteenth day of the first month at even is the Lord’s passover. And on the fifteenth day of the same month is the feast of unleavened bread unto the Lord : seven

days ye must eat unleavened bread. In the first day ye shall have an holy convocation : ye shall do no servile work therein. But ye shall offer an offering made by fire unto the Lord seven days : in the seventh day is an holy convocation : ye shall do no servile work therein.” (Leviticus xxiii, 4-8.)

The other—“the feast of ingathering,” or of Tabernacles, as it is more commonly called—was held six months later, in the autumn :—

“Speak unto the children of Israel, saying, The fifteenth day of this seventh month shall be the feast of tabernacles for seven days unto the Lord.” (Leviticus xxiii, 34.)

“In the fifteenth day of the seventh month, when ye have gathered in the fruit of the land, ye shall keep a feast unto the Lord seven days : on the first day shall be a sabbath, and on the eighth day shall be a sabbath.” (*Ibid.*, 39.)

“The feast of ingathering, which is in the end of the year, when thou hast gathered in thy labours out of the field.” (Exodus xxiii, 16.)

Thus, as the morning and evening sacrifices stood respectively at the beginning and end of the bright part of the day, so the great feasts of spring and autumn, Passover and Tabernacles, stood at the beginning and end of the bright part of the year. The sun, when he crossed the equator northward in the spring, was for a sign, and for an appointed assembly, a “season”; and again when he crossed it southward in the autumn. Thus each year was marked out and sanctified by an act of worship at its beginning, and by another at its close.

The month also was sanctified by a religious observance. By its nature, the month does not supply so close an analogy with the day as does the year, and in primitive times the first appearance of the “new moon” was the only phenomenon of the month suitable as a sign or signal from whence time could be reckoned.

So in Numbers xxviii, 11, the ordinance for the continual burnt offering of the sacrifice of a lamb in the morning and of a second lamb in the evening, is followed by the injunction :—

“In the beginnings of your months ye shall offer a burnt offering unto the Lord ; two young bullocks, and one ram, seven lambs of the first year without spot.”

Further in the tenth chapter and tenth verse of the same book, it is added :—

“ In the beginnings of your months, ye shall blow with the trumpets over your burnt offerings, and over the sacrifices of your peace offerings; that they may be to you for a memorial before your God : I am the Lord your God.”

That these five “ seasons ” should be “ appointed ” as times for religious observance, was simple and natural. The beginning and ending of each day, the beginning of each month, the beginning and ending of the summer half of each year (that is to say, the two equinoxes of spring and autumn) are important notes of time, indicated by the heavenly bodies, and appropriate as seasons for public worship.

#### THE SEVENTH.

But the Mosaic Law laid emphasis on another principle not thus directly dependent on the relations of the heavenly bodies. This is the principle of the special sacredness of the seventh : every seventh day and every seventh year were held specially sacred, and were kept for rest. And the seventh month in every year was peculiarly the month set apart for sacred services ; in particular for the most solemn service of the whole Mosaic ritual, that of the great Day of Atonement.

Let it be noted that there is nothing in the natural character of the seventh day to distinguish it from any of the other six. That which marks it, if we accept Genesis ii, 2-3, and Exodus xx, 8-11, as historical, is the Word of God Himself ; it is an act of choice on His part, and if the seventh day is observed by men, it is observed by men who do so in the exercise of their own power of choice, which they desire to bring into accord with what they have accepted as being the Divine choice. The day is sacred, not as being different in itself from other days, but as being chosen for special observance by God and by man.

Equally so was it with the seventh year. This was a sabbath of rest, just as the seventh day was. Indeed, in Exodus xxiii, the yearly sabbath is put before the weekly sabbath, as if the latter were derived from the former :—

“ Thou shalt not oppress a stranger : for ye know the heart of a stranger, seeing ye were strangers in the land of Egypt. And six years thou shalt sow thy land, and shalt gather in

the fruits thereof: But the seventh year thou shalt let it rest and lie still; that the poor of thy people may eat: and what they leave the beasts of the field shall eat. In like manner thou shalt deal with thy vineyard, and with thy oliveyard. Six days thou shalt do thy work, and on the seventh day thou shalt rest: that thine ox and thine ass may rest, and the son of thy handmaid, and the stranger, may be refreshed.” (Exodus xxiii, 9–12.)

An analogous regulation dealt with the case of a Hebrew who had fallen into poverty and had been sold into servitude:—

“If thou buy an Hebrew servant, six years shall he serve: and in the seventh he shall go out free for nothing.” (Exodus xxi, 2.)

“And when thou sendest him out free from thee, thou shalt not let him go away empty.” (Deuteronomy xv, 13.)

The significance of the observance of the seventh day and of the seventh year was that of rest, and release from slavery.

The seventh month of each year was distinguished in the same spirit. There were special sacrifices over which the silver trumpets were blown on the first day of every month, but it was only on the first day of the seventh month that it was commanded:

“Ye shall have an holy convocation; ye shall do no servile work: it is a day of blowing the trumpets unto you.” (Numbers xxix, 1.)

“Also on the tenth day of this seventh month there shall be a day of atonement: it shall be an holy convocation unto you; . . . Ye shall do no manner of work: it shall be a statute for ever throughout your generations in all your dwellings. It shall be unto you a sabbath of rest, and ye shall afflict your souls: in the ninth day of the month at even, from even unto even, shall ye celebrate your sabbath.” (Leviticus xxiii, 27–32.)

#### SEVEN TIMES SEVEN.

This principle of the sanctification of the seventh day and of the seventh year received a yet further application. Seven times seven was to be counted from the sabbath of the week of unleavened bread:—

“When ye be come into the land which I give unto you, and shall reap the harvest thereof, then ye shall bring a sheaf of the firstfruits of your harvest unto the priest:

and he shall wave the sheaf before the Lord, to be accepted for you: on the morrow after the sabbath the priest shall wave it . . . and ye shall count unto you from the morrow after the sabbath, from the day that ye brought the sheaf of the wave offering; seven sabbaths shall be complete: Even unto the morrow after the seventh sabbath shall ye number fifty days; and ye shall offer a new meat offering unto the Lord." (Leviticus xxiii, 10-16.)

The regulation is given in a different form in Deuteronomy xvi, 9-12:—

"Seven weeks shalt thou number unto thee: begin to number the seven weeks from such time as thou beginnest to put the sickle to the corn. And thou shalt keep the feast of weeks unto the Lord thy God with a tribute of a freewill offering of thine hand, which thou shalt give unto the Lord thy God, according as the Lord thy God hath blessed thee: and thou shalt rejoice before the Lord thy God, thou, and thy son, and thy daughter, and thy manservant, and thy maidservant, and the Levite that is within thy gates, and the stranger, and the fatherless, and the widow, that are among you, in the place which the Lord thy God hath chosen to place His name there. And thou shalt remember that thou wast a bondman in Egypt: and thou shalt observe and do these statutes."

This feast of Pentecost, though ordained *in* the wilderness, was not ordained *for* the wilderness. It was to be kept "when ye be come into the land which I give unto you"; not before. As the fundamental idea of the seventh day was rest, so the fundamental idea of the forty-ninth day, seven times seven, was that of fulfilment, of completeness. The Day of Pentecost was the completion of the feast of unleavened bread, and is still so regarded.

The feast of Weeks, or Pentecost, completes also the seven "holy convocations" whereon no servile work was to be done; and observed as sabbaths in addition to the ordinary weekly day of rest. The other six are the first and seventh days of the Feast of Unleavened Bread, and the four holy days of the seventh month, that is to say, the Feast of Trumpets, the Day of Atonement and the first and eighth days of the Feast of Tabernacles. In most years, therefore, no fewer than eight days in the seventh month were kept as sabbaths in the fullest sense

of the word, a circumstance which influences importantly the rules for the drawing up of the Jewish Calendar to-day.

It should be noted that it was necessary that the people should know some days before these “holy convocations” exactly when they were going to take place, in order that due preparation should be made, and this rule must have applied to the Feast of Trumpets as well as to the other six.

Lastly it was ordained :—

“Thou shalt number seven sabbaths of years unto thee, seven times seven years : and the space of the seven sabbaths of years shall be unto thee forty and nine years. Then shalt thou cause the trumpet of the jubile to sound on the tenth day of the seventh month, in the day of atonement shall ye make the trumpet sound throughout all your land. And ye shall hallow the fiftieth year, and proclaim liberty throughout all the land unto all the inhabitants thereof : it shall be a jubile unto you and ye shall return every man unto his possession, and ye shall return every man unto his family.” (Leviticus xxv, 8–10.)

This is the complete Mosaic Calendar, the full circle of religious observances commanded to Israel, as laid down in the five books of Moses. The continual burnt offering, day by day, in the morning and at even ; the great annual festivals in spring and in autumn ; the monthly blowing of trumpets at every new moon ; the special hallowing of every seventh day and of every seventh year, and of the seventh month of every year ; the completion of the Feast of Unleavened Bread after seven weeks by the Feast of Pentecost ; and the completion of the seven weeks of years in the year of Jubilee. The circle was thus complete, and thenceforth a new circle began.

#### CALENDARS.

Whatever calendar men use, or whatever their state of civilization, they count by Days, for the Day gives us our most definite measure of time. If we wish for a larger unit, we have the choice of two—the Month and the Year. Nomadic nations have a natural tendency to reckon by months ; agricultural and settled nations must count by years. But a difficulty is experienced when the attempt is made to reckon both by months and by years,



since in practical life we cannot deal with fractions of a day, and a month is not an exact multiple of a day, for its mean length is equal to 29·5306 days, and a year is not an exact multiple either of the day or of the month, for it is equal to 365·2422 days, or 12·37 months.

In western Europe at the present time no attempt is made to divide our time by the natural month : we really reckon only by years, counting 365 days to the year in most cases, and 366 days to the year in the remainder. We divide the year arbitrarily into 12 portions, varying in length from 28 days to 31, and these we call "months," because they appear to have been long ago once regulated by the moon.

The Mahommedans, on the other hand, use months only, and their so-called years are merely an arrangement for reckoning their months in dozens.

We in western Europe begin our year with the first of January, an arbitrary date, having no fixed relationship to any given phase of the moon or direct connection with any specified position of the sun.

The Mosaic Calendar, on the other hand, was directly dependent both on the natural year and on the natural month. The reckoning employed was therefore strictly luni-solar ; in contrast with the Mahommedan, which is purely lunar, and with the Christian civil reckoning, which is purely solar. To bring this about would seem to be a difficult problem, but the Mosaic Calendar solves it in a way both simple and complete.

The first reference to the Mosaic Calendar in the books of Moses occurs in Exodus xii, which, as we have seen, lays it down that the year is to begin with the month in which the Israelites came forth from Egypt : the month, that is, in which the original Passover was held :—

“ This month shall be unto you the beginning of months : it shall be the first month of the year to you.” (Exodus xii, 2.)

In the instructions which were given later for the second and all future celebrations of the Passover, it was enjoined that :—

“ Ye shall bring a sheaf of the firstfruits of your harvest unto the priest : and he shall wave the sheaf before the Lord, to be accepted for you : on the morrow after the

sabbath\* the priest shall wave it. And ye shall offer that day when ye wave the sheaf an he lamb without blemish of the first year for a burnt offering unto the Lord.” (Leviticus xxiii, 10-12.)

These two injunctions fixed the date of the Passover :—

“ One of the Jewish ordinances was that a sheaf of barley should be offered before the Lord as the first fruits of the harvest. This was to be done in the Abib, or month Nisan, immediately after the Passover, on the second day of unleavened bread, which is the sixteenth day of the month. If it were found before this day had arrived that the barley would not be then ripe, it was evident that the season, according to the reckoning by lunar months, had been accounted as arriving too early in the year. It must be made to come later. The first day of the Abib is approaching ; the first day of the new year ; the beginning of months. But, by the sun, the spring season has not arrived ; the barley is not ready for the reapers ; the lambs for the Passover are not yet fit to be killed. The first day of the ceremonial year must be postponed till the next lunation commences. The current year which is coming to a close must be increased in length by another month.”†

I would ask your special attention to this point. It was not the calendar that decided when the Passover was to be held : it was the Passover which decided when the calendar of the year was to commence. It began when the necessary provision for the feast was seen to be ready, and not until then.

#### THE LUNI-SOLAR YEAR.

Twelve natural months contain 354 days, more or less. Thirteen natural months similarly give 384 days. But a natural year is most generally 365 days in length : 11 days longer than the one, 19 days shorter than the other. Therefore the beginning

\* This “Sabbath” is generally interpreted as referring to the “holy convocation” of the fifteenth day of the month. If so, the sheaf was waved on the sixteenth day, but for our present purpose it is a matter of no moment whether the sixteenth day of the month is meant or the ordinary sabbath of the week.

† *Elements of the Jewish and Muhammadan Calendars*, by the Rev. Steward Beaumont Burnaby, M.A., F.R.A.S., London, 1901, pp. 13, 14.

of the first month of the year must shift about with respect to any given point of the natural solar year. But by sometimes including a thirteenth month in the calendar year, the true length of the solar year is represented exactly on the average, and a perfect adjustment made.\*

We are not told anywhere in Holy Scripture as to the method by which it was decided when a thirteenth month had to be intercalated into the year. The explanation quoted above from the Rev. S. B. Burnaby, is, however, not only in accordance with tradition, but necessarily follows from the stated conditions of the case. Similarly, no account is given us as to the mode of determining the first day of any month. But here again the

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\* At one of the meetings of the Victoria Institute, where the Mosaic origin of the Pentateuch was under discussion, a visitor urged that "scholars" were almost unanimous against the traditional view. But a scholar can only claim to be an authority on the point where he is "scholarly." Now some of the most distinguished scholars of the day are far from being scholarly on this point of the length of the year. Thus two years ago a neat little edition was brought out by the S.P.C.K. of the well-known Apocryphal book of Enoch, usually known as the Ethiopic Enoch, or Enoch I, and an Introduction was written to it by Dr. Oesterley, in which was advanced an extraordinary argument brought forward by Leszynsky, in a recent work on *The Sadducees (Der Sadduzäer, 1912)*. He says (p. xvi), "Leszynsky holds that the original portions of Enoch I emanated from Sadducean circles, and that the special object of the book originally was the bringing about of a reform of the calendar. . . . The basis of reckoning time was one of the fundamental points of difference between the Pharisees and Sadducees, for whereas the former reckoned time by the *lunar* year (360 days), the latter did so by the *solar* year. . . . The writer desires the adoption of the solar year, while his contemporaries wrongly followed a different reckoning, and therefore calculated the feasts at the wrong time. The 'sinners who sin in the reckoning of the year' are the Pharisees," and Dr. Oesterley accepts the argument, for he says: "The point may appear small to us. . . . It is, at any rate, a strong point in favour of the Sadducean authorship."

Dr. Oesterley did not perceive that the Jewish year was neither a lunar year nor a solar year, nor a compromise between the two, but a practical and logical way of combining the two measures of time. Leszynsky's suggestion is both astronomically and arithmetically absurd, and would be fitly paralleled if some foreigner were to assert that the point at issue between members of the Established Church of England and Non-Conformists was a question of the reform of the multiplication table, the Anglican doctrine being that 12 times 30 was 354, while their opponents claimed that it was 365. Three hundred and sixty days is not a lunar year, nor did the Pharisees adopt a year of that length. The Sadducees, on the other hand, reckoned their religious festivals by the luni-solar year, as did the Pharisees likewise.

testimony of tradition and the conditions of the problem are in complete accord.

The average length of the month is 29 days 12 hours 44 minutes. But any particular month must be taken as containing a complete number of days, either 29 or 30. As the twenty-ninth day of the month drew to its close, and the time came for the offering up of the evening sacrifice, the appointed watchers for the new moon must have made themselves ready, so that directly the sun had passed below the western horizon they might carefully examine the whole neighbourhood of the sky where the sun had been seen to go down. If the thin crescent of the young moon was detected, then this day, which, on the disappearance of the sun, had just commenced, was not only the thirtieth day of the past month, it was also the first day of the new, and the trumpets of the new moon would be blown over the sacrifices. That day would have two numbers: in anticipation it would have been the thirtieth day of the month now come to a close, in realisation it would be the first day of the month just beginning. If no crescent moon was seen in the first hour of the thirtieth day of the month, then the search would have to be repeated the next evening, which would necessarily be the first of the new month, and the old month would have been declared to be full. Bad weather indeed might prevent the actual observation of the crescent on either day, but there could be no doubt that the month could not legitimately be stretched out to thirty-one days.

Tradition affords us actual examples of such a watch being kept for the new moon, one of the best known being the occasion of a dispute between the Rabbon Gamaliel, grandson of the Gamaliel of Acts v, 34, and other of the Palestinian rabbis some thirty years after the destruction of the Temple by Titus.

"Rabbon Gamaliel had on a tablet, and on the walls of his room various delineations of the figure and aspect of the moon, which he showed to ignorant witnesses, asking them, 'Was it of this figure or of that?' It happened once that two witnesses came and said, 'We saw the moon in the eastern part of the heavens in the morning and in the western part in the evening.' Then R. Johanan Ben Nourri declared them to be false witnesses; but when they came to Jamnia Rabbon Gamaliel received their evidence as valid. Two other witnesses came and said, 'We saw the moon

on its proper day, but could not see it on the next evening of the intercalary day,' and R. Gamaliel received them; when R. Dosah son of Arkenas said, 'They are false witnesses, for how can they testify of a woman being delivered, when on the next day she still appears with every sign of pregnancy?' Then R. Joshua said unto him, 'I approve your opinion.' Upon this Rabbon Gamaliel sent him word, saying, 'I order you to appear before me on the Day of Atonement, according to *your* computation, with your staff and money in your hand.' R. Akivah went to him and found him grieving. He said then to him, 'I can prove that all Rabbon Gamaliel has done is well done, for it is said, "These are the feasts of the Lord, holy convocations, which *ye* shall proclaim," either at their proper time, or not at their proper time, *their* convocations are to be considered as holy festivals.' When he [R. Joshua] came to R. Dosah ben Arkenas, the latter told him, 'If we are to reinvestigate the decisions of the tribunal of Rabbon Gamaliel, we must also reinvestigate the decisions of all the tribunals of justice which have existed from the time of Moses till the present day, for it is said (Exodus xxiv, 2), "Moses, Aaron, Nadab, Abihu, and seventy elders went up [to the Mount]." Why were not the names of the elders also specified? To inform us that every three men in Israel that form a Beth D'in [tribunal of justice] are to be respected in an equal degree with the tribunal of Moses.' Then did R. Joshua take his staff and money, and went to Jamnia, to Rabbon Gamaliel, on the very day on which the Atonement would have been according to his computation; when Rabbon Gamaliel arose, and kissed him on his [fore] head, saying, 'Enter in peace, my master and disciple! My master—in knowledge, and my disciple—since thou didst obey my injunction.' ”\*

There are several points in the above that call for comment: first of all, that thirty years after the destruction of the Temple by Titus, the beginning of the month was determined by observation of the crescent.

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\* *Mishna Rosh-ha-Shanah* ii, 8, 9. De Sola and Raphael's translation, 1845. The above quotation was kindly supplied to me by Dr. J. K. Fotheringham.

Further, the new moon, the date of which was in dispute between the rabbis on this occasion, was not the new moon of Tishri. The 1st of Tishri was a day of holy convocation, and such a day being one on which no servile work could be done, must, like the weekly sabbath, have its day of preparation. This the 1st of Tishri could never have if it could not be known beforehand on what day it would fall. If the crescent is seen in the sky, and the day fixed as the 1st of Tishri by that observation, then the day has itself begun before it can be proclaimed.

From what date, then, was the first day reckoned? No information is given us in the Law, but the necessary conditions of the case and the present practice of the Jews leave us in no doubt. It was reckoned from the 1st of Nisan. At the present time, the interval between the 1st of Nisan and the 1st of Tishri is always 177 days. So in the original Mosaic Calendar, when the 1st day of the Abib, the paschal month, had been determined, all the days of holy convocation would be definitely fixed for that year, and could be proclaimed at once. The new moon, which was in dispute, was therefore the new moon of Nisan, and Rabbon Gamaliel had already committed himself, either explicitly or implicitly, to the date on which the great annual fast would be held. Before the dispute was settled by the complete submission of Rabbi Joshua, the great feasts of the Passover, of Nisan 15 and 21, of Pentecost, and of the Feast of Trumpets, must have actually been held. Rabbi Akiva was quite right: the rabbis could not declare that all these feasts had been irregular and invalid.

#### THE JUBILEE CYCLE.

I have already tried to show that the Mosaic Calendar was simple, symmetrical and complete when regarded as a system of religious observances. The day, the month, and the year, each were severally sanctified. The seventh day, the seventh month, the seventh year received a special consecration, and a forty-ninth day (seven times seven), and a forty-ninth year, a yet further consecration in token of completeness.

Similarly, the relations between day, month and year, by which these seasons of observance were regulated, were also of extreme simplicity.

The only ambiguity in the length of a month was whether it should be of twenty-nine or thirty days; the only ambiguity in the length of a year was whether it should be of twelve months

or thirteen. And a very simple practical observation settled the question in each particular case. The forwardness of the season determined whether the twelfth month of the year should be a double month or a single one. The recognition of the crescent in the sky determined whether the thirtieth day of the month should bear that number alone, or whether it should be also numbered as the first day of the next month. For, representatively, the year was always taken as containing twelve months—no month was ever *numbered* as the thirteenth—and representatively the month was always taken as containing thirty days, although the thirtieth day sometimes bore two numbers. The length of the year, therefore, is, representatively, 12 times 30 or 360, although there never was and never could have been that actual number of days in a year.\*

The blowing of the trumpet of Jubilee, after the close of the great Day of Atonement, at the end of the forty-ninth year, saw the completion of the Mosaic Calendar. The Hebrew slave received his liberty, the Hebrew freeholder who had sold or forfeited his land entered again on possession. It was the time of "the restitution of all things"; it was also the time when sun and moon returned to the same relative position with respect to each other. The months and years again ran on the same course; the circle of the religious observances of the Mosaic Calendar was a cycle of the sun and moon.

Apart from any typical significance which may attach to this relation, its convenience would be great. The rulers of Israel, by studying the record of the past Jubilee cycle, and noting where the "embolismic" years occurred, that is to say, the years containing the intercalated months, would know with a close

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\* It is quite apart from my present purpose to enquire what typical or prophetic meaning may attach to the periods 1260 days, 42 months or "a time and times, and the dividing of time" (i.e.  $3\frac{1}{2}$  times) which we find mentioned in the book of Daniel and in the Apocalypse of St. John. But the *natural* and primary meaning is clearly this, that the month is *represented* by 30 days, and the year by 12 months. Consequently,  $3\frac{1}{2}$  years must be *represented* by 42 months, or 1260 days, and the expression points back to a time when men were little accustomed to deal in fractions. A striking example of this will be found in 1 Kings vii, 23 :—"He made a molten sea, ten cubits from the one brim to the other: it was round all about, and his height was five cubits: and a line of thirty cubits did compass it round about." That is to say, the proportion of the circumference of a circle to its diameter was taken as 3 instead of  $3\frac{1}{2}$  or, more accurately, 3.14159.

approach to accuracy when they might expect that observation would indicate intercalation in the near future. The Jubilee period is not a precise cycle: others are more accurate, and occasionally a very forward spring, or a very late one, might cause a deviation from the expected course. But in the great majority of years, the intercalation finally adopted would follow the indication which the Jubilee cycle had already supplied.

#### SOME GENTILE CALENDARS.

Of all nations, Israel is the one which has been most freely accused of borrowing its customs, its science, its philosophy, its religion from its neighbours. I think if I were a Jew I should be proud of the accusation, for the only possible comment is “how marvellously they improved the material they borrowed.” But without debating that question, they possessed one thing which was certainly their own—the Mosaic Calendar. No nation possessed a system of observances of this nature, at once so exalted on the religious side, and so accurate on the astronomical, and withal so simple and so complete.

“Israel went out of Egypt,” and we may take for example the calendar of Egypt. Here we have a purely solar calendar: twelve months, indeed, were reckoned to the year, but the months had no relation to the moon, and the year itself was so far from being a true solar year that its commencement travelled steadily down the months, and in 1461 years it made a complete journey through the seasons.

Take next the Babylonians: connected with Israel in origin, for Abraham came from Ur of the Chaldees; connected with Israel in later history, for it was to Babylon that the Jews went into captivity.

In early Babylonian times, before Abraham had left Ur of the Chaldees, the method of determining when the year was to be embolismic was by observing the crescent moon at its setting with Capella. If the two celestial bodies set together on the first day of the month Nisan, that year was normal; if, on the third day of the month Nisan, Capella and the moon set together, that year was full, *i.e.* contained thirteen months. The method was very simple, but was open to the objection that, owing to the precession of the equinoxes, the beginning of the year fell later and later. The year thus formed was a luni-solar one, and so far like that of Israel; but the particular solar year employed was the



solar-sidereal year not the solar-tropical year.\* It is, however, a year of immense archæological interest, for it preserves to us in the threefold symbol, commonly called the "Triad of Stars," so often found on Babylonian monuments, a record of the earliest astronomical observation of which we know, one that takes us back 6000 years.†

It is evident, then, that the Mosaic method of deriving the beginnings of their years differed essentially from the early Babylonian. It differed also in important points from the late Babylonian. Thus a number of tablets from the mound of Kouyunjik, probably of the age of Hezekiah, show that the equinox was determined at that time by direct measurement of the equality of day and night.‡ Later still, rather more than a century before our era, the Babylonians were computing the actual times of conjunction of the sun and moon, not merely observing the appearance of the crescent. It is evident, therefore, that the methods employed by the Rabbon Gamaliel and the other rabbis were not derived from the Babylonians, else they would have adopted, as a little later they actually did, the method of computation, which was free from the drawbacks attaching to the testimony of witnesses who might be ignorant or corrupt.

The Mosaic Calendar was very simple, but by its continual reference to observation it had a property which not even the Julian or Gregorian calendars possess: it could not get out of order. Both these Gentile calendars slowly slip from their correspondence with the natural year. But the Mosaic Calendar, the longer it was used, would give a value for the mean natural month and year which continually increased in accuracy.

#### THE MODERN JEWISH CALENDAR.

If we compare the Jewish calendar now in use with the Mosaic Calendar, we notice several important differences:—

1. Many more fasts and feasts are observed. The chief of these are four fasts mentioned in the book of Zechariah viii, 19,

\* "Preliminary Paper on the Babylonian Astronomy," by R. H. M. Bosanquet, Esq., and Prof. A. H. Sayce. *Monthly Notices, R.A.S.*, Vol. xxxix, pp. 454-461, also "Note on the Date of the Passage of the Vernal Equinox from Taurus into Aries," *ibid.*, Vol. lxiv, pp. 488-507.

† *The Observatory*, 1908, August, p. 303.

‡ British Museum "*Guide to the Babylonian and Assyrian Antiquities*," p. 53. Nineveh Gallery, Table—Case E, No. 57.

and the two feasts of Purim (Esther ix) and the Dedication of the Temple (I Macc. iv, 59; II Macc. i, 18; John x, 22).

2. The months, which are simply numbered in the Mosaic Calendar, are now named.

3. The beginnings of the months and the beginnings of the years are computed: not derived directly from observation.

4. The first month of the year is not the Paschal month, but Tishri, which in the Mosaic Calendar is the seventh month.

Now all these changes are the necessary consequence of one series of events; namely, the overthrow of the Jewish kingdom by the Chaldeans, the destruction of the City of Jerusalem, and especially of the Temple, and the carrying into captivity or dispersion of the bulk of the Jewish people.

The four fasts referred to in Zechariah viii are commemorative of the successive stages of that terrible catastrophe. The feasts of the Mosaic Calendar, so far as they are commemorative, hold the memory of another event: “when Israel went out of Egypt”: they recall the Exodus.

Up to the Captivity, none of the Babylonian month names are ever mentioned in any part of the Old Testament. In Zechariah, Esther and Nehemiah these names occur frequently, no fewer than seven of them being named, and these three books are avowedly and admittedly post-exilic.

The extract from the Talmud given on pp. 147, 148 is sufficient to show that a great effort was made to preserve the method of the Mosaic Calendar in making actual observations for the beginnings of the months. This method, so simple and easy, so long as the Jews were in their own land and under the heel of no conqueror, became impossible not long after the time of Gamaliel. In the reign of Hadrian, Jerusalem was again destroyed, and so far as was possible the Jewish race was extirpated, or at least exiled, from their fatherland. It was no longer possible for the Sanhedrin to meet in “the Hall of Polished Stones,” and receive the witnesses to the appearance of the crescent, and, by pronouncing the formula “it is consecrated,” decide that the new month had begun, for City and Temple and Sanhedrin had all been swept away.

Yet with a courage and tenacity unexampled in history, the Jewish rabbis, even after this overthrow, were taking measures, before long, to meet the necessities of their hard case. The new moons could no longer be declared from observation at the

moment, but they might be fixed in advance, and Hillel II (in A.D. 358) is reputed to have published the rules, previously kept secret, by which the calendar had been calculated and the festivals appointed.

The present Jewish calendar is computed on the same general lines as Easter in the Gregorian calendar: that is to say, advantage is taken of the fact that 19 mean solar years contain 6939 days  $14\frac{1}{2}$  hours, and 235 mean synodic months contain 6939 days  $16\frac{1}{2}$  hours, the two therefore differing only by a couple of hours. The discovery of this cycle is attributed to Meton—about 433 B.C.—and it is therefore known as the Metonic cycle. It supplies the “golden numbers” of the “Introduction to the Book of Common Prayer.”

As the moon in its motion round the earth varies a good deal in its angular velocity, the movements of a mean moon, travelling uniformly, are substituted for those of the actual moon, and the month is taken as beginning with the conjunction of this mean moon with the sun. It follows, therefore, that the beginnings of the Jewish months can be rigidly computed for a long time in advance without any ambiguity or discordance arising from the latitude and longitude of the special place to which the calendar is to be applied. Like our computations for Easter, it is intended for universal application, not merely local.

This great difference between the Mosaic Calendar and the modern Jewish calendar was necessary and fundamental. When the nation was in the land which the Lord their God had given them, then the determination of the new moon and of the embolismic month could be made directly, could be adopted by one single authority, and made known to the whole nation immediately. Now, when the Jews are scattered over the whole world, the only possible method by which perfect unanimity in the decision as to sacred days can be attained is by fixing them by computations based on a definite plan, and made long in advance.

The cycle adopted for the present Jewish calendar is not the Jubilee cycle, but the Metonic. The practical difference between the two, in pointing out when a month was to be intercalated, may be seen from the following table. The embolismic years, according to the Metonic cycle, are generally given as under:—

- 3    6    8    11    14    17    19

The order is then repeated.

The succession in the Jubilee cycle would run :—

3	6	8	11	14	16	19	22	25
27	30	33	35	38	41	44	46	49

In a period of 931 years the Metonic cycle would indicate 343 intercalary months and the Jubilee cycle 342, *i.e.* one month in defect. For a period not exceeding one Jubilee cycle the two cycles would give the same result.

The prediction of the date of the conjunction of the mean moon—the assumed moon, moving regularly—with the sun, derived from the Metonic cycle, is subject to a number of rules by which the adoption of the first day of the year, and, indeed, of the first day of each month, is controlled, and in many instances diverted from the exact date of predicted conjunction. The chief reason for most of these rules is connected with the sacred observances of the “seventh month,” now known as the month Tishri, and the first month of the Jewish year. This month contains, as we have seen, four days of holy convocation beside the weekly sabbaths. But in so hot a climate as Palestine it would be impossible to fulfil the observances of the sabbath for two consecutive days. Therefore, as the weekly sabbath cannot be altered, the holy days must be so arranged that no one of them falls immediately before, or immediately after, the day of the weekly rest. If we may translate this regulation into our Gentile nomenclature, it would amount to saying that neither Friday nor Sunday could be made a holy day, because Friday precedes and Sunday follows the sabbath.

The years of the Jewish calendar are of six kinds: there are three common years of twelve months each; three embolismic years of thirteen months each. Both common and embolismic years may be “deficient,” “regular,” or “abundant.” That is, the common year, if regular, will contain 354 days, but if deficient 353, if abundant 355. Similarly the embolismic year, if regular, will contain 384 days, but 383 if deficient, 385 if abundant.

The first of Tishri, New Year’s Day, the Feast of Trumpets, can only fall on one of four days—Monday, Tuesday, Thursday or Saturday. In a regular year, if common, it can only fall on Tuesday or Thursday, if embolismic only on Tuesday.

The seventh month of the Mosaic Calendar was not only pre-eminently the month of worship: it was, as we have seen, the only month of which the first day was not fixed by direct and

immediate observation. This is nowhere laid down in the Law, but can be surely inferred from the Law itself. And similarly, as already pointed out, it follows that the first day of the seventh month was rigidly connected with the first day of the first month. Twenty-five weeks and two days separated the two *always*, no matter what the character of the year, even as they do to-day. The month of the Passover was not fixed to be the first month, and the index for all the great days of the year, by accident. The new moon of spring-time would give the most decided determination of any month in the year, for then the moon is moving most rapidly northward, and consequently the interval of time between sunset and moonset increases most rapidly from one evening to the next.

The determination of the first day of the month Abib fixed the determination of the Feast of Trumpets, and of all the days of holy convocation. The dates, therefore, of all the religious observances of the Mosaic Calendar for any year were fixed directly the beginning of its first month was determined. But not of the following year: that must have been the subject of fresh observation. Year by year, in the original calendar, the state of the readiness of the crops, and of the lambs for the Paschal feast, must have determined the time when the Passover would be held, and consequently all the subsequent feasts of the year.

#### WHEN DID THE MOSAIC CALENDAR ORIGINATE ?

The little table annexed may serve to give a more distinct impression of the scheme of the Mosaic Calendar, and to bring out its simplicity, harmony, and completeness. It is evidently an essential unity, the product of a single mind: not the chance coming together of diverse and unrelated tendencies.

THE MOSAIC CALENDAR.			
	DAY.	MONTH.	YEAR.
UNIT.	Beginning.	Morning.	New Moon.
	End.	Evening.	Spring (PASSOVER). Autumn (TABERNACLES).
SEVEN.	Beginning.	Sabbath.	<i>Feast of Trumpets.</i> Month of Worship (with Day of Atonement). Sabbatic Year.
SEVEN times SEVEN.		PENTECOST.	Year of Jubilee.

When did this calendar originate? The four last books of the Pentateuch expressly assert that it originated at the Exodus. Thus the book of Exodus takes up the sabbath and the sabbatic year, the three great “Pilgrim” feasts, and the continual daily burnt offering. The book of Leviticus does not expressly mention the continual burnt offering, but adds the special rites of the seventh month, that is to say the Feast of Trumpets and the Day of Atonement. It also adds directions for the Jubilee. The book of Numbers adds the regulations for the new moon, thus completing the scheme of the Mosaic Calendar, the whole of which is therefore referred to in this book. Deuteronomy gives the law of the sabbath day, and of the sabbatic year, and enacts the observance of the three “Pilgrim” feasts.

Current theories, on the other hand, reject the idea that the Mosaic Law was given in the wilderness, and divide it, as regards its date, into three chief portions:—

1. The Book of the Covenant, Exodus xx, 22–xxiii, 33. This is assigned to an early date under the kings.

2. Deuteronomy; the book brought to the notice of King Josiah by Hilkiah the priest, and supposed to have been written not long before, or at earliest under the reign of Manasseh.

3. The remainder of the Law as given in these four books is generally entitled the Priestly Code, and is believed to have taken form long after the return from the Exile and the founding of the second Temple. The mission of Nehemiah to Jerusalem, B.C. 445, may be taken as a representative date.

From the point of view of the Mosaic Calendar, as distinguished from the Law in general, the Book of the Covenant gives the sabbath day and the sabbatic year with the three great “Pilgrim” feasts. Exactly the same items are given in Deuteronomy. So far, therefore, these two books are of the same epoch. Both the sabbath day and the sabbatic year are ordained in them, and the three great annual feasts, Passover, Pentecost, and Tabernacles.

But these five details, though of immense importance, give no means for forming a calendar, and indicate no method by which the actual times of the three feasts of universal obligation were to be fixed. It is only by including the regulations of the “Priestly Code” that we get the compact symmetry of the whole Calendar. It is only in Numbers that the regulations are given for the observance of the new moons which made the framework of the Calendar; it is only in Numbers and

Leviticus that the Law of the Jubilee is referred to, which encloses the whole circle of religious observations in an astronomical cycle reconciling the natural month with the natural year.

Was this systematisation never effected until long after the return from Babylon? Because by that time four solemn fasts had been established, fasts that are observed to this day. Three of these commemorate three stages in the Siege of Jerusalem under Nebuchadnezzar. The fast of the tenth day of the tenth month commemorates the investment of Jerusalem; of the ninth day of the fourth month, the storming; of the tenth day of the fifth month, the burning of the Temple and city; of the third day of the seventh month, the assassination of the governor Gedaliah, which resulted in the abandonment of Judæa by a large portion of the remnant still remaining there.

If the Mosaic Calendar was not already in existence as such, *i.e.*, if chapters xxiii, xxv, xxvi and xxvii of Leviticus, and chapters x, xxviii, and xxix of Numbers were not already in the possession of the Jews, how could these chapters have afterwards been successfully introduced as enactments made a thousand years earlier by their great legislator? All Jews would have known that the four fasts which they had faithfully kept year by year for several generations had never stood in a framework of monthly sacrifices such as were now sought to be newly established, or been arranged in accordance with the cycle given by the Jubilee every forty-ninth year.

But though the command to consecrate the new month by sacrifice—the formula by which in later times the beginning of the new month was proclaimed was, “It is consecrated”—is only recorded in Numbers, asserted to be post-exilic, yet that the new months were so consecrated is distinctly mentioned in books admitted to be long anterior to the Exile. In the touching record of the parting of David and Jonathan, and when the Shunammite mother went to Elisha to tell him of her loss, the new moon is referred to as a day of regular observance. The prophets, Hosea and Amos, who lived in the days of Jeroboam II, both bear witness that the new moons were days of holy observance. The Mosaic Calendar was, therefore, familiar in its completeness in the kingdoms both of Israel and Judah, not only before the Babylonian Captivity, but before the Assyrian. And the incident of David and Jonathan shows that we must put it back earlier still: to the days when the Tabernacle was still the shrine where Jehovah was worshipped.

The two great post-exilic feasts, Purim and Dedication, teach the same lesson as the four fasts of the Captivity: they witness that they are additions to the Mosaic Calendar, not original parts of it. The fact, to which I have had to draw attention so often, that the Jewish calendar is luni-solar, bringing together the day, the month, and the year, no two of which measures of time are commensurable, implies that there must be some elasticity in the calendar, some "play" by which the necessary adjustments can be made, some method by which the day may be made to fit the month and the month to fit the year. Now the Mosaic Calendar is rigid in the half of the year from Passover to Tabernacles, and elastic in the remaining half. Purim and Dedication fall in the elastic half, and so does the fast of Tebeth, which commemorates the investment of Jerusalem in the great invasion of Nebuchadnezzar.

If it be the fact that the Mosaic Calendar as a complete system was not instituted until post-exilic times, how is it that there is only one case in the whole of the Old Testament in which there is a departure from the Mosaic numeration of the months, a departure from the acceptance of the Paschal month as the first month of the year? That instance is in the book of Nehemiah ii, 1, "in the twentieth year of Artaxerxes the king," 145 years after the siege of Jerusalem.

The fundamental objection brought against the assertion of the four books of the Law—that they were given during the wanderings in the wilderness—is that many of its regulations look forward to a time when Israel should be in possession of a fruitful land. But this fact is perfectly recognised in the narrative. In the Feast of Unleavened Bread the sheaf of the firstfruits was to be waved "when ye be come into the land which I give unto you." All the three great feasts of obligation were explicitly for the Promised Land, not for the desert. Where is the impossibility of the Law having been given in anticipation, and, if given, of being accepted as such?

From the beginning to this present day Israel has been the nation of Promise: its gaze has been forward from the time that Abraham came forth from Ur of the Chaldees. He, and his descendants, have lived in the faith that God had given to them a Promise, and in the sure and certain hope that He would fulfil it. No nation has passed through so many disasters, or disasters so overwhelming. Yet it has never lost heart. For 1850 years it has been "without king or priest, without city or



country, without nobles or parliament, without army or navy, without revenue or exchequer. Its ambassadors are not found at the courts of the nations; treaties are not made with it;” yet it lives a nation still. How is it, then, that it lives? It lives by hope. It still observes the four fasts of the Captivity, observes them as fasts, but remembers the words of Zechariah, “the fast of the fourth month, and the fast of the fifth, and the fast of the seventh, and the fast of the tenth shall be to the house of Judah joy and gladness, and cheerful feasts” (Zechariah viii, 19), though 2504 years have already gone by since the catastrophe which those fasts commemorate.

If Israel could look forward for twenty-five centuries, as we know it has done, to the fulfilment of the prophecy of Zechariah, why should not their forefathers have been able to look forward for the few weeks which intervened between their muster on the plains of Moab and their entry into the Promised Land?

And have the events of the past two years given no encouragement to them to hold yet more firmly to their Passover hope:—“This year here,—next year in Jerusalem”?

#### DISCUSSION.

HAROLD M. WIENER, Esq.—Professor Margoliouth, Mr. Maunder, ladies and gentlemen. As I have no astronomical knowledge, I regret that it is impossible for me to add anything to the discussion of Mr. Maunder’s admirable paper in its narrower aspect. But it also has a wider aspect—that of an attack on the current critical position and a defence of more conservative views against a so-called consensus of scholars; and since you have been kind enough to invite me here and to give me an opportunity of addressing you, I think that perhaps I can best show my gratitude by indicating briefly how his general attitude is being supported from other sides.

While it is true that outwardly the position with regard to the Pentateuchal question is more or less the same in this country as it has been for many years, it has undergone a great change abroad. Kuenen was one of the greatest leaders of the critical school; yet, by an irony of fate, his old review, now edited by the Leyden faculty of theology, is the only technical journal in Europe that will publish English conservative work. Here the wheel has gone full circle. Holland possesses three state universities; in two it is taught that

the current view is wrong, in the third it is treated as an open question. Even more important than Holland in higher critical leadership is Germany. When the war came the younger theologians in that country had begun to publish monographs debating positions once deemed unshakably established. In America, where the conditions used to be as bad as in England, we have at last succeeded in forcing higher critics to see that not all scholars are agreed, and to discuss the necessity of modifying the "assured results" of modern criticism.

In the main these changes are being wrought by two factors, textual criticism and archæology, and it will perhaps be best that I should utilise the few minutes at my disposal in giving you some idea of one of the results of recent research, which, owing to the conspiracy of silence, cannot be published in this country, though it has appeared in Holland and America.

You are all familiar with the fact that in 1753 Jean Astruc, a French physician, made a suggestion which has formed the starting-point of all subsequent higher critical work, viz., that different divine names in Genesis point to difference of source. In its modern form the theory is that where the ordinary English versions print LORD (in small capitals) we are to see a document J, while where they have God, we must recognise E or P. The hypothesis never explained the facts adequately, for it was necessary to postulate redactors, revisions, improbable interweaving, &c. ; and of late years it has been greatly discredited by the evidence that Jerome and the LXX had texts that differed greatly from our current Hebrew in this matter. Nevertheless it was possible for the documentary theorists to argue that even if individual modifications were necessary, they would not affect the main outlines of the hypothesis, which would stand even if a number of verses had to be transferred from J to E or P, or *vice versa*.

We now come to something that has not yet been published in this country. There is strong evidence that Old Testament texts have undergone extensive revision at the hands of men whose minds were dominated by supposed Divine commands drawn from their interpretation of Biblical texts. If a man be persuaded that a text containing a message from God has a particular meaning, then for him that interpretation is itself a message from God, and it becomes his duty to execute any directions he may understand it to contain.

And this principle of emendation was reinforced by the fact that some books of the Old Testament presented readings which, as times changed, began to endanger monotheism. An illustration will make the matter clear. A Christian will use the expressions our **Lord**, our Master, Jesus, Christ, Jesus Christ, without any appreciable difference of meaning in nine cases out of ten. Occasionally there will be passages where metre or some consideration of euphony or sense will dictate the choice of one of these expressions to the exclusion of the others, but in the great bulk of the occurrences they are practically interchangeable. But suppose that Christianity were in contact with some heathen religion in which the word master was applied to some totally different god, and suppose further that its use of Christ could lead to dangerous misunderstandings which might threaten the faith of the ignorant. It might then become necessary to revise documents in which any such appellation occurred by substituting one or other of the alternative expressions.

This has happened in all the older books of the Hebrew Bible. The offending word was Baal—which only means lord, master, owner—and is to this day freely used among Jews in certain connections. In the days of Moses, and for long after, it was applied without objection alike to Israel's God and to other Semitic deities. But a time came when a change set in, because the Hebrew faith was menaced by the worship of other Semitic baals, for instance, by the belief in the Phœnician baal in the days of Ahab. Objection was taken to the word on the ground of certain remarks of the prophets. Later, passages like Hos. ii, 16 f. were treated as canons of emendation, and changes were consequently made in the texts. It has long been recognised that bad words, such as *bosheth*, shame, had been substituted for Baal, as is shown by the comparison of our extant materials. Where, for instance, a man is called Ishbosheth (man of shame) in one passage, and Ishbaal (man of Baal) in a parallel passage or an ancient version, there can be no doubt, as to what has happened. The new element consists in recognising that not merely bad words like shame, but good words like God, LORD, &c., have frequently replaced an original Baal. This editorial principle is responsible for phenomena in Genesis which Astruc sought to explain by the hypothesis of a combination of different documents. For instance, the original name of Jacob's eldest son was Reubel (seen of Bel or Baal), and the explanation of that name will have

contained the word Baal. For this the Tetragrammaton has been substituted. But if the author wrote “the Baal,” the view that the passage is an excerpt from a document that used the Tetragrammaton falls to the ground, and the theory of a J writing becomes impossible.

As already remarked, in most instances such a substitution could be effected without damage to the sense, but not in all. An example may be given from Kings and Chronicles, where, by the way, we see not merely the contradictory but the contrary of the documentary hypothesis in actual operation. Instead of having a compilation of one book from two sources, a J and an E writing, we find two books reproducing a single writing, the one often adopting a J form (in the received Hebrew), where the other presents E characteristics. In 1 Kings xxii, 11 Chron. xviii, Ahab consults no fewer than four hundred prophets, who return an answer that some deity (*Adonai*, according to the received Hebrew of 1 Kings xxii, 5, the Tetragrammaton according to 29 Hebrew MSS. and several ancient versions, *Elohim* according to Chronicles) “will deliver it into the king’s hand.” Thereupon Jehoshaphat said: “Is there not here a prophet of the LORD (so Jerome and the best Greek texts; our Hebrew adds ‘besides’) that we might enquire of him?” This makes no sense if the opinion of four hundred prophets of the LORD had just been given, and accordingly we find that no commentator can explain the passage satisfactorily; but the whole narrative becomes good sense and true to the historical character of Ahab, the baal-worshipper, once we realise that the original document presented “the baal.” We see, too, how different substitutions have given varying readings in our authorities.

I must not trespass further on your kindness, but perhaps I may venture to express the hope that even this very inadequate indication of one of the lines of recent research may serve to confirm your belief in the general soundness of Mr. Mauser’s position.

Rev. MARTIN ANSTEY, B.D., M.A.: There are two ways of constructing a calendar. The first is the primæval Biblical method of direct observation, and the second the modern scientific method of astronomical calculation. The first is the method of Moses in the Old Testament, a method at once simple, untechnical, and incapable of correction because incapable of falling into error. The

second is the method of ancient and modern astronomers of Julius Cæsar and Pope Gregory, a method highly technical, involving constant alteration and incapable of attaining accuracy or finality, because the problem it seeks to solve involves the relation of two mathematical quantities by nature incommensurable.

The method of Moses is that of watching the state of the crops, and looking out for the first appearance of the new moon in the spring of the year. Time is measured by revolutions of the sun, which are determined by direct personal observation of the return of the spring. Every spring the ripening of the barley marks the commencement of a new year. The first new moon that appears after the barley is ripe makes the day on which it appears the first day of the first month of the new year. The period of the revolution of the moon is  $29\frac{1}{2}$  days. Each month is therefore a natural period of either 29 or 30 days. On the 30th day of the month in which the barley ripens a sharp lookout is kept. If the moon appears on that day, it is the first day of the first month of the new year, and the previous month has only 29 days. If the moon does not appear on that day it is the 30th day of the old month, and the following day is the first day of the first month of the new year. All these facts were obtained by direct observation by the naked eye. The Biblical year is the luni-solar year. Moses measures time by the revolutions of the sun; but the years of the moon are pinned down to the years of the sun. Having ascertained the first day of the first month of the new year by direct observation, all the feasts are regulated by direct reference to that day, the 1st Nisan. The Passover was killed on the 14th of Nisan. Pentecost, the Feast of Weeks, was held exactly seven weeks later, and the Feast of Tabernacles on the first day of the seventh month of the year. The resulting system was perfect and self-adjusting. It required neither periodic correction nor intercalation.

The second method of constructing a calendar is the modern scientific method of astronomical calculation. Compared with the Biblical method it is intricate, inexact, and incapable of arriving at a result which shall be at once final and correct. It is therefore in need of periodic correction, which as, is well known, has frequently had to be applied.

Mrs. WALTER MAUNDER desired to make two remarks with regard to the 1st of Tishri. The book of Nehemiah puts the Chisleu of the

20th year of Artaxerxes before the Nisan of the same year, thus suggesting that Tishri had been taken as the first month. Nehemiah was in Shushan, the palace, when the events of which he spoke occurred, and Artaxerxes was one of the earlier Persian kings. In the book of Esther, it is recorded that Haman the Agagite, also in Shushan, the palace, cast lots “in the first month, that is, the month Nisan, in the twelfth year of King Ahasuerus, they cast Pur, that is, the lot, before Haman from day to day, and from month to month, to the twelfth month, that is the month Adar.” This seemed to indicate that at that date the Persians had not decided at what point in the year they should reckon its beginning. Later, under the Arsacids, the Bundahish gives the rules for the calendar distinctly. The year began with the spring equinox, not with a new moon, and there were twelve months in the year, which were not natural months or lunations.

Also under the Mosaic law, the 1st of Tishri was a festival upon which no servile work should be done. The Mosaic law was binding on the whole Jewish nation, both men and women, not on the priest and Levite alone, nor merely on the Rabbi, who devoted himself to the study of the law. Now the bulk of the nation was composed then, as now, of tradesmen and tradeswomen, the housewives in the home and the labourers in the fields. It would not be possible for the labourer to know that he must not be found treading the winepress, nor the “virtuous woman” laying her hands to the spindle as her candle goeth not out by night, nor making fine linen and selling it, on the solemn Feast of Trumpets, if it were only proclaimed as such after its new moon had been observed. Before the beacon fires had been lit, or the runners had reached them, the whole nation would have already profaned this most holy “Sabbath” on which it was commanded “ye shall do no servile work.”

REV. W. LAPORTE PAYNE alluded to the statement of the late Dean Burgon that if the Mosaic Calendar is applied to the story of the Flood all the events narrated except one occurred on a seventh day.

DR. A. T. SCHOFIELD said: When I was at Lemach, a station at the southern end of the Sea of Galilee on the Damascus line, I found a difficulty in discovering when the train was expected. At last I found a time-table where the arrival at Lemach was 11, but it came

not. Afterwards I found that the hour meant 11 *hours after sunrise*, which that day was about 4, so I had a wait till after 3 p.m. From this one sees in what close touch the near (and indeed the far) East has ever kept with the heavenly bodies.

I am glad Mr. Maunder has been careful to print that dangerous word Mosaic with a capital M. I was present at his election some years ago as the Secretary of the Victoria Institute, and Professor Sayce then pointed out to me the great value of the capital letter. He had come up to lecture on the Mosaic origin of the Pentateuch, and the *Times* unfortunately printed "mosaic" with a small "m," to the Dean's great distress.

The learned lecturer pointed out the great unity of thought that pervades the Hebrew Calendar, and also its Mosaic authorship. But although Moses was learned in all the wisdom of the Egyptians, he did not derive his luni-solar and unique calendar thence, for theirs was purely solar. He derived it from Jehovah alone. Now the calendar with its casual intercalated month was suitable enough for the leisurely pastoral people of the near East. In the west we have a different calendar altogether; but it is well worthy of remark that whatever our belief or unbelief all our letters are dated from the birth of Christ. He regulates all time for Gentiles as well as for the Jews, for He is the centre of the Universe and of all in it.

#### WRITTEN COMMUNICATION.

The Rev. D. R. FOTHERINGHAM, M.A., F.R.A.S.: On page 147, I am not sure about "appointed" watchers. The Temple authorities seem to have expected unofficial or casual reports. Still in practice, I expect they would be a fairly regular band of enthusiasts.

On page 149, I think too much is made of a fixed calendar from Nisan to Tishri. For the 1st of Tishri, the utmost that would be needed would be extra care in observing the beginning of the sixth month. I think, too, I am right in saying that the runners *did* announce the appearance of the crescent on the 1st of Tishri; and it was considered so important that if the day was a Sabbath, they were allowed to profane the Sabbath in order to bring their tidings in time. Still there is an obvious advantage in fixing the sixth month as the runners might easily find the priests had anticipated their tidings.

Dr. J. K. FOTHERINGHAM, M.A., F.R.A.S. : There is very little in Mr. Maunder's paper, “The Mosaic Calendar,” which I could wish either to correct or to supplement. I should, however, be inclined to endorse the accepted view that the feast of ingathering is said to be “in the end of the year” rather because it comes at the end of the year's agricultural operations than because it closes “the bright part of the year.”

I fear that I cannot agree with Mr. Maunder that the new moon described in the anecdote cited from the Mishna was not the new moon of Tishri. It seems clear that the dispute took place a few days after the observation of the new moon, and was followed by R. Joshua's journey to Jamnia on Tishri 10 of his computation. Moreover, as we shall see, there is strong evidence that the new moon of Tishri was fixed by observation, and, if so, it was only the new moon of Tishri that could affect the date of the fast of the Atonement. In Tishri the altitude of the moon at sunset would increase slowly from night to night, and the detection of the crescent one night could more easily be followed by a failure to detect it in a clear sky the following night in that month than in any other month. Neither the Mishna nor the Talmud knows anything of a fixed period of 177 days for the first six months reckoned from Nisan. The Babylonian Talmud does, however, know of a means adopted by some rabbis that Elul, the month preceding Tishri, could never contain more than 29 days. In fact there are passages in the Mishna (Rosh-ha-Shana i, 3, 4; Erubin iii, 7, 8), which imply that uncertainty could exist as to the date of the beginning of Tishri.

I quote from my paper on “Astronomical Evidence for the Date of the Crucifixion” in *The Journal of Theological Studies*, xii (1910), pp. 125, 126 :—

“This difficulty [viz. that of enabling the Jews of the dispersion to know on what day the new month was commencing at Jerusalem] would be most seriously felt in the months of Nisan and Tishri, which contained the most solemn days of the Jewish calendar, and in particular at the festival of the new year [or Feast of Trumpets] which fell on the first day of Tishri, and which might easily have to be celebrated before news could come from Jerusalem announcing the sanctification of the new moon. The Mishna is not unaware of this difficulty, and mentions some rules adopted for the benefit



of the Jews of the dispersion. Beacons were lit, and afterwards messengers were sent to announce the new moon. Nisan, Elul, and Tishri were all among the months when messengers were dispatched at the date of the Mishna.\* The messengers in Nisan are said to have been sent for the sake of the passover, those in Elul for the sake of the new year, and those in Tishri to fix the other holy days (apparently the day of atonement and the feast of tabernacles). It will be observed that this left open a little uncertainty about the date of the new year festival, as the Jews away from Jerusalem had only the Elul and not the Tishri new moon to guide them. The messengers do not appear to have gone beyond Syria, though the beacons which were used at an earlier date carried the news as far as Babylonia. The more distant Jews might in consequence be in doubt not only of the correct date for the new year's festival, but of the dates of the feasts of passover and tabernacles as well. A simple device for remedying the difficulty is mentioned in the Mishnaic tract *Erubin*, where R. Judah is quoted as authorising the doubling of the new year's festival where uncertainty exists as to the duration of Elul.

“Such a rule, though devised for the convenience of the Jews of the dispersion, was capable of very inconvenient expansion. We learn from both Talmuds that some of the more zealous went the length of doubling the fast of the atonement when uncertain as to the length of Elul, and the father of Samuel b. R. Isaac is said to have died in consequence of his prolonged fast.†

“But the difficulty affected the Babylonian Jews more than those of Palestine, and hence it is only in the Babylonian Talmud‡ that we read of the less laborious solution mentioned by Mr. Turner [*i.e.* limiting Adar to 29 days in all years]. Here§ we find it vehemently asserted by certain rabbis belonging partly to Babylonia and partly to Palestine, and denied with equal vehemence by others, that Elul could never contain more than 29 days, and that either the

\* *Rosh-ha-Shana*, i, 3, 4.

† *Erubin*, iii, 7, 8.

‡ See the Jerusalem Talmud on *Rosh-ha-Shana* in *Talmud de Jérusalem*, &c. Schwab vi (1883), p. 68.

§ *Rosh-ha-Shana*, 19<sup>b</sup>-21<sup>a</sup>. See *Der Babylonische Talmud*, ed. Lazarus Goldschmidt, iii (1899), pp. 343-347.

Adar followed by Nisan or even both Adars in an intercalary year were similarly limited, though the duration of the other months was by universal consent to be determined by observation.

“R. Hanina b. Kahana even asserted on the authority of Rabb that, since the time of Ezra, Elul had never had more than 29 days. In a like vein R. Simai testified in the name of Haggai, Zechariah, and Malachi that each of the Adars might be either 29 or 30 days in length. Both sides declared that the custom of the diaspora supported their view of the length of Adar. Whatever the theory may have been, there are several instances quoted in the Babylonian Talmud where Elul was actually given 30 days. It is therefore not surprising that what appears to have been the older expedient should also have received an expansion. R. Zera is said to have proposed in the name of R. Nahman to double the feast of the passover, and R. Johanan finally gave orders to double the festivals both in Nisan and in Tishri. The doubling of the festivals and the limitation of the duration of the preceding month would appear to be in the nature of things alternatives, each of which rendered the other unnecessary. It is therefore not a little remarkable that Jewish scrupulosity should have ultimately adopted both expedients.”

Although the new moons in the ages represented by the Mishna and Talmuds were determined by observation, the Elephantine papyri show that among the Jews in Upper Egypt in the fifth century B.C. strict calendar rules were employed which aimed at making each month begin at the sunset following mean new moon. See my paper, “A Reply to Professor Ginzler on the Calendar Dates in the Elephantine Papyri,” *Monthly Notices of the Royal Astronomical Society*, lxxi (1911), pp. 661-3.

On the question of intercalation, I may perhaps be permitted to quote from an unpublished paper of my own:—

“The Jewish intercalation was still irregular, and was determined annually at the time represented by the Talmud. According to that work regard might be had to the state of the roads, the bridges, and the passover-ovens, to the possibility of pilgrims who had already started, arriving in time for the passover, to the growth of the goats, lambs and pigeons, of the corn and of the fruit, and to the number of days that had to elapse before the equinox. Intercalation, according to some rabbis, was to be avoided in a year of famine and in a sabbatical year, and a court might be influenced by the fact

that the next year would be or the last had been a sabbatical year. In fact almost anything might affect the decision except the place of the year in a cycle."\*

I know of no authority for regarding the Jubilee period as a cycle of intercalations.

I do not think Mr. Maunder has consulted the best authorities on early Babylonian intercalation. There are few subjects on which the older papers have been so completely superseded. The subject is very fully discussed in the light of our present knowledge in Father Kugler's *Steinkunde und Steindienst in Babel*, II Buch, 2 Teil, 1 Heft (1912) and *Ergänzungen zum I and II Buch* (1913), and Father Kugler's conclusion is that in the time of the first Dynasty of Babylon, contemporary with Abraham, intercalation was irregular.

I imagine that the tradition that Hillel's calendar contained rules observed, but kept secret, before its publication, is merely a part of a Jewish tendency, observable also in the so-called "oral law" to claim an immemorial antiquity for what was really a late development.

On p. 159 Mr. Maunder refers to Nehemiah ii, 1, as a departure from the Mosaic numeration of the months. I cannot admit that. There is no instance either in the Old Testament or in the Apocrypha of the months being numbered from any point except the new moon of Abib or Nisan. But it does not follow that the years were numbered from the same point. Nehemiah clearly numbers the years of Artaxerxes from the new moon of Tishri, and thus the ninth month comes before the first. Why not? It is curious that in the contemporary Elephantine papyri the Jewish month-names are always associated with years reckoned from the new moon of Nisan.

REV. A. H. FINN: (p. 136) "for signs and for appointed assemblies" (seasons). The Hebrew word "Oth" means a sign, in the sense of a token which signifies (*e.g.*, the rainbow was the sign of the Covenant with Noah; circumcision, of that with Abraham; the Plagues were signs as well as wonders); it can hardly be taken as equivalent to signals. "Mo'ed" is used for "appointed time" where assemblies are out of the question (Gen. xvii, 21, xviii, 14, xxi, 2; II Sam. xx, 5).

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\* *Babl. Talmud*, Synhedrin 10<sup>b</sup>-13<sup>b</sup>, ed. Goldschmidt, vii (1902), pp. 32-43.

“ Ohel Mo'ed ”; in A.V. “ the tabernacle of the congregation ”; R.V., “ the tent of meeting.” Neither of these renderings are quite satisfactory. The A.V. would require the definite article before Mo'ed; the R.V. restricts the meaning. The verb Ya'ad seems to have for its root significance the idea “ to fix ” or “ to appoint.” God promised to *meet* Moses and the Israelites at the Tent, but that was not its only purpose. It was the place *appointed* as God's Dwelling (Mishkan) where the Ark, the Candlestick, the Table of Shewbread, and the Altar of Incense were appointed to be. It would seem better, then, to take Ohel Mo'ed as “ the Tent of Appointment,” *i.e.* the Appointed Tent.

Thus *Mo'ed* means that which is appointed, either of time or place, and as it is used quite generally of time in Gen. i, 14, to introduce “ assemblies,” reads into the text more than it actually says. “ Appointed times,” as in Lev. xxiii, 4, is the preferable rendering.

P. 139, “ the month does not supply so close an analogy with the day as does the year.” But the lunar month also has its two parts. In Burma the days are never reckoned for a complete month; it is always, Such and such a day of the Waxing, or of the Waning, as the case may be. Is not the fixing of the 15th day (the day after full moon) for the beginning of Passover and Tabernacles a recognition of this division ?

P. 138, “ This month shall be unto you the beginning of months ” suggests that some other reckoning had been in use previously. Exod. xxiii, 6 places the feast of ingathering at “ the end of the year,” and xxiii, 22, “ the revolution (or circuit) of the year ” agrees. May it not then be that, until the Exodus, the Israelites went by the agricultural year ending with the completion of harvest ? That would account for the present Jewish *civil* year beginning with the festival of Rosh-ha-Shanah in the autumn. There may be a trace of this earlier still. The Deluge began on the 17th day of the second month (Gen. vii, 11), and the waters began to decrease on the 17th day of the seventh month (viii, 3, 4).\* If these months were reckoned from the end of harvest, they would correspond roughly to November and April, and the prevalence of the waters could correspond to the winter period (still termed in Arabic *Shitta*, the

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\* Does not the equating of these 5 months to 150 days imply a year of 360 days ?

Rain) beginning with "the former rain" and ending with "the latter."

If this year was the ancient system, and the transference of the "beginning of months" was due to God's decree concerning the Passover, then the arrangement by which the calendar was automatically adjusted to the luni-solar year is of Divine origin.

The commencing of the year with the slack time (after harvest) agrees with the Oriental practice of commencing a day with the previous eve (see Gen. i, 8).

P. 155. Was not the Jubilee cycle one of 50 years? The Jubilee year was proclaimed in the 49th, but the Jubilee year was the 50th (Lev. xxv, 10). Would this affect the reckoning of the intercalary months, or did that run on independently of the Jubilee?

Lt.-Col. G. MACKINLAY: Mr. Maunder's explanation of the details of the Mosaic calendar are most instructive, and expressed in clear, terse language. His consequent deduction of the early date of the Pentateuch therefore seems to be correct.

It is stated in the book of Leviticus (xxiii, 10, 15, 16) that the feast of harvest was as long as seven weeks after the waving of the sheaf, "the firstfruits of your harvest." Where is the parallel to this observance in the Babylonian Calendar?

But this arrangement readily follows from the conditions described in the Pentateuch of the wave sheaf, commemorating the season of the first Passover observed in Egypt, just before which we are told "the barley was in the ear, but the wheat and the rye were not. . . . grown up" (*cp.* Ex. ix, 32 with xii, 14).

In the Promised Land the climate of the hot Jordan Valley resembles that of Egypt (Gen. xiii, 10). Sheaves could therefore be sent from thence for the wave offering at an early time in the year, while the main harvest in the Judæan plains, some thousands of feet higher, would come much later.

Surely the Jewish celebrations connected with harvest point to some ancient connection between the Holy Land and Egypt, and not to a more recent influence of the Babylonian Calendar? If so, the antiquity of the Pentateuch is thus further demonstrated.