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FOURTH GENERAL CONFERENCE  
ON COMMUNICATIONS AND TRANSIT

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PREPARATORY DOCUMENTS

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Volume I

CALENDAR REFORM

GENEVA, 1951.

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**FOURTH GENERAL CONFERENCE  
ON COMMUNICATIONS AND TRANSIT**

**PREPARATORY DOCUMENTS**

Supplement to Volume I

**CALENDAR REFORM**

**PROPOSAL BY THE NATIONAL COMMITTEE OF THE UNITED STATES  
OF AMERICA RELATING TO :**

- 1. THE IMPROVEMENT OF THE LEAP-YEAR RULE ;**
- 2. THE ADJUSTMENT OF THE DATE OF THE VERNAL EQUINOX.**

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VIII. TRANSIT

1931. VIII. 12/I Supplement.

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## Extract from the Supplementary Report of the National Committee on Calendar Simplification for the United States.

### THE LEAP-YEAR RULE AND DATE OF THE VERNAL EQUINOX

The National Committee on Calendar Simplification for the United States recommends that the adjustment of the date of the vernal equinox and the adoption of an improved leap-year rule be given full and careful consideration in connection with the problem of a more perfect calendar for the present and future generations.

It is recognised that one of these questions, a change in the leap-year rule, came before the original Committee of Enquiry of the League of Nations, but received only cursory examination, chiefly because of the dominant importance of other more pressing needs for change. These latter, however, have now been thoroughly analysed in all their aspects and have been brought to the attention of the public throughout the world by the Press and by means of informative literature. As a basis for further consideration of both the leap-year rule and the date of the vernal equinox, the Committee for the United States here presents a discussion prepared by the Vice-Chairman of the Committee, and Chief of the United States Weather Bureau, Dr. Charles F. Marvin. In so doing, the Committee recognises the historic interest and authority of the Roman Catholic and Greek Churches in both these questions, and that they should be considered at an international conference from a purely scientific point of view. Moreover, in the matter of the Gregorian leap-year rule, the text emphasises its great accuracy as applied to calendar reckoning over many millenniums of the past and up to the present time. It is also made obvious that the whole purpose of a change is to adjust the rule to the present and future solar conditions, so as to preserve the same high accuracy of reckoning hereafter.

#### DISCUSSION BY DR. CHARLES F. MARVIN

A calendar is a device of civilisation which should register the passage of time for a great many centuries in close accord with solar and astronomical conditions. Never before in history has the question of perfecting the calendar received such worldwide consideration with reference to all its features, as in the present day. It is, therefore, important that no feature of the calendar should be overlooked in seeking a universal form for adoption in the twentieth century, in order that this generation may pass on to posterity the most perfect time-measuring device science and the ingenuity of man permit.

Two important questions require consideration, but they are quite distinct and may be acted upon separately or together. Furthermore, they are of a purely technical nature and may therefore be best appraised by astronomers and mathematicians. The questions are :

(1) It will be shown in the explanation of the accompanying diagrams that the Gregorian leap-year rule furnishes almost perfect reckoning for all past time from 9000 B.C. to the present, but that the rule is now beginning to fail—it is outliving its usefulness. Shall a new rule be adopted, which will preserve any future calendar in the closest possible accord with solar conditions, if and when the calendar is changed ?

(2) The nominal date of the vernal equinox is now March 21st, intended to be the same as at the time of the Council of Nicæa, A.D. 325. However, its actual average date is more nearly March 20th. Shall this date be changed, and, if so, what shall the date be ?

#### Question 1.

##### CHANGE OF LEAP-YEAR RULE

A brief review of the history of the present world calendar (the Gregorian) is essential to an understanding of this question. Of purely pagan origin and design, this calendar began with or before the founding of Rome. From history we glean that the primitive tribes it served liked to have the springtime of their seasons (in astronomical language, the date of the vernal equinox) come in the latter part (about the 25th) of March. Their calendar was so crude, however (apparently it had but ten months), and they were so ignorant as to the number of days in a year, that, in little more than a score of years, the winter season lingered far on into March, and spring moved over into the summer months. Authorities tell us the Emperor Numa, after the death of Romulus, added the new month February to follow December and January to precede March. This change would tend to restore the

dislocated date of the equinox to its desired place. From Numa's to Cæsar's time the Roman calendar was of the lunisolar form, with a nominal year of 355 days. To keep the calendar approximately in step with the seasons, a thirteenth month, well known among the Romans of those days as Mercedonius, was intercalated at intervals of two or three years. Even to-day, just how to make a thirteenth-month intercalation in lunisolar calendars is an unsolvable riddle, except on the basis of very crude approximations, with many large variations in the date of the equinox. Lacking any trustworthy rule to guide them, the efforts of the early Romans to control their calendar were in vain.

About 452 B.C. it is said the Decemvirs changed the position of February at the end of the year to its present place between January and March. This adjustment was doubtless made in a way which corrected a dislocation of the dates of the equinox.

About the time of the Decemvirs, the Greek astronomer, Meton, proclaimed his nineteen-year rule (subsequently named the Metonic cycle) for the adjustment of lunar calendars to solar reckoning. Rome did not then know of this cycle, and never used it later. The irregular intercalation of the thirteenth month, without known rule of any kind, was left to the secret control of the Pontiffs, whose negligent, ignorant, and not to omit corrupt, practices introduced, by Cæsar's time, intolerable dislocation of the equinox and other uncertainties of reckoning. These brought about Cæsar's great reform.

While all modern nations have now forever discarded the Julian calendar, after continuous use by some for nearly twenty centuries, yet it claims our fullest praise and commendation. The mighty Cæsar, guided by Egyptian astronomical science, abolished completely all lunar controls on the calendar, restored the date of the equinox to its chosen place, and set up as nearly perfect a fixed solar calendar of 365 days on the twelve-month plan as it was humanly possible for any man to devise in his day. The new calendar began with January 1st, 46 B.C., and this year was made to contain a total of 445 days, which was the means employed by Cæsar to restore the date of the equinox in the following year, 45 B.C., to its proper place, which we now know to have been in the afternoon of March 23rd.

The serious defect in Cæsar's leap-year rule consists in adding one whole day too many in about every 128 years at the present time, formerly one in about 130 years. Every leap year too many added dislocated the date of the equinox one day toward January. The dislocation became intolerable in the sixteenth century, and resulted in the Gregorian reform, which attained for the first time in all history the primary objective of all previous reforms, especially those of the Roman calendar — namely, a rule for the intercalation of days or other units which would hold the calendar date of the equinox nearly fixed throughout centuries of operation. The author of Gregory's simple and effective leap-year rule was a learned Neapolitan named Aloysius Lilius, who died, however, before his rule could be introduced.

Counting from the beginning of the Christian era, the dislocation of the equinox amounted to over twelve days in Gregory's time, only a part of which was adjusted by dropping ten days when the Gregorian reform went into effect in October of 1582.

While far superior to the Julian rule, especially for calendar reckoning over past centuries, Gregory's rule also intercalates too many leap days, especially in the future, and the date of the equinox is gradually falling earlier.

The last reform of the European calendar occurred in 1923, when the Greek Church abandoned the old Julian calendar and adjusted its reckoning to agree for a few centuries with the Gregorian reckoning. A notable feature of this reform, however, is that it includes a new leap-year rule which is a bit more accurate for future reckoning than the Gregorian one.

. . . . .

SUMMARY.

Summarising this brief historical review it must be noted that :

(1) The Gregorian calendar now in nearly universal use throughout civilisation is of purely human and pagan origin. It is a direct lineal descendant of the ten-month calendar Romulus introduced at the founding of Rome.

(2) The present calendar, originally lunisolar, later purely solar, is the ultimate result of several reforms, the primary objective of which was twofold. First, to re-adjust intolerable dislocations in the date of the vernal equinox amounting in most cases to many days. Second, to introduce new rules of intercalation which were expected to stop future dislocations. All these efforts and expectations were in vain, however, until the adoption of the Lilius' rule with the Gregorian reform.

(3) Whatever may be the antiquity of the Fourth Commandment, when issued it was a command for the chosen tribes of Israel alone, not for the Gentile world. On the basis of known history, the present calendar week of six work days and a seventh of rest, each day individually named, is found to be of mixed Christian and pagan origin gradually superposed upon the legal Roman calendar during the second and third centuries A.D.

In so far as yet pointed out, it was never accorded any official Church or State sanction other than tolerance of its persistent and increasing usage by the whole populace. However, then strongly entrenched in public usage, the Christian week was legalised by the Emperor Constantine, about A.D. 321, and the elegant *fixed* Roman calendar was soon completely lost and forgotten.

(4) Calendar reckoning to-day is in nearly universal accord among the principal nations. However, the Gregorian and the Greek leap-year rules which control this reckoning differ appreciably, and it is only a question of time before a drift of the equinox which both rules entail will exceed a day, and when one or more days of difference in the reckoning by the two parties will arise. Although one of these rules is appreciably better than the other, neither is as good for the distant future reckoning as other rules now well known.

No more potent considerations than the foregoing are needed to justify including the betterment of the leap-year rule among the important questions involved in the simplification of the calendar. This course is recommended.

*Leap-Year Calendar Errors, as caused by Intercalation of Days.*

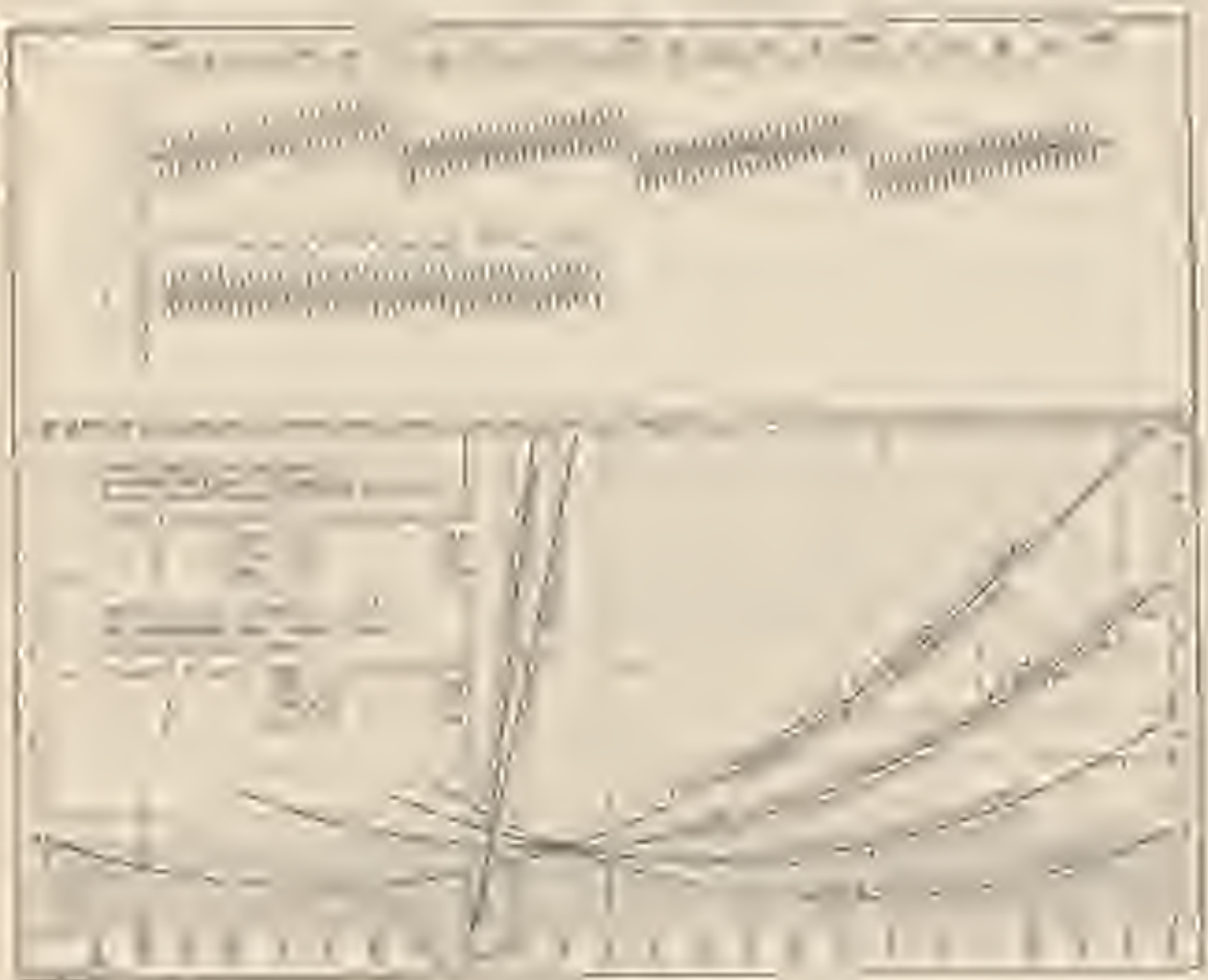


FIG. 1. Leap-Year Calendar Errors.

To facilitate clearer understanding of the intricate short- and long-time features of operation of various leap-year rules, attention is invited to the diagrams above. Part I represents short-time influences of the date of the equinox, which attend the quadrennial intercalation of leap day and its omission in non-leap-year centuries over the Gregorian cycle from 1600 to the year 2000. The normal date of the equinox over this period is represented by the horizontal straight line starting out at X, chosen for simplicity of the diagram, as of midday March 21st. (The actual astronomical normal or average date is, of course, slightly different.) Starting at A, which represents February 28th, 1600, the date of the equinox is at midnight March 21st-22nd. This being a leap-year century, the intercalation of February 29th causes the equinox to fall at B as of the date of midnight March 20th-21st. During the next four years the date of the equinox

progressively advances from B to C, and again falls as of midnight March 21st. From this point onward the date of the equinox zigzags back and forth across the line XY, reaching E after February 29th in the year 1696, when the equinox falls in the forenoon of March 20th. The line XY represents the natural average dislocation of the date of the equinox (1 day in 128 years) by the rigid Julian rule. The year 1700 being a non-leap-year century, the drift of the equinox is arrested, and by February 28th, 1704, the reckoning is carried to F and the equinox falls in the forenoon of March 22nd. Similar changes repeat themselves during the ensuing three centuries, with the result that the normal reckoning is restored at the end of 400 years, except for a small fraction of a day, as indicated by Z at the year 2000. This is the small outstanding error of the Gregorian reckoning, which slowly follows a parabolic law as shown in curve 1 of the lower diagram.

Part II of the diagram shows the lesser fluctuations of the equinox under two alternating short-time adjustments—namely, first seven years in twenty-nine years, then eight in thirty-three years. The latter is the Omar Khayyám rule. The two in sequence, fifteen leap years in sixty-two years, leave nothing to be desired in either short-time accuracy or the small dislocation of the equinox over many centuries to come. Its only and fatal defect is the necessity for elaborate tables to segregate leap years and common years.

Part III of Plate I shows how the date of the equinox is dislocated by several old and new rules. The time embraced by the diagram ranges from 9000 B.C. to A.D. 15000. Each line represents the normal or average date of the equinox under the rule. For example, the line XY in I is a very small part of the Julian rule marked "Leap Day added every Fourth Year" in III.

The Gregorian rule and the Julian rule intersect at a common point, which represents the date of the equinox at the time of the Council of Nicæa, A.D. 325. Merely for purposes of comparison, the curve for the Metonic cycle is shown as if adjusted to the date of the equinox A.D. 325.

In considering the remaining curves of Part III, it is all important to *think, not of the past or present, but far forward into the future*, if a proper choice is to be given either to retaining old rules or selecting an appropriate new rule. It was stated in the opening words of this section that the Gregorian rule is a rule for the accurate reckoning over past ages. The shaded band on the diagram may be regarded as a band of tolerance two days wide. We would like to have the normal date of the equinox remain within this band (the actual dates will necessarily range over more than two days). Note how the sweep of the Gregorian rule from A.D. 2000 backward to 9000 B.C. lies wholly within the band of tolerance. Note in contrast, however, that its sweep in the future carries it rapidly outside the band of tolerance. The rule of the Eastern churches fits present conditions admirably, but its sweep also carries the reckoning too rapidly outside the band of tolerance to make the rule worthy of acceptance for long distant future use.

Curves 3 and 4 are only two of several possible rules for the future which tell their own story. Rule 3 is merely an adjustment of the Gregorian rule to meet future needs. This rule intercalates leap days at the rate of 121 days in 500 years. The quick adjustment rule shown in Part II (fifteen leap days in sixty-two years) intercalates at the rate of 119.04 days in 500 years. This curve is not shown in the diagrams, but its sweep remains within the band of tolerance more than 1000 years beyond the point where curve 3 passes out. As already pointed out, however, its fatal defect is that a table is indispensable to list the leap years by it.

#### MATHEMATICAL BASIS OF DIAGRAMS.

Astronomers are now well aware that the combined attractions of the other planets cause small secular variations in the motions of the earth as a result of which the eccentricity of its orbit, its inclination to the plane of the ecliptic, and the precession of its nodal points undergo periodic secular changes which are reflected in a systematic change in the length of the tropical year. Two eminent astronomers of France (Le Verrier and Gaillot) and Simon Newcomb in the United States have separately computed from all available data equations which are essentially identical, both giving the law of the changing length of the tropical year. These equations follow :

$$\begin{aligned} \text{Le Verrier-Gaillot} & . . . 365.^d24219647 - 0.^d0000000624(t-1900) \\ \text{Simon Newcomb} & . . . 365.^d24219879 - 0.^d0000000614(t-1900) \end{aligned}$$

Both these equations are equally applicable for the calculation of calendar errors of reckoning, and both have the full sanction of the International Astronomical Union. There is, of course, a limit to the range of millenniums, past and future, over which the simple straight-line equations may properly be extended. The exact change in the length of the year is a very long-time periodic one, of which the straight line is the first approximation applicable now.<sup>1</sup>

<sup>1</sup> Some emphasis has been placed upon the accuracy and authority behind these equations, because some recent writers on leap-year rules and calendar errors either regard the year as of constant length, or they question the sufficiency of our knowledge of the rate of change, or conceding some change they adopt a rude approximation by using some kind of average rate supposed to apply to their particular problem. None of these positions is tenable.



In the curves shown in Part III, Newcomb's equation is used. Had the Le Verrier constants been used, the differences in the curves could hardly be detected except in the long sweep of curve 1, by which the equinox in the year 14000 is shown as March 12.69. By Le Verrier's constants it would be March 12.54, a quite inconsequential difference.

GENERAL EQUATION FOR THE DATE OF THE EQUINOX.<sup>1</sup>

From Newcomb's equation the length of the tropical year is

$$L = 365^d + f - bt \tag{1}$$

in which  $t$  is the number of years reckoned from the *beginning* of the Christian era and in which  $f$  and  $b$  are small constants with the following adjusted values:  $f = 0.24231545$ ,  $b = 0.0000000614$ . The length of a calendar year is,

$$L_c = 365 + f_c$$

in which  $f_c$  is a fraction of a day, the average value of which is given by the leap-year rule. For example, the Gregorian rule intercalates a leap year every fourth year — that is, at the rate of one-quarter of a day per year, but the rule omits three leap days in 400 years; therefore the value of  $f_c$  is,

$$f_c = \frac{1}{4} - \frac{3}{400} = 0.2425.$$

Since the constant average length of the calendar year cannot be made equal to the changing length of the tropical year, a small and changing error of reckoning will arise at the end of each year and will steadily accumulate as time goes on. The amount of this error at the end of one year is,

$$L - L_c = E = (f - f_c) - bt.$$

From the rules of the calculus, we know that the accumulated sum of all such small errors over a range of time 0 to  $t$  years is given by the equation,

$$E_t = (f - f_c)t - \frac{bt^2}{2}. \tag{2}$$

If now  $D_0$  is the date of the equinox when the reckoning starts — that is, when  $t = 0$  — then after  $t$  years the date will be  $D_t = D_0 + E_t$  or

$$D_t = D_0 + (f - f_c)t - \frac{bt^2}{2}. \tag{3}$$

Equation (3) is a general equation which will give the exact normal or average date of the equinox for any year,  $t$ , A.D. or B.C. reckoned from the beginning of the Christian era, and by any leap-year rule represented by the fraction  $f_c$ . The equation represents a parabolic curve, whose constants  $f$  and  $b$  are those given above from Newcomb's equation and are the same for all rules. For the Gregorian rule  $f - f_c = -0.00018455$  and  $\frac{b}{2} = 0.0000000307$ ,  $\therefore$  the Gregorian curve is represented by the equation

$$D_t = D_0 - 0.00018455t - 0.0000000307t^2.$$

To find the proper value of  $D_0$  we must have one exact known value of  $D_t$  for a particular year — say the year 1900. This we can easily get from the dates of the equinox over several years, as given in the nautical almanacs. Correcting these for the temporary calendar errors, we find the normal date of the equinox as of the year 1900 to be March 20.8281, Greenwich civil time. With this value, when  $t = 1900$ , we easily find  $D_0 =$  March 21.2896, and the fixed working equation for the Gregorian curve is

$$D_t = \text{March } 21.2896 - 0.00018455t - 0.0000000307t^2. \tag{4}$$

It is futile to claim that the small secular change in the length of the year is unimportant. This small change is the only cause of the very definite curvature all the lines have in the diagram. If the length of the tropical year were constant, all the lines would be straight. The claim that it is sufficient to use an *average* length of year is the same as using a straight line which is tangent to, or parallel to, a tangent at some point of the curve. At its best this is only a crude approach to the true facts as given by equation (3).

<sup>1</sup> This general theory was first published by Dr. Marvin in *Popular Astronomy*, May 1923.

Whatever new leap-year rule might be adopted for the future, the year 2000 would probably be its starting-point, and the diagram has been constructed on that basis, the exact date of the focal point for the intersecting curves is March 20.7977.

The foregoing discussion of the analytical theory of true calendar reckoning by means of ordinary leap-year rules has been given with some fulness, because it is more or less new and utilises in the most complete way the latest astronomical knowledge on the question. Furthermore, the subject-matter has not yet been treated to any great extent in text-books and other literature.

## Question 2.

### CHANGE OF THE DATE OF THE VERNAL EQUINOX.

This question will require very little discussion and its technicalities will be easily grasped after the very full explanation of the operation of leap-year rules already given.

All chronological events in history are now dated on the Julian or Gregorian calendar, reckoning from the adopted epoch of the birth of Christ.<sup>1</sup> At and about that time the date of the equinox fell in the afternoon of March 23rd by the Julian calendar. From that point it drifted earlier to the 21st in A.D. 325, then to March 11th in 1582. The ten days stricken from the calendar by Gregory may be regarded as the excess leap days the Julian rule intercalated in the centuries which should have been non-leap years—namely :

$$\begin{array}{c} \text{Non-Leap-Year Centuries} \\ 3 \quad 5-6-7 \quad 9-10-11 \quad 13-14-15 = 10. \end{array}$$

May we not ask, should we not be consistent and also strike out two more days to represent the excess century leap days added by the Julian rule in the years 100 and 200? Unless something like this is done, an anomalous situation in chronological reckoning by the Gregorian calendar will continue indefinitely, because the starting-point of the *calendar* is as of the year A.D. 325, whereas the *count of years* is reckoned from a point of time 325 years earlier. If two more days are omitted, the dates in the first 99 years A.D. become strictly comparable with corresponding dates to-day. For example, the year A.D. 30 is generally regarded as the last year of Christ's ministry. While the week-day names were not then known or used, January 1st of that year was the first day of the Jewish week—our Sunday. If we now drop out two additional days, and if we *fix* the present calendar so that January 1st is always Sunday, then each day of the year of our new calendar will perpetually be an exact duplicate in day name and year-day number of the corresponding day in the year A.D. 30. Each day of the new calendar will also be an exact *anniversary day* of the corresponding day in the year A.D. 30.

It will be impressive to know in this twentieth century that, when we celebrate Good Friday—for example, on Friday, April 7, which is the ninety-seventh day of the year—it will be impressive to know that the Good Friday in question is the exact anniversary, day name, year number, and all, of the original day of the Crucifixion. In the same way, Easter Sunday, Whitsunday, and every other day of the year A.D. 30 will have exact counterparts in the day names and year numbers in the new *fixed* calendar.

If the days are not omitted, the disparity of two days in anniversary dates and the incongruity in calendar and chronological reckoning must prevail indefinitely. If the calendar is changed without omitting two days and with all years beginning on Sunday, then, if Easter is fixed on the Sunday nearest the exact anniversary of the day of the Resurrection as many desire, that Sunday will be April 9th (April 15th in a thirteen-month calendar), but the day will be the *exact* anniversary of the Crucifixion, not of the Resurrection.

The foregoing facts of reckoning are submitted for mature consideration.

*Note.* — For additional details, see "Supplementary Report of the National Committee on Calendar Simplification for the United States", Section IV.

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<sup>1</sup> Some may advocate that the recognised error of about four years in this epoch should be corrected. Strictly speaking, that is a question of chronology and not of simplification or correcting the calendar. Adjusting the date of the equinox, however, is purely a question of calendar reform.

*Official No. : 4<sup>th</sup> C. G. C. T. 1.*

Geneva, June 17th, 1931.

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## CONTENTS. <sup>1</sup>

---

	Page
SECTION 1. — Terms of Reference of the Preparatory Committee and Scope of the Discussions in the Conference . . . . .	5
SECTION 2. — Fixing of Movable Feasts :	
A. Inconveniences of the Present Situation and Plans for Reform . . . . .	7
B. State of Public Opinion . . . . .	7
C. Information received as to the Attitude of Religious Authorities . . . . .	9
SECTION 3. — General Reform of the Calendar :	
A. Disadvantages of the Present Calendar and Schemes for Reform . . . . .	10
B. State of Public Opinion . . . . .	12
C. Attitude of the Religious Authorities . . . . .	16
SECTION 4. — Procedure of the Fourth General Conference . . . . .	16
<i>Annex.</i> — List of Members of National Committees of Enquiry . . . . .	17

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<sup>1</sup> See also the Analytical Table, page 26.



# REPORT OF THE PREPARATORY COMMITTEE.

*Adopted on June 13th, 1931.*

## Section 1.

### TERMS OF REFERENCE OF THE PREPARATORY COMMITTEE AND SCOPE OF THE DISCUSSIONS IN THE CONFERENCE.

1. At the request of the Advisory and Technical Committee for Communications and Transit, the Council of the League of Nations has placed on the agenda of the fourth General Conference on Communications and Transit the following question :

Examination of the Expediency from an Economic and Social Standpoint :

- (a) Of fixing movable feasts,
- (b) Of simplifying the Gregorian calendar.

2. To assist the Conference in its work, the Advisory and Technical Committee appointed this Committee with instructions to draw up a general report summarising the results of the enquiries made in the several countries into the problems submitted to the Conference, specifying the questions which the Conference would have to discuss and placing before it, as regards both its procedure and the actual subjects submitted for discussion, any suggestions that might facilitate its work.

3. As the Governments invited to the Conference are aware, questions relating to calendar reform have already been reported on by a Special Committee set up by the Advisory and Technical Committee for Communications and Transit (document A.33.1926.VIII). This Special Committee had carried out specific enquiries concerning the fixing of what are at present movable feasts ; as regards, however, the more general question of the possibility of establishing a perpetual calendar so as to admit of more exact comparison between years and between the different periods of any one year, the Special Committee was of opinion that, before there could be any international examination of the question, it was necessary to institute a more complete enquiry among representatives of the various interests concerned within the individual countries. For this reason, national committees or unofficial committees of enquiry, consisting of persons representative of the various interests concerned, have been constituted in the majority of countries. A list of these committees is appended to this report (see Annex).

4. At the date when this Preparatory Committee met, the reports of the following Committees had been received by the Secretary-General of the League of Nations : Belgian, Brazilian, British, French, German, Hungarian, Italian, Netherlands, Polish, Portuguese, Swedish, Swiss, United States of America, as well as a telegraphic communication from the Czechoslovak Committee.

The Preparatory Committee has been able to take into consideration the views expressed in these reports. The Committee has also received additional oral information from its members as to the work done in their respective countries and the state of public opinion there. Furthermore, with reference to the fixing of movable feasts, it has had before it the results of the enquiry undertaken by the Special Committee referred to above.

5. The Preparatory Committee sat at Geneva from June 8th to 13th, under the chairmanship of M. Djouritchitch, former Director-General of the Yugoslav State Railways and a member of the Advisory and Technical Committee. The Chairman was appointed by the latter Committee. It comprised the following :

- Professor Giuseppe ARMELLINI, Director of the Royal Astronomical Observatory at Rome, Rapporteur of the Italian National Committee on Calendar Reform ;
- M. André F. BERTAUT, Member of the Paris Chamber of Commerce, Member of the Permanent Committee of the French National Economic Council ;
- Professor Honorato DE CASTRO, Director-General of the Geographical, Cadastral and Statistical Institute, Madrid, nominated by the Spanish National Committee on Calendar Reform ;
- M. Rudolf FERNEGG, Secretary-General of the German Industrial Federation in Czechoslovakia, Member of the Czechoslovak National Committee on Calendar Reform ;

- Captain Abel FONTOURA DA COSTA, Professor at the Naval School, Lisbon, Chairman of the Portuguese National Committee on Calendar Reform ;
- M. T. KOBAYASHI, Secretary at the Japanese Ministry of Communications (Observer) ;
- Dr. Charles F. MARVIN, United States Weather Bureau, Department of Agriculture, Washington, U.S.A., Vice-Chairman of the United States National Committee on Calendar Simplification ;<sup>1</sup>
- Count Paul MORSTIN, Counsellor of Legation at the Permanent Delegation of Poland accredited to the League of Nations (Observer) ;
- Dr. Hans PLATZER, Director at the Statistical Office of the Reich, Vice-Chairman of the German National Committee on Calendar Reform ;
- M. Honorio ROIGT, Publicist, nominated by the Argentine National Committee on Calendar Reform ;
- Sir Amherst SELBY-BIGGE, Bart., K.C.B., formerly Permanent Secretary to the Board of Education, Member of the British Calendar Reform Committee of Enquiry ;
- M. E. R. SJÖSTRAND, Counsellor at the Central Administration on Social Questions ; Permanent Representative of the Swedish Government at the International Labour Office ;
- M. Affonso A. DE VASCONCELLOS, nominated by the Brazilian National Committee on Calendar Reform ;
- M. Vassa U. YOVANOVITCH, Vice-Chairman of the Chamber of Industry, Belgrade, Chairman of the Yugoslav National Committee on Calendar Reform.

Also present was M. STEUERNAGEL, Director of the Railway Company of the Reich, member of the Committee for the Unification of Transport Statistics of the Communications and Transit Organisation and member of the Statistical Sub-Committee of the International Railway Union which had previously conducted an enquiry into the calendar question.

6. At their own request, the following gave evidence before the Committee :

- The Chief Rabbi Israel LEVI, President of the Israelite Committee concerning the Reform of the Calendar ;
- Dr. HERTZ, Chief Rabbi of the United Hebrew Congregations of the British Empire ;
- Rev. Dr. M. HYAMSON, President of the League for Safeguarding the Fixity of the Sabbath ;
- Dr. Pinchas KOHN, delegate of the " Agudas Jisroël " ;
- Dr. F. LEWENSTEIN, Chief Rabbi, Zurich ;
- Professor Adolf KELLER, Secretary-General of the Œcumenical Council for Practical Christianity ;
- Mr. A. S. MAXWELL, Mr. L. H. CHRISTIAN and Dr. J. NUSSBAUM, nominated by the General Conference of Seventh-Day Adventists ;
- Miss ACHELIS, President of the World Calendar Association ;
- Mr. Broughton RICHMOND, Secretary of the International Calendar Association ;
- Mr. Moses B. COTSWORTH, Director of the International Fixed Calendar League.

7. The Committee felt that, as its members did not represent the Governments of their respective countries and did not look upon themselves as the spokesmen of the whole public opinion of those countries, it could not possibly express any preference or offer any opinion on such problems as may become controversial in the Conference. The delegates at the latter are alone competent to express with authority the views of the nations which they represent. The Committee held that this report should merely put before the Conference a systematic summary of the questions with which the latter would have to deal and the ideas advanced, more particularly in the report of national committees on those questions, and submit to the Conference any suggestions the Committee might think desirable as to the Conference's procedure.

8. The Preparatory Committee would remind the Conference that, in the view of the Advisory and Technical Committee, which requested the Council to place on the Conference's agenda the questions relating to the fixing of movable feasts and the simplification of the Gregorian calendar, questions of an essentially religious character which may arise out of the discussion of such matters should be left entirely to the decision of the religious authorities concerned. The Conference would be called upon simply to co-ordinate and sanction the views of the various lay circles concerned, by placing on record the opinion of Governments from a purely economic and social standpoint. The Committee has adhered to this principle. While its enquiries might cover the possible effects of any particular proposed reform on the economic and social life of certain religious communities, the Committee felt that neither it nor the Conference itself had any authority to consider whether any particular proposed reform was incompatible with any particular religious belief.

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<sup>1</sup> The National Committee of the United States of America proposes that the adjustment of the date for the vernal equinox and the adoption of an improved leap year rule be examined by the fourth General Conference on Communications and Transit. A document giving the views of the National Committee on this subject will be circulated separately.



## Section 2.

### FIXING OF MOVABLE FEASTS.

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#### A. INCONVENIENCES OF THE PRESENT SITUATION AND PLANS FOR REFORM.

9. The report of the Special Committee of Enquiry into the Reform of the Calendar (document A.33.1926.VIII) gives a general survey of the disadvantages of the non-fixity of Easter and the other movable feasts. The date of Easter varies at present between March 22nd and April 25th — *i.e.*, over a period of thirty-five days, and involves a corresponding displacement of other movable festivals. This causes many inconveniences. School, university and judicial work and commercial interests, including those relating to transport, are particularly affected. The beginning of the scholastic year and some of its holidays are fixed, whereas others are movable. The same disadvantages apply to the judicial, administrative, industrial or popular holidays. Many commercial transactions and the transport services connected with them are severally prejudiced by the changing date of Easter; in particular, business dealing with textiles, articles of fashion and the hotel-keeping industry. In a general way, the organisation of traffic and transport is disturbed by the changing date of Easter.

While the Special Committee of Enquiry felt that no decision on what is essentially a religious question was practicable without an agreement among the various high religious authorities concerned, it suggested that Easter should be fixed for the Sunday following the second Saturday in April. Naturally, if the question of Easter is separated from that of the general reform of the calendar or, to be more accurate, that of establishing a perpetual calendar, the term “fixing” in the strict sense of the word could not be applied to the reform scheme; the expression “stabilisation” is the only correct term, because, if the calendar is not perpetual and if, as is almost universally considered, Easter must fall on a Sunday, its date will unavoidably oscillate within a seven-day period.

#### B. STATE OF PUBLIC OPINION.

10. With regard to the stabilisation of movable feasts, the Special Committee of Enquiry had already sought information from Governments and international organisations and, in its opinion, this information led to very definite conclusions.

11. The Special Committee consulted the International Chamber of Commerce which, in March 1923, adopted the following resolution confirmed by the resolution of its subsequent Congress in 1925:

“Whereas the Chambers of Commerce have repeatedly asserted both severally and collectively at different Congresses and Conferences that the adoption of a fixed date for Easter would be in the general interest, the Congress supports the recommendation of the London Chamber of Commerce and expresses the hope that the International Chamber of Commerce will take all necessary steps to bring about this long overdue reform.”

The Congress held in Amsterdam in 1929 adopted the following resolution:

“The International Chamber of Commerce, earnestly desiring that the date of Easter should be fixed without delay and that the calendar should be reformed, reaffirms at its fifth congress in Amsterdam its previous resolutions at the first congress at London, 1921, the second congress at Rome, 1923, and the third congress at Brussels, 1925.

“The Chamber notes with satisfaction that several nations at the instance of the League of Nations have organised special committees to study calendar improvement and the fixing of Easter. The Chamber urges that other nations should follow that same practical course and that the League should convene an International Conference to secure without further delay the improvement for which the world’s commerce has so often asked.”

12. The Special Committee also collected information from all the administrations which are members of the International Railway Union. The railways of Czechoslovakia, Estonia, France, Germany, Great Britain, Greece, Hungary, Luxemburg, Poland, Spain (Madrid-Saragossa-Alicante), Switzerland and the Oriental railways pronounced in favour of the stabilisation of Easter. Since the close of the work of the Special Committee of Enquiry, this investigation has been continued by the International Railway Union.

The Union, of which all the principal European railway administrations and certain others are members, arrived at the following conclusions: If all the public holidays were fixed, the preparations for working and traffic on those holidays could be more regularly and simply

made ; Whitsuntide would always come under the summer time-table and not, as at present, sometimes before and sometimes after the change of time-table. Nearly all the administrations affected by the non-fixity of Easter think that the date should be fixed, and those which are not affected raise no objection. The administrations which are members of the International Railway Union are in favour of Easter being fixed on the Sunday following the second Saturday in April.

13. The Special Committee thought it particularly important to obtain on this question, in as many countries as possible, the views of persons concerned with education. A circular was accordingly sent to Governments. A great majority of Governments and educational authorities pronounced strongly in favour of the principle of stabilisation. In particular, secondary school authorities were of opinion that the stabilisation of Easter offered large advantages inasmuch as the curricula could remain unchanged from year to year and the school terms could be more satisfactorily distributed over the year.

Certain Governments stated that, in their view, the principle of fixity or stabilisation was entirely a matter for the religious authorities to decide. The German Government, referring to a previous reply in favour of stabilisation, said that, before giving its opinion, it had consulted the various circles affected, including education authorities. The proposal for stabilisation had also been approved by the Governments of all the countries of the German Reich. The Danish Government said that, while the question presented no great importance for institutions of higher education, the inspectors of secondary schools most strongly recommended the stabilisation of Easter in view of its effect on curricula and holidays. Similar views were expressed by the Estonian and Spanish Education Departments, the Ministries of Education of Finland and France, and the Governments of Canada, Czechoslovakia, Greece, India, the Netherlands, New Zealand, Roumania, Sweden and Switzerland.

14. The same general demand for the stabilisation of Easter is found in the reports received by the Preparatory Committee from most national committees. According to the German Committee's report, the necessity of stabilising Easter is unanimously recognised in Germany, even by those who are not in favour of a more extensive reform. This question is regarded as of the first importance and it is felt that it must be settled even if a general reform cannot be carried through. The Belgian Committee unanimously pronounces in favour of fixing Easter on the Sunday following the second Saturday in April. The United States Committee finds opinion favourable for a fixed Easter.

According to the French Committee's report, French opinion is particularly favourable to the stabilisation of Easter ; indeed, opinion is unanimous on this point. Religious circles refer to the decisions of religious authorities, scientific circles raise no objection, economic and administrative circles do not merely approve the suggestion but urge that it should be speedily carried into effect, whether or not they are in favour of a general reform of the calendar, and all request that Easter should be fixed on the second Sunday in April. The Committee accordingly submitted to the French Government an opinion entirely favourable to the stabilisation of Easter and expressed the desire that every effort should be made to carry out this suggestion without waiting for a general reform of the calendar.

15. According to the British Committee's report, public opinion in Great Britain attaches more importance to this question than to any of the other changes that calendar reform would involve. Any scheme that did not include this stabilisation would be badly received and if the other proposed changes are to be seriously considered, it is important that the public should have an assurance that the reform in connection with the movable feasts will be carried through. Moreover, an Act of Parliament was passed in 1928 fixing the date of Easter on the first Sunday after the second Saturday in April. This Act was to come into effect on a date to be fixed by Order-in-Council. It provided for a draft order to be submitted to both Houses and approved by them. Before the draft order was framed, consideration was to be given to the official views expressed by any Christian church or institution. The Hungarian National Committee held that the only question it was desirable to settle was that of the fixing of Easter and the other movable feasts. The Italian Committee, being opposed to a general reform of the calendar, expressed itself disinterested in the question of the stabilisation of Easter and preferred to abide by the decisions of the Roman Catholic Church.

16. The Netherlands National Committee's report advocates the fixing of Easter between April 8th and 15th — *i.e.*, either on the second Sunday or on the Sunday following the second Saturday in April. The Portuguese Committee is of opinion that, with regard to the stabilisation of Easter, the Portuguese public would accept the decision of the Holy See and of the other competent religious authorities.

17. According to the Swedish Committee's report, Swedish opinion generally seems favourable to the scheme for the stabilisation of Easter. With regard to the date it agrees to the Sunday following the second Saturday in April. The Swiss National Committee considers

that the stabilisation of Easter should be carried out whether in conjunction with the reform of the calendar or independently ; it regards the Sunday following the second Saturday in April as the best date. The Polish National Committee also expresses itself in favour of the stabilisation of Easter but suggests, in view of the Polish climate, that Easter should be fixed on the Sunday following the third Saturday in April.

### C. INFORMATION RECEIVED AS TO THE ATTITUDE OF RELIGIOUS AUTHORITIES.

**18.** At the close of its work, the Special Committee of Enquiry stated that the stabilisation of Easter was a reform on which the Christian religious communities would have to pronounce before anything decisive could be done.

**19.** On November 2nd, 1923, at the request of the Advisory and Technical Committee for Communications and Transit, a circular letter was sent out to the religious authorities. This circular referred to the resolution adopted by the Advisory and Technical Committee, sitting in conjunction with persons appointed by the Holy See, by His Holiness the Œcumenical Patriarch and by His Grace the Archbishop of Canterbury. The resolution stated that it was clear from the declarations made :

(1) That, from the point of view of dogma, strictly speaking, the idea of the reform of the calendar both with regard to the fixing of Easter and the more general question of the reform of the Gregorian calendar, did not meet with difficulties that could be considered insuperable ;

(2) That, in the opinion of all, no reform of the calendar and, in particular, no decision regarding the fixing of Easter — a question which is essentially a religious one — was practicable without an agreement between the various high religious authorities concerned ;

(3) That any disturbances in existing traditions, such as are involved by a reform, would not be justifiable and acceptable unless such changes were definitely demanded by public opinion for the improvement of public life and economic relations.

**20.** In reply to a circular letter, the Holy See, by means of a letter dated March 7th, 1924, from the Apostolic Nuncio at Berne, stated that any changes which might be made as regards the fixing of Easter, though they would meet with no difficulties from the point of view of dogma, would nevertheless involve the abandonment of deeply rooted traditions from which it would be neither legitimate nor desirable to depart except for weighty considerations connected with the general interest ; it added that it did not consider there was sufficient reason for changing what has been the perpetual usage of the Church handed down by immemorial tradition and sanctioned by Councils from early times. Even if, therefore, it were shown that some change in these traditions were demanded by the general good, the Holy See would not be prepared to consider the question except on the advice of an Œcumenical Council.

**21.** In a letter dated February 18th, 1924, the Œcumenical Patriarchate of Constantinople informed the Special Committee that the Pan-Orthodox Congress had decided at meetings held on May 23rd and June 5th, 1923, subject to a common agreement being reached between the Christian Churches, that the Orthodox Church would be prepared to pronounce in favour of the fixing of the date of Easter.

**22.** By a resolution of the Convocation of the Church of England dated April 28th, 1925, this Church expressed the opinion that, from the point of view of dogma, there was no reason why the Church should object to the choice of a fixed date for Easter ; but the Church of England could only consent to the proposed modification if it were accepted by the other Christian communities.

**23.** The Archbishop of York has since drawn the British Committee's attention to the following resolution adopted by the Upper House of the Canterbury Convocation and endorsed by the Upper House of the York Convocation :

“ Should a general agreement be arrived at in the Church on the object of the Easter Act of 1928, the Assembly is of opinion that the first Sunday following the second Saturday in April should be adopted as the date of Easter.”

**24.** The Federal Council of the Churches of Christ in America, the German Evangelical Church Committee and the Council of the Federation of Swiss Protestant Churches have shown themselves in favour of the reform or have declared themselves ready to accept it. The same opinion was forwarded to the Special Committee by the representative of eighty-two Protestant Churches or Federations of Churches in America, Austria, Belgium, Czechoslovakia, Denmark, France, Germany, Great Britain, Hungary, Italy, Lithuania, the Netherlands, Norway, Poland, Roumania, Spain, Sweden and Switzerland.

**25.** To sum up, as the Special Committee of Enquiry found, the majority of the Christian Churches have declared their willingness to accept the stabilisation of the date of Easter on condition that such a step should simultaneously be accepted by all the Churches.

**26.** The Holy See emphasised that it did not think it possible, without very serious reasons, to depart from a time-honoured religious tradition, but agreed that if it were demonstrated that the fixing of the date of Easter would be universally beneficial it was ready to submit the question to an Œcumenical Council.

27. The Preparatory Committee has thought it advisable to lay this information once more before the Conference, without prejudice to the observations it has submitted in Section I of the present report, with regard to the main object of the Conference's discussions on the exclusively economic and social aspects of the stabilisation of Easter and of the reform of the calendar.

28. In order to meet the views of the Holy See, the object of the Conference, so far as the stabilisation of Easter is concerned, would be to ascertain whether the Governments represented consider, from a purely civil point of view, that, in the words of the above-mentioned letter from the Holy See, the stabilisation of the date of Easter is or is not "demanded by the general good".

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### Section 3.

#### GENERAL REFORM<sup>OF</sup> THE CALENDAR.

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##### A. DISADVANTAGES OF THE PRESENT CALENDAR AND SCHEMES FOR REFORM.

###### 1. DEFECTS OF THE PRESENT CALENDAR.

29. The Special Committee of Enquiry pointed out the main defects, which, moreover seem to be undisputed, of the present Gregorian calendar. It drew attention to :

(a) *The Inequality in the Length of the Divisions of the Year.*

The divisions of the year, the months, quarters and half-years, are of unequal length. The months contain from 28 to 31 days. As a result, the number of days in the quarters are respectively 90 (91 in a leap year), 91, 92 and 93. The first half-year, therefore, contains two or three days less than the second.

Another result is that the months, quarters and half-years do not consist of a whole number of weeks. The weeks are usually split at the beginning and end of months, quarters, half-years and years.

The unequal length of months, quarters and half-years is a cause of confusion and uncertainty in economic relations, in the arrangement of all statistics and especially statistics concerning trade production, sales, transport accountancy, etc.

30. The fact that the months contain 28, 29, 30 or 31 days is responsible for the fact that all calculations of salaries, interest, insurance, pensions, leases and rent which are fixed on a monthly, quarterly, or half-yearly basis are inaccurate and do not correspond with one-twelfth, one-quarter or half of the year. In order to make daily calculations in current accounts with comparative certainty and speed, banks are obliged to make constant use of special tables. Moreover, in most of the countries of Europe, the unequal length of the months has led financial concerns to calculate deposit and current accounts on the basis of a year of twelve months of thirty days, or a year of 360 days, whereas in the discounting of bills the year is still reckoned at its exact number of days. Finally, the months, quarters and half-years do not contain an exact number of weeks.

(b) *Want of Fixity in the Calendar.*

31. The Calendar is not perpetual ; it changes each years. The year, in fact, consists of 52 weeks plus one or two days. Thus, if first day of the year is a Sunday, in the following year it is a Monday (or even a Tuesday in the case of a leap year). Were it not for the extra day of leap year the calendar would only have seven different alternatives corresponding to the seven days of the week on which the year can begin ; owing, however, to the extra day of the leap year, the exact reproduction of the calendar of any year only takes place once every 28 years. Thus, the day of the month falls each year on a different day of the week from the one on which it fell the previous year.

32. In consequence :

(a) The dates of periodical events can never be fixed with precision. Such a date can, in fact, only be determined in two ways — either by the day of the month (August 13th for example) or by the day of the week in the month (the third Tuesday in October). With the present Gregorian calendar, this double method is not precise, for, if the day of the month is fixed for periodical events, this day may sometimes fall on a Sunday or general holiday.

Each year, therefore, the authorities have to make a special decision, as for instance, for the meeting of a tribunal, the convocation of Parliament, the dates of holidays, fairs, markets, administrative assemblies, the fixing of summer-time, etc. On the other hand, if a special day (the first Monday in the month, for example) is fixed for these events, other difficulties arise, as the date corresponding to this day varies continually from month to month and from year to year.

If the calendar were perpetual, the dates of these events could be fixed once for all. They would fall on the same dates as well as on the same days of the week.

(b) The position of the weeks in the quarters varies each year — that is to say, the weeks overlap the divisions of a year in a different way each time, and complications accordingly arise in the reckoning of accounts, statistics, etc.

(c) The first, fifteenth or last days of a month are sometimes Sundays.<sup>1</sup> When the first of a month falls on a Sunday, it is not possible to revise and verify immediately all the work of the previous months and quarters and to establish without delay the various comparisons which are essential from a business point of view. This is a serious disadvantage in respect of accounts and statistics. The fifteenth and the last day of the month are very important dates as regards the falling due and the payment of rents. When these dates are Sundays, the payments must be postponed or advanced.

(d) Finally — and this is perhaps the greatest drawback from a statistical and commercial point of view — since the various days of the week are not of the same value as regards the volume of trade, and the years and the months do not from year to year include the same number of individual weekdays, there can be no genuine statistical comparison between one year and another, while the various subdivisions of the year itself — the half-years, quarters and months — are likewise incapable of comparison.

## 2. SCHEMES OF REFORM.

### (a) *Equalisation of the Quarters without establishing a Perpetual Calendar.*

**33.** In order to remedy, to a certain extent, the inequality in the length of the divisions of the year, without, however, instituting an unchanging calendar, it was proposed simply to carry out an approximate equalisation of the quarters. Each quarter would consist of two months of 30 days each and one month of 31 days and one of the quarters would include a “supplementary” day<sup>2</sup>. It is contended by the promoters of this scheme that regularisation of the quarters would bring very real advantages as regards statistics of quarterly transactions, such as returns of stock-exchange transactions, bank accounts, etc., and for the comparison of statistics of meteorological averages. It would also simplify calculations to determine the day of the week on which a given date in a month falls in the course of a year. A less perfect and still simpler reform of this kind was proposed. It was suggested that the 31st day of August should be transferred to the end of February of the following year. These proposed reforms involve less disturbance of tradition than others. They involve only the difficulties inherent in any reform of whatever nature. The only question which they raise and which, indeed, has been raised, is whether their advantages would justify a change.

### (b) *Perpetual Calendar involving 364 Days bearing Weekday Names, plus one “Supplementary” Day (Two in Leap Years) not bearing the Name of a Weekday.*

**34.** As already explained, the reason why the calendar is not perpetual is that a year consists of 52 weeks plus 1 day (or 2 days in leap year). This difficulty could be remedied by reducing ordinary years to 364 days and adding a “supplementary” week in certain years; but such a calendar — proposed by certain representatives of religious authorities opposed to a break in the continuity of the week — would, in the opinion of the Special Committee of Enquiry — and the Preparatory Committee acted in conformity with that opinion — be inferior to the existing calendar and cannot be considered at all. Any scheme of reform instituting a perpetual calendar without changing the length of the Gregorian year thus necessarily means that one day in the year (or two in leap years) must be regarded as “supplementary”. The “supplementary” day which would be added annually to the days of the 52 weeks might be inserted at the end of the year (December 31st, if the 12-month year were kept, when quarters would be 31, 30 and 30 days long respectively, or December 29th, if 13 months of 28 days were adopted. The “supplementary” day in leap years would be inserted at a date to be selected).

**35.** Eliminating, as was done by the Special Committee, any scheme which changes the beginning of the year or divides the year into months of considerably different length, the Special Committee and National Committees, in considering calendar proposals involving

<sup>1</sup> The Preparatory Committee notes that this disadvantage subsists and seems even to be aggravated in certain plans for calendar reform. Thus, in the plan of the International Fixed Calendar League, all months begin on a Sunday and in the plan favoured by the Brazilian Committee they all end on a Sunday. The supporters of this scheme states however, that in case of a perpetual calendar, this state of affairs would not really give rise to such serious inconveniences, as business would necessarily and easily adapt itself to a state of affairs which would always remain the same.

<sup>2</sup> An additional day would be added to one of the quarters in leap years.

the introduction of a “ supplementary ” day or days, devoted their consideration exclusively to the two following plans of reform :

(1) *Thirteen Months of Twenty-eight Days.* — The advantages claimed for this scheme as compared with the present calendar are as follows :

(1) Each month has the same number of days ; each month has the same number of days of the same name ; each month has, with the exception of civil and religious holidays, the same number of working days.

(2) Each month has the same number of whole weeks and no month contains fractions of a week at the beginning or the end. Each quarter has thirteen weeks.

(3) Discrepancies between the days of the week and the dates in successive months and years are avoided. It is easier to fix permanent dates for public meetings, law court sessions, educational courses, etc.

(4) The periods for which monthly salaries are calculated correspond with the periods of expenditure. Family and business budgets are simplified.

(5) The months are all comparable with the exception of holidays, and, since they contain an equal number of days and no fractions of weeks, require no adjustment. Wage payments for parts of weeks (in the case of monthly salaries) are avoided. Office work is considerably lessened and economy can be made when preparing book-keeping or statistical reports, in private or public business and certain scientific occupations, and in reckoning servants' wages.

36. It is contended, on the other hand, that this plan would involve the following disadvantages :

(1) The number thirteen is not divisible by 2, 3, 4 or 6.

(2) The quarters and half-years (at present comprising three months and six months respectively) would not contain a whole number of months.

(3) There would be thirteen monthly business balancings and thirteen monthly payments instead of twelve, involving to a certain extent increased work in connection with book-keeping and payments.

(4) During the period of transition, this plan would mean a greater number of adjustments in comparing statistics and dates than would be necessary under the twelve-month system.

37. (2) *Twelve Months each containing Thirty or Thirty-one Days.* — In this scheme, the twelve months are retained, each quarter consisting — subject to the above-mentioned addition of one or more supplementary days — of two months of thirty days and one month of thirty-one days.

The advantages claimed for this system as compared with the present calendar are as follows :

(1) The half-years and quarters are equal and have a whole number of months and weeks — *i.e.*, thirteen weeks in the quarter.

(2) Quarters and half-years, with the exception of civil and religious holidays, can be statistically compared without adjustments for varying lengths.

(3) This system would involve little disturbance in established traditions and would involve less difficulty in the period of transition.

38. On the other hand, the following disadvantages have been pointed out :

(1) The months are not of the same length and are not directly comparable. Moreover, they differ as to the number and economic value of individual weekdays — *e.g.*, one may have five Saturdays and another five Sundays.

(2) It would seem less essential to equalise the half-years and quarters than the months, since accountings for these periods are less frequent and less important than monthly accountings.

(3) The months do not contain a complete number of weeks, thus involving, for instance, payments for fractions of a week at the end of a month where payments are made monthly.

(4) The dates do not fall on the same day of the week in each month.

## B. STATE OF PUBLIC OPINION.

39. The following is a summary of public opinion in the several countries so far as it can be collected from the reports of National Committees : in some cases, the opinion recorded is that of particular circles or interests rather than that of the public at large.

Most of the reports indicate the methods of work of the National Committees, whereas others do not contain any indication as to how the Committees have arrived at their conclusions.

The German Committee made a very extensive enquiry to ascertain the attitude of the German people towards calendar reform and obtained replies from the principal organisations of industry, commerce and transport, from the big industrial leaders and from the Chambers of Commerce. The Association of German Teachers, the Association of Civil Servants, the Organisation of Commercial Employees and labour organisations have also stated their opinion on the question.

The Brazilian Committee set up four Sub-Committees, each of which was entrusted with the examination of one or more aspects of the question. These Sub-Committees were composed of persons especially competent to represent the different authorities or groups concerned ; such as, for instance : the Commercial Association of Rio de Janeiro, the Centre for Commerce and Industry, the Banking Association of Rio de Janeiro, the Associations of Commercial Employees, the Geographical and Agricultural Society, the Society of Engineers, women's associations, the Railway Accountancy Office, the Statistical and Meteorological Services, the Navigation Office, the Astronomical Observatory and labour organisations.

The British Committee drafted a memorandum summarising the principal disadvantages of the Gregorian calendar and explaining the two possible methods of reform and their advantages and disadvantages. A questionnaire accompanied this memorandum and both documents were sent to 601 organisations representing industry, commerce and various professions, including the chambers of commerce, rotary clubs and women's associations.

The United States Committee conducted three enquiries and drew up two reports, the first in 1929 and the second in 1931. Questionnaires were sent to a large number of State or local organisations representing industry, commerce and finance, science, public education, labour, journalism, agriculture and social interests. From these organisations, 1,433 replies were received. Further, a considerable number of individuals in America, distinguished in different fields of business and professional life have stated their opinions. The enquiry also asked for an opinion on the desirability for the United States of America to participate in an international conference on the question of calendar reform.

The French Committee undertook an enquiry into the attitude of the religious authorities (including the Protestant Federation of France and Israelite communities), of scientific circles ; Bureau des Longitudes, Academy of Science and Astronomical Society of France, and of economic organisations representing the interests of producers and consumers ; of city and country life, of transport and tourism and of labour organisations. The Confederation of Intellectual Workers was also consulted.

The Hungarian Committee first drew up a report explaining the question of calendar reform and the work done by the League of Nations in this matter, reproducing also three plans for calendar reform which had been selected by the Committee of Enquiry. This report was sent to religious authorities and to organisations representing economic interests, banking, transport (inland and maritime navigation, aviation, railways, post, telegraph and telephone services) to the automobile club and the touring club, asking them for an opinion on the matter.

The Netherlands Committee issued a circular letter to which two comprehensive questionnaires were attached. This letter was sent to organisations representing industry and commerce, navigation, railways and tramways, banks, insurance companies, educational authorities, the Press, labour and women in charge of households.

The Polish Committee tried to ascertain through lectures, meetings and the circulation of questionnaires, the opinion of institutions and organisations representing the majority of the populations interested in the question. Among the organisations consulted were the following : the Institute for Scientific Organisation of Labour, the Polish Committee on Standardisation, the Chamber of Commerce and Industry and the Warsaw Observatory. On the other hand, representatives of all the confessions in Poland had the opportunity of giving their opinion.

The Portuguese Committee first drew up a report explaining the work done by the League of Nations in order to educate public opinion. It then organised lectures and published articles in the Press for the same purpose. Finally, a questionnaire was sent out to 299 institutions and organisations representing public administrations, scientific and educational institutions, commercial, industrial and agricultural interests, finance, journalism, religious authorities and organisations, women's associations and labour organisations.

The Swiss Committee sent out a circular letter with an explanatory report and a questionnaire to different authorities and organisations, especially to ecclesiastical and political authorities, representatives of science and schools, commercial and industrial associations, arts and crafts, agriculture, banks, insurance associations, transport undertakings, hotel businesses, employers and employees.

The International Railway Union made two enquiries among the administrations which form the Union : the first in May 1930 and the second at the beginning of 1931. 22 administrations communicated their opinions.

#### 1. DESIRABILITY OF A REFORM REMEDYING THE DISADVANTAGES OF THE EXISTING CALENDAR.

The disadvantages of the existing calendar are not disputed in any report, but, as regards public opinion in their respective countries, it would appear from the reports submitted by the French, British and Italian Committees, as well as from oral information given by the representative of the Argentine National Committee to the Preparatory Committee, that public opinion as a whole does not seem keenly interested in calendar reform.

The British Committee finds that public opinion, whether general or particular, is little interested in plans of calendar reform, apart from the stabilisation of Easter.

All the members of the Italian Committee including the member representing overland transport and inland navigation, while considering that Italy cannot remain outside a movement for the simplification of the calendar if such a movement is of an international character, thinks that the time is not yet favourable for carrying out this reform and that its advantages still appear problematical and its disadvantages serious. On the other hand, according to the German Committee's report, the necessity for a reform of the existing calendar is generally recognised in Germany. Among the replies received from the organisations consulted by that committee, nine-tenths are in favour of calendar reform, and these organisations in general display a keen interest in the question. The work of the United States Committee gives a similar impression as regards the interest taken in the question of calendar reform by the American public. Of the 1,433 replies received to the questionnaire, 80.5 per cent are in favour of calendar simplification and 82 per cent declared themselves in favour of the participation of the United States in an international conference on calendar reform. The Swedish Committee considers that it is essential to proceed cautiously in the matter and that no change should be made in the existing system unless it is to bring definite and important advantages. The Committee is of opinion, however, that the enquiries undertaken must be carried on with a view to elucidating all aspects of the problem. The Swiss National Committee is of opinion that the simplification of the Gregorian calendar is both desirable and expedient, so long as no more changes are made in the habits and customs of the people than are really necessary. Of the replies received, 93 per cent are in favour of a simplified calendar. The Portuguese Committee states that, although the public is somewhat apathetic with regard to the question, the replies received to the questionnaire which it sent out show, in its opinion, that the Portuguese public as a whole is favourable to calendar reform. Lastly, the Brazilian Committee's report seems to show that public opinion in Brazil is favourable to reform. The International Railway Union reports that the great majority of the administrations were in favour of a reform, but that opinions were divided as to the solution to be adopted.

## 2. EQUALISATION OF QUARTERS WITHOUT ESTABLISHMENT OF A PERPETUAL CALENDAR.

40. The French Committee sets aside any scheme of reform which would not make the calendar perpetual, as it considers that a universal and perpetual calendar alone would justify a reform. On the other hand, the British and Argentine Committees consider that, as public opinion in Great Britain and the Argentine is not prepared for an extensive change such as would be involved by the establishment of a perpetual calendar, it would be desirable to study a plan involving only the equalisation of the quarters. In the case of there being a universal movement in favour of the adoption of one blank day in normal years and two blank days in leap years, the Argentine Committee would prefer a plan for a twelve-month calendar with four equal quarters. The Hungarian Committee is in favour of a plan for the equalisation of quarters as, in its opinion, it would remove the most serious drawbacks of the Gregorian calendar, while the proposals involving the introduction of "supplementary" days seem to it contrary to tradition and to religious sentiment. The Italian Committee similarly recommends that the reform at the most should be confined to rounding off the number of days composing each month, so as to have three equal quarters of 91 days and one supplementary quarter of 92 days. The Netherlands Committee is also opposed to "supplementary" days and states that it has no objection to the equalisation of the quarters. The Swiss Committee thinks that if a perpetual calendar were not established — which it would consider a great disadvantage — a relative equalisation of the twelve months of the year would still be desirable.

## 3. ESTABLISHMENT OF A PERPETUAL CALENDAR.

41. The reports of the Committees of Belgium, Brazil, Czechoslovakia, France, Germany, Poland, Portugal, Switzerland and the United States of America think the establishment of a perpetual calendar desirable. The Committees of Hungary, Italy and the Netherlands declare themselves opposed to the institution of a perpetual calendar involving the introduction of "supplementary" days.

42. The opposition to the introduction of "supplementary" days was particularly marked in the case of two religious confessions, whose representatives were heard by the Preparatory Committee — viz., the Jews and the Seventh-Day Adventists. These communities consider that this reform would result in serious drawbacks from the economic and social points of view. The Jewish religious authorities, for example, although keeping for religious purposes a separate calendar of their own and believing that the Sabbath should always be celebrated on the seventh day of each week in uninterrupted succession, the disturbance made in the regular cycle of weeks by the introduction of one or two "supplementary" days would have the result that the Sabbath would no longer always coincide with the Saturday of the civil calendar, as is the case at present but would have to be celebrated in turn on different days of the week. It would be the same for the Seventh-Day Adventists. The representatives of Jewish circles declare that this situation would render the observance of



the Sabbath difficult to reconcile with social requirements such as school attendance for children, and economic necessities such as the exercise of professions, etc. <sup>1</sup>

The representatives of the Seventh-Day Adventists also consider that a reform involving days outside the week would have serious consequences for the religious groups from the point of view of the strict observance of the seventh day.

43. The advocates of the institution of a perpetual calendar, on the other hand, urge that the drawbacks from the economic and social points of view which would be suffered by a minority as a result of the reform, should not prevail against the advantages which such a reform might have for a large majority. They also pointed out that, in their opinion, the fears expressed above were perhaps exaggerated; that, for example, in the case of the Jews, the obligation of school attendance on Saturdays, which at present exists in a certain number of countries, has not given rise to any protest on the part of the Jews in these countries and that, as regards the exercise of professions, if the Sabbath did not necessarily coincide with Saturday, the situation would not be materially different for Jews from that which existed a few years ago when business activities were pursued on Saturdays in the same way as on other days.

44. The two plans of reform implying the principle of the introduction of "supplementary" days have met with a reception in the different countries which may be described as follows:

45. (1) *Thirteen Months of Twenty-eight Days*. — In Germany, in the course of the enquiries undertaken by the German National Committee, one-third of the replies received were in favour of this proposal. The Committee adds that it has not been possible to appraise the relative value of the replies received in favour of one or other of the two proposals, owing to the disproportion which exists between the bodies consulted from the point of view of their importance. The German railways particularly, as well as many other large business concerns, declared themselves to be in favour of the thirteen-month plan.

In the United States of America the enquiries conducted by the National Committee elicited a majority of replies in favour of this plan. The Committee observed that a considerable number of commercial and industrial undertakings in the United States and other countries used auxiliary calendars to remedy the drawbacks of the present calendar and that in most cases these calendars divided the year into thirteen months of 28 days. The adoption of these auxiliary calendars, despite the drawback for these undertakings of having to use two calendars — since they need the ordinary calendar for their outside transactions — seems to show the superiority of the thirteen-month calendar from the economic point of view. The number of undertakings using such a calendar is said to be rapidly increasing. Nevertheless, the adoption of auxiliary calendars can only provide a solution for very big undertakings, small ones being unable to bear the drawbacks and expenses involved by the use of two calendars. All the replies received from undertakings having made practical use of a thirteen-month calendar are favourable to this system; and the great majority of these undertakings ask for its universal adoption in the form of a perpetual calendar.

The French Committee has recommended that the question of the total reform of the calendar at present in use should be submitted to public opinion in France, as it has been in other countries, through their National Committees and that active propaganda should be carried on in order to enlighten the public as to the benefits of such reform, which could only be carried out with the unanimous approval of all civilised countries. It expressed its preference for a total reconstruction of the Gregorian calendar and the adoption of a thirteen-month calendar which it considers to be the most logical solution.

Similarly, the Portuguese Committee has declared in favour of a year of thirteen months.

The same applies to the Committees of Poland and Czechoslovakia. The Polish Committee, in particular, expressed the opinion that the thirteen-month plan distinguished itself by its clearness and simplicity, which would facilitate international relations, and that the advantages of this plan would justify the reform of the calendar and the sacrifices which large masses of the population opposed to reform would be called upon to make. The Brazilian National Committee has declared itself to be entirely in favour of this plan, which conforms to the tradition of Auguste Comte — who, in 1849, proposed his historical calendar of 13 months of 28 days — which tradition is particularly alive in Brazil. The Belgian and Swiss Committees, on the other hand, while being favourable to a perpetual calendar, are opposed to a thirteen-month calendar.

In the course of the studies undertaken by the International Railway Union, the majority of the railway administrations were in favour of a thirteen-month calendar, especially the railways of Germany, Great Britain, Italy and Poland.

(2) *Twelve Months of 30 or 31 Days each*. — The German Committee noted that, in Germany, subject to the reservation indicated above, the greater part of the replies given in the course of its investigations were in favour of this proposal. The Belgian Committee also supports this plan. The Swiss Committee proposes that the year should consist of twelve months divided into four quarters, the first three of 91 days (31, 30, 30) and the last of 92 days (by the insertion of one "supplementary" day); the three hundred and sixty-fifth day of the year would follow December 30th and would be called Silvester; the leap-year day would follow June 30th and the year would always begin on Sunday, January 1st.

The French railways expressed a similar opinion in connection with the enquiry conducted by the International Railway Union.

<sup>1</sup> It was urged on behalf of the Jews that the employer of labour might have to dispense with the services of his Jewish employees on the weekday coinciding with the Jewish Sabbath. The employee would have to sacrifice his wages on that day; and the difficulty of finding employment would be greatly increased for the Jewish applicant.

### C. ATTITUDE OF THE RELIGIOUS AUTHORITIES.

46. The communication made by the Holy See, in reply to an enquiry on the part of the Advisory and Technical Committee for Communications and Transit, which has been mentioned above, appears to refer, not only to the question of the stabilisation of Easter, but also to the general reform of the calendar. The statements made to the Special Committee of Enquiry appear to show, however, that the general reform of the calendar, apart from the stabilisation of Easter, would perhaps not be regarded by the Holy See as of such a pre-eminently religious nature as the question of the stabilisation of movable feasts.

The reply from the Œcumenical Patriarchate to the same enquiry states that the Œcumenical Patriarchate will agree to the reform if it is accepted by all the other Christian churches. Similarly, the Archbishop of York, in a letter dated February 12th, 1931, addressed to the British Committee, stated that he did not think it was possible to say that the opinion of the Anglican Church on the reform of the calendar was accurately known, but that he was nevertheless convinced that no objection would be raised on the Anglican side, provided it was certain that the adoption of this reform would not lead to divergent practices among Christians.

The opinion of the Israelite groups and the Seventh-Day Adventist group on the reform has already been given in connection with the economic and social repercussions of the reform in the case of those communities.

The Preparatory Committee has received from the Federal Council of the Churches of Christ in America a communication to the effect that, in the Federal Council's opinion, the proposals for the simplification of the calendar do not involve any question of morality or religion and are outside the sphere of action of the Federal Council. With the co-operation of this Council, the National Committee subsequently sent a questionnaire to the ministers at the head of the various sects, asking for their personal opinions. Out of 1,500 replies received, not including the Seventh-Day Adventists and Seventh-Day Baptists, who are opposed to the reform, 75 per cent were in favour of the simplification of the calendar and the adoption of a fixed perpetual calendar.

The foregoing particulars in regard to the attitude of the religious authorities are submitted to the fourth general Conference on Communications and Transit, in the same way as those concerning the attitude of the religious authorities towards the stabilisation of Easter, without prejudice to the observations submitted by the Preparatory Committee at the beginning of its report with regard to the scope of the discussions of the Conference.

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#### Section 4.

#### PROCEDURE OF THE FOURTH GENERAL CONFERENCE.

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47. The Advisory and Technical Committee for Communications and Transit asked the Preparatory Committee to submit to the Conference helpful suggestions in regard to the procedure to be followed by the latter in discussing the questions dealt with in the present report.

Like the Advisory and Technical Committee, the Preparatory Committee considers that, in examining problems which have rarely been the subject of official international discussion, and are thus likely to be of a somewhat delicate nature, it would be expedient for the Conference to sit in committee from the outset, according to the precedent adopted by the first general Conference on Communications and Transit, for the examination of certain questions. The discussions would be freer, and the opinions expressed would not bind the Governments immediately. The results of the discussions in committee would then be communicated to the Conference at a plenary meeting, and at the second stage the latter might with advantage set up a small committee to consider the points on which an agreement could be reached between the Governments, and the form which it might take.

The Preparatory Committee would suggest to the Conference sitting in committee that the question of the economic and social aspects of the stabilisation of Easter and the question of the economic and social aspects of the general reform of the calendar should be examined separately and consecutively. As regards the general reform of the calendar, it might perhaps be advisable to discuss the following points separately and in turn: (1) the drawbacks of the present calendar; (2) the principle of the establishment of a perpetual calendar and the respective merits of the perpetual calendar and of the calendar simply involving the equalisation of the quarters, without the introduction of "supplementary" days; (3) the respective advantages and inconveniences of the two definite plans for a perpetual calendar — *i.e.*, a year of thirteen months and a year of twelve months.

In the Preparatory Committee's opinion it would also be advantageous for the Conference, during its discussions, to distinguish between two groups of questions — namely, those relating to the desirability of the reform of the calendar either in general or according to some particular plan, and those questions concerning the possibility of the immediate introduction of the reform.

At the conclusion of its work, the Conference will have to consider what action could be taken on the results of its discussions as regards decisions within the competence of the religious authorities. In accordance with the decision of the Council of the League, the religious authorities concerned will have the right to be represented at the Conference by observers.

It would nevertheless be useful if the Conference could make suggestions as to the manner in which — possibly following the procedure of the Advisory and Technical Committee with regard to the work of the Special Committee of Enquiry — the observations or decisions of the religious authorities concerned might be transmitted to Governments, in order that the competent organs of the League might assist the Governments, immediately upon receipt of communications from the religious authorities, to take such action as, from a non-religious point of view, may be involved by the decisions of the Conference.

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Annex.

[4th/C.G.C.T./C.P.9.]

LIST OF MEMBERS OF NATIONAL COMMITTEES OF ENQUIRY.

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ARGENTINE.

- M. LEGUIZAMON, representing overland transport interests.
- M. Alberto DODERO, shipowner.
- M. ALMONACID, Director of the Argentine Air Post Company.
- M. Luis COLOMBO, Chairman of the Argentine Industrial Union.
- M. Nicolas BRUZZONE, Vice-Chairman of the Argentine Rural Society.
- M. MENDEZ CASARIEGO, Chairman of the Federation of Commerce and Industry.
- M. Alejandro SHAW, Co-Director of the Tornquist Bank.
- M. Honorio ROIGT, publicist.
- M. Jean BAYETTO, Professor of State Accountancy, Secretary-General of the Academy of Economic Science, Secretary-General of the Argentine Social Museum.
- M. Alejandro UNSAIN, Director of the National Labour Department, formerly representative of the Argentine Government at the International Labour Office.
- M. Ernesto NELSON, Inspector of Secondary-school Instruction.
- M. Clodomiro ZAVALIA, formerly Federal Judge.
- M. Alejandro BUNGE, formerly Director-General of Statistics.

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BELGIUM.

- M. P. STROOBANT, President of the science class at the Academy, Director of the Royal Observatory of Belgium, Professor at the University of Brussels, *Chairman*.
- M. ALLIAUME, Professor at the University of Louvain.
- M. A. BAAR, engineer.
- M. DEHALU, Administrator-Inspector at the University of Liège.
- M. F. MOREAU, Astronomer at the Royal Observatory of Belgium, *Secretary*.

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BOLIVIA.

- M. Emilio VILLANUEVA, Minister of Education, *Chairman*.
  - M. Roberto ZAPATA, Director of the Department of Labour.
  - M. Victor MUNOZ REYES, Director of the Budget and Statistical Department.
  - M. Arturo PENARANDA, Director-General of Agriculture.
  - M. R. P. DESCOTES, Director of the National Observatory.
  - M. José Aguirre ACHA, Counsellor at the Ministry for Foreign Affairs.
  - M. Fausto CARRASCO, Director of Health.
  - M. Alberto PALACIOS, President of the Central Bank.
  - M. Moises ORMACHEA.
  - M. Juan CABRERA GARCIA, President of the Press Association.
  - Mme. Maria Luisa BUSTAMANTE DE URIOSTE, President of the National Council of Women.
  - M. Antonio HARTMANN, Rector of the University of St. André.
  - M. Augusto SIEFERT, Bishop of La Paz.
  - M. Alberto DE VILLEGAS, Director of the National Museum.
  - M. Nicasio CARDOZO, Chairman of the League of Commercial Employees.
  - M. Rafael SALVATIERRA, President of the Labour Federation.
  - M. Arturo POSNANSKY, Professor of Archæology.
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BRAZIL.

- Dr. Octavio MANGABEIRA, *Honorary Chairman*.  
Dr. Amaro DA SILVEIRA, *Chairman*.  
Dr. Julio Eduardo DA SILVA ARAUJO, *Vice-Chairman*.  
M. Fortunato BULCÃO, *Vice-Chairman*.  
Mme. Jeronyma MESQUITA, of the National Council of Women.  
Mlle. Bertha LUTZ, of the Brazilian Federation of Feminine Progress.  
Mme. Cacilda MARTINS, National Council of Women.  
Mlle. Carmen PORTINHO, of the University Union of Women.  
Dr. Bulhões DE CARVALHO, Director of the Department of Statistics.  
Dr. Sampaio FERRAZ, Director of the Meteorological Service.  
Dr. Sodré DA GAMA, Director of the Astronomical Observatory.  
Dr. Lobato KELLER.  
Dr. Mario MARTINS COSTA, of the Accountancy Service of the Federal Railways.  
Dr. F. V. de Miranda CARVALHO.  
M. Tasso B. GARCIA PAULA, representative of the Labour Organisation.  
M. Hildebrando Gomes BARRETO.  
Dr. João Guilherme-HESSE.  
M. Lupercio HOPPE.  
M. José DE AVELLAR WERNECK.  
Colonel Alipio DE PRINIO, Director of the Military Geographical Service.  
Dr. Edgard ROQUETTE PINTO, Director of the National Museum.  
Admiral Julio Cesar DE NORONHA, Director of Navigation.  
Dr. Eder JANSEN DE MELLO, of the National Department of Public Health.
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CHILE.

- M. Armando QUEZADA ACHARAN, Rector of the University of Chile, *Chairman*.  
M. Luis BARROS BORGONO, Director of the Caisse de Crédit hypothécaire.  
M. Guillermo SUBERCASEAUX, former Minister of Finance.  
M. Tomas LAWRENCE, Inspector-General of Labour.  
M. Oscar FENNER, Director of *La Nacion*.  
M. Carlos A. ILLANES, Director of the Department of Public Health.  
M. Rosauro CASTRO, Director of the National Observatory.  
M. Raul SIMON, Director-General of Taxes.  
M. Luis LARRAIN PRIETO, President of the National Society of Agriculture.  
M. Manuel GUZMAN MATURANA, President of the National Society of Professors.  
Mme. Elena OLIVEIRA DE CASTRO, President of the National Council of Women.  
M. Juan LAGARRIGUE, Director-General of the State Railways.  
M. Alberto EDWARDS.
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COSTA RICA.

- Dr. Rafael Oton CASTRO, Archbishop of San Jose.  
M. Leon Cortes CASTRO, lawyer and politician, Province of Alajuela.  
M. Miguel Obrigon LICANO, Professor, former Minister of Public Instruction.  
M. Juan Katamoros LORIA, of the American School of Engineers.
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CUBA.

- Dr. Evilis Rodriguez LENDIAN, Professor at the University of Havana.  
Dr. Juan Manuel PLANAS, President of the National Geographical Society of Cuba.  
Dr. Jose MILLAS, Director of the National Observatory.  
Dr. Salvador MASSIP, Professor of Geography at the University of Havana.  
M. Mario Torres MENIAR, Captain in the Cuban Army.  
The Rev. Guierrez LANZA, of the Belon College of Havana.
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CZECHOSLOVAKIA.

- M. Jan TŘEBICKÝ, member of the Administrative Commission of the Prague Chamber of Commerce and Industry, *Chairman*.  
M. Karel SLAVIK, Vice-President of the Czech Department at the Agricultural Council, Prague, *Vice-Chairman*.  
M. Josef LACHOUT, *Rapporteur* of the Chamber of Commerce and Industry, Prague, *Secretary*.
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ECUADOR.

- M. Manuel Maria SANCHEZ (Minister for Education), *Chairman*.  
Dr. Ricardo RUIZ, representative of the Central Bank.  
Dr. Luis R. ESCALANTE, representative of the churches.  
M. Rafael Andrade RODRIGUEZ, Dean of the Faculty of Science at the Central University.  
M. Manuel SOTOMAYOR Y LUNA, representative of *El Debate*.  
M. Alejandro COELLO, representative of *El Comercio*.  
M. Luis DE ASCAZUBI, representative of the National Society of Agriculturists.  
M. Tomas ROUSSEAU, Professor of Physics at the Central University.  
M. Nicolas G. MARTINEZ, Director of the Astronomical and Meteorological Observatory of Quito.  
Mme. Zoila UGARTE DE LANDIVAR, representative of Feminist groups.  
M. Pastor PERES, representative of the Artistic and Industrial Society of Pinchincha.  
M. R. JARAMILLO, representative of *El Dia*.  
M. Fernando PEREZ PALLARES, representative of the Chamber of Commerce and Agriculture of Quito.  
Colonel Luis T. PAZ Y MINO, Chief of General Headquarters.
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ESTONIA.

- M. NEY, of the Ministry of Education and Social Welfare.  
M. NEREP, of the Ministry of Education and Social Welfare.  
M. JURGENSON, of the Ministry of Communications.  
M. GUTMAN, Ministry of Economic Affairs.  
M. PULLERITS, Ministry of Economic Affairs.  
M. HURT, of the Chamber of Commerce.  
M. TANNEBAUM, of the Exchange Committee.  
M. RAUDSEPP, of the State Railways.  
M. LAABAN, of the General Post Office.  
M. WELLNER, of the Office of Waterways.  
M. TOOMS, of the Central Bureau of Statistics.  
M. POOM, of the Bank of Estonia.  
M. RAHAMAGI, Professor at the University of Tartu (Lutheran Church).  
M. KIROTAR, of the Ministry for Foreign Affairs.  
The PRESIDENT of the National Council of Women.
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FINLAND.

- M. Eero JÄRNEFELT, Counsellor of Legation, Ministry for Foreign Affairs.  
M. Ivar GRUNDSTRÖM, Counsellor at the Ministry of Education.  
M. Elis HULTIN, Chief of Section at Central Chamber of Commerce.  
M. Karl F. SUNDMAN, Professor of Astronomy at the University of Helsingfors.  
M. Väinö TANNER, former Prime Minister, Managing-Director of Co-operative Society "Elanto", leader of the Social Democratic Party, Member of Parliament.  
Mme. Tilma HAINARI, President of National Council of Women.  
M. Jalmar CASTRÉN, Director-General of the Administration of the Railways.  
M. Verner LINDGREN, Director of Statistics and Economic Adviser to the Customs Board.
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GERMANY.

- Dr. PLATZER, Director of the Official Statistical Bureau of the Reich : representing the Institute for "Konjunkturforschung", *Secretary-General of the Committee*.
- Dr. KAISENBERG, Ministerial Councillor, Ministry of the Interior of the Reich.
- Dr. REICHARDT, Ministerial Director, Ministry of Economy of the Reich.
- M. SOBERNHEIM, Counsellor of Legation, Foreign Office.
- Dr. OPPENHEINER, Government Counsellor at the Ministry of Labour of the Reich.
- M. GOTTHOLD, Ministerial Counsellor, Ministry of Reich Communications.
- M. SACKERSDORFF, Ministerial Counsellor, Ministry of Posts of the Reich.
- M. TRILOFF, Ministerial Counsellor, Ministry of Posts of the Reich.
- M. ROHDE, of the German Reichsbahn.
- Dr. STEUERNAGEL, Director of the German Reichsbahn.
- Dr. HAMMER, Director of the German Reichsbahn.
- M. KAEMMEL, Superior Government Counsellor at the Ministry of Finance of the Reich.
- M. SEYBOTH, Ministerial Counsellor, Deputy representative of Bavaria on the Reichsrat.
- Dr. STÖSSEL, Central Statistical Bureau.
- Dr. SCHNEIDER, Bureau of the Reich for Employment and for Unemployment Insurance.
- M. KONETZKI, Instructor at the Central Institute for Education and Instruction.
- M. GUSTAVUS, Ecclesiastical Counsellor, representing the German Committee of Evangelical Churches.
- M. SCHREIBMAYR, Civil Engineer, "Reichskuratorium für Wirtschaftlichkeit".
- Dr. VON KELTSCH, Civil Engineer, "Reichskuratorium für Wirtschaftlichkeit".
- Dr. LOENING, Association of German Industries of the Reich.
- M. BAARE (replacing Dr. Schlenker) "Langnamverein" (*i.e.*, north-western group of the Association of German Steel and Iron Industrialists).
- M. A. KNOLL, General Association of German Syndicates.
- M. ECHTERNACH, Superior Technical Counsellor at the Ministry of Posts ; Association of High Officials of the Reich.
- Dr. WIENER, Rabbi, representing the General Association of Rabbis.
- M. WALTKE, Association of German Communications Administrations.
- M. KLAPETEK, German Officials Association.
- Dr. MEYER, German Union of Towns.
- M. VON SAFFT, Reich Federation of German Artisans.
- M. SCHWARZKOPFF, Reich Federation of German Wholesale and Overseas Traders.
- Dr. TREMÖHLEN, Federation of German Communications Associations.
- Dr. LANGE, Corporation of German Retail Traders.
- M. Alfred LANGE, representing the "Gewerkschaftsring".
- M. SUHR, of the "AFA" Association.
- Dr. GROSE, "Deutscher Industrie- und Handelstag".
- M. HENSCHEL, Agriculturist, representing the German Rural Economic Council.
- Dr. HUBER, Agriculturist, representing the Association for Social Reform.
- M. MAX MENZEL, Association of German Syndicates.
- M. HEILMANN, Association of German Savings Banks and "Girokassen".
- Dr. MOLLAT, Technical Mining Group of the Reich Association of German Industries.
- M. TKOTSCH, Secretary of the Bishop's Ordinary.
- Dr. GAMBKE, Reich Association of Private Insurance Companies.

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GREAT BRITAIN.

- The Right Hon. Viscount BURNHAM, C.C.M.G., C.H., *Chairman*.
- Mr. Wilfred ANDREWS, President of the Rotary International.
- Mr. C. W. COWEN, M.A., former President of the National Union of Teachers.
- Dr. Winifred CULLIS, C.B.E., Professor of Physiology, University of London, President of the International Federation of University Women.
- Mr. R. B. DUNWOODY, C.B.E., Secretary of the Association of British Chambers of Commerce.
- Sir Frank DYSON, K.B.E., Astronomer Royal.
- Mrs. F. A. KEYNES, J.P., President of the National Council of Women.
- Sir Basil KEMBALL-COOK, K.C.M.G., C.B., Managing Director of the British Tanker Co., Ltd.
- Sir Stanley MACHIN, J.P., President of the Association of British Chambers of Commerce.
- Mr. Ernest SYKES, British Bankers' Association.
- Sir Amherst SELBY-BIGGE, Bart., K.C.B., former Permanent Secretary to the Board of Education 1911 to 1925.
- Mr. A. G. WALKDEN, M.P., of the General Council of the Trade Union Congress.
- Sir Herbert A. WALKER, K.C.B., General Manager, Southern Railway.
- Mr. George H. WOOD, F.S.S., nominated by the Federation of British Industries.
- Mr. Ralph MORLEY, M.P., *Secretary of the Committee*.
-

GUATEMALA.

Representing Commerce :

M. Arturo STEIN, M. R. Felipe SOLARES, M. José GOUBAND.

Representing Finance :

M. Arturo GARCIA, M. José LINARES, M. Marcial GARCIA SALAS.

Representing Industry :

M. Carlos F. NOVELLA, M. Arturo CASTILLO A., M. Rufino IBARGUEN.

Representing Agriculture :

M. Faustino PADILIA, M. Guillermo LAVAGNINO, M. Jorge GARCIA SALAS.

Representing Labour :

M. Manuel MORENO, M. Nicolas REYES O., M. Juan Ernesto PEREZ.

Representing Railways :

M. Charles MYRS, M. Roberto M. AYLWARD, M. Roberto A. NANNE.

Representing the Press :

M. Alejandro CORDOVA, M. Federico HERNANDEZ DE LEON, M. Carlos BAUER AVILES.

Representing the Catholic Church :

The Rev. Mateo D. PERRONI, The Rev. Salvador CORDOVA ZECENA, The Rev. Luis MONTENEGRO Y FLORES.

Representing feminine interests :

Mme. Natalia G. V. DE MORALES, Mlle. Alicia AGUILAR C., Mlle. Margarita LLOREDA.

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ITALY.

Professor Amedo GIANNINI, National Research Council, *Chairman*.

Professor Filippo ANGELETTI, of the Astronomic Observatory of Palermo.

M. Luigi BIAMONTI, Head of the Legal Office of the General Fascist Confederation of Italian Industry.

Professor Giuseppe TASSINARI, of the Royal Institute of Agriculture, Bologna.

M. Carrado MARCHI, of the National Fascist Confederation of Transport by Land and of Inland Navigation.

M. Mario ZAMBONI, of the National Fascist Confederation of Maritime and Air Transport Undertakings.

Dr. Adolfo NESI, of the General Fascist Confederation of Banks.

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## ANALYTICAL TABLE.

	Page	Section	Paragraph
<b>Argentine.</b>			
<i>General Reform :</i>			
General attitude of public opinion . . . . .	13	39	14
Equalisation of quarters . . . . .	14	40	
<b>Austria.</b>			
<i>Fixing of Easter :</i>			
Attitude of Protestant Churches . . . . .	9	24	
<b>Belgium.</b>			
<i>Fixing of Easter :</i>			
General attitude of public opinion . . . . .	8	14	1
Attitude of Protestant Churches . . . . .	9	24	
<i>General Reform :</i>			
Establishment of a perpetual calendar . . . . .	{ 14	41	
	15	45	5
	15	45	7
<b>Brazil.</b>			
<i>General Reform :</i>			
Scope of enquiry of the National Committee . . . . .	13	39	4
General attitude of public opinion . . . . .	14	39	16
Establishment of a perpetual calendar . . . . .	{ 14	41	
	15	45	5
<b>Canada.</b>			
<i>Fixing of Easter :</i>			
Opinion of education authorities . . . . .	8	13	2
<b>Czechoslovakia.</b>			
<i>Fixing of Easter :</i>			
Opinion of education authorities . . . . .	8	13	2
Attitude of Protestant Churches . . . . .	9	24	
Opinion of railway administrations . . . . .	7	12	1
<i>General Reform :</i>			
Establishment of a perpetual calendar . . . . .	{ 14	41	
	15	45	5
<b>Denmark.</b>			
<i>Fixing of Easter :</i>			
Opinion of education authorities . . . . .	8	13	2
Attitude of Protestant Churches . . . . .	9	24	
<b>Estonia.</b>			
<i>Fixing of Easter :</i>			
Opinion of education authorities . . . . .	8	13	2
Opinion of railway administrations . . . . .	7	12	1
<b>Finland.</b>			
<i>Fixing of Easter :</i>			
Opinion of education authorities . . . . .	8	13	2
<b>France.</b>			
<i>Fixing of Easter :</i>			
General attitude of public opinion . . . . .	8	14	2
Opinion of education authorities . . . . .	8	13	2
Attitude of Protestant Churches . . . . .	9	24	
Opinion of railway administrations . . . . .	7	12	1
<i>General Reform :</i>			
Scope of enquiry of the National Committee . . . . .	13	39	7
General attitude of public opinion . . . . .	13	39	14
Equalisation of quarters . . . . .	14	40	
Establishment of a perpetual calendar :			
(a) Public opinion . . . . .	{ 14	41	
	15	45	3
(b) Opinion of railway administrations . . . . .	15	45	8
<b>Germany.</b>			
<i>Fixing of Easter :</i>			
General attitude of public opinion . . . . .	8	14	1
Opinion of education authorities . . . . .	8	13	2
Attitude of Protestant Churches . . . . .	9	24	
Opinion of railway administrations . . . . .	7	12	1
<i>General Reform :</i>			
Scope of enquiry of the National Committee . . . . .	13	39	3
General attitude of public opinion . . . . .	14	39	16
Establishment of a perpetual calendar :			
(a) Public opinion . . . . .	{ 14	41	
	15	45	1
	15	45	7
(b) Opinion of railway administrations . . . . .	{ 15	45	1
	15	45	6
<b>Great Britain.</b>			
<i>Fixing of Easter :</i>			
General attitude of public opinion . . . . .	8	15	
Attitude of the Church of England . . . . .	{ 9	22	
	9	23	
Attitude of Protestant Churches . . . . .	9	24	
Opinion of railway administrations . . . . .	7	12	

	Page	Section	Paragraph
<b>Great Britain</b> (continued)			
<i>General Reform :</i>			
Scope of enquiry of the National Committee . . . . .	13	39	5
General attitude of public opinion . . . . .	13	39	14-15
Equalisation of quarters . . . . .	14	40	
Establishment of a perpetual calendar :			
(a) Attitude of the Church of England . . . . .	16	46	2
(b) Opinion of railway administrations . . . . .	15	45	6
<b>Greece.</b>			
<i>Fixing of Easter :</i>			
Opinion of education authorities . . . . .	8	13	2
Opinion of railway administrations . . . . .	7	12	1
<b>Hungary.</b>			
<i>Fixing of Easter :</i>			
General attitude of public opinion . . . . .	8	15	
Attitude of Protestant Churches . . . . .	9	24	
Opinion of railway administrations . . . . .	7	12	1
<i>General Reform :</i>			
Scope of enquiry of the National Committee . . . . .	13	39	8
Establishment of a perpetual calendar . . . . .	14	41	
Equalisation of quarters . . . . .	14	40	
<b>India.</b>			
<i>Fixing of Easter :</i>			
Opinion of education authorities . . . . .	8	13	2
<b>Italy.</b>			
<i>Fixing of Easter :</i>			
General attitude of public opinion . . . . .	8	15	
Attitude of Protestant Churches . . . . .	9	24	
<i>General Reform :</i>			
General attitude of public opinion . . . . .	{ 13	39	14
	14	39	16
Establishment of a perpetual calendar :			
(a) Public opinion . . . . .	14	41	
(b) Opinion of railway administrations . . . . .	15	45	6
Equalisation of quarters . . . . .	14	40	
<b>Lithuania.</b>			
<i>Fixing of Easter :</i>			
Attitude of Protestant Churches . . . . .	9	24	
<b>Luxemburg.</b>			
<i>Fixing of Easter :</i>			
Opinion of railway administrations . . . . .	7	12	
<b>Netherlands.</b>			
<i>Fixing of Easter :</i>			
General attitude of public opinion . . . . .	8	16	
Opinion of education authorities . . . . .	8	13	2
Attitude of Protestant Churches . . . . .	9	24	
<i>General Reform :</i>			
Scope of enquiry of the National Committee . . . . .	13	39	9
Establishment of a perpetual calendar . . . . .	14	41	
Equalisation of quarters . . . . .	14	40	
<b>New Zealand.</b>			
<i>Fixing of Easter :</i>			
Opinion of education authorities . . . . .	8	13	2
<b>Norway.</b>			
<i>Fixing of Easter :</i>			
Attitude of Protestant Churches . . . . .	9	24	
<b>Poland.</b>			
<i>Fixing of Easter :</i>			
General attitude of public opinion . . . . .	9	17	
Attitude of Protestant Churches . . . . .	9	24	
Opinion of railway administrations . . . . .	7	12	1
<i>General Reform :</i>			
Scope of enquiry of the National Committee . . . . .	13	39	10
Establishment of a perpetual calendar :			
(a) Public opinion . . . . .	{ 14	41	
	15	45	5
(b) Opinion of railway administrations . . . . .	15	45	6
<b>Portugal.</b>			
<i>Fixing of Easter :</i>			
General attitude of public opinion . . . . .	8	16	
<i>General Reform :</i>			
Scope of enquiry of the National Committee . . . . .	13	39	11
General attitude of public opinion . . . . .	14	39	16
Establishment of a perpetual calendar . . . . .	{ 14	41	
	15	45	4
<b>Roumania.</b>			
<i>Fixing of Easter :</i>			
Opinion of education authorities . . . . .	8	13	2
Attitude of Protestant Churches . . . . .	9	24	

	Page	Section	Paragraph
<b>Spain.</b>			
<i>Fixing of Easter :</i>			
Opinion of education authorities . . . . .	8	13	2
Attitude of Protestant Churches . . . . .	9	24	
Opinion of railway administrations . . . . .	7	12	1
<b>Sweden.</b>			
<i>Fixing of Easter :</i>			
General attitude of public opinion . . . . .	8	17	
Opinion of education authorities . . . . .	8	13	2
Attitude of Protestant Churches . . . . .	9	24	
<i>General Reform :</i>			
General attitude of public opinion . . . . .	14	39	16
<b>Switzerland.</b>			
<i>Fixing of Easter :</i>			
General attitude of public opinion . . . . .	8-9	17	
Opinion of education authorities . . . . .	8	13	2
Attitude of Protestant Churches . . . . .	9	24	
Opinion of railway administrations . . . . .	7	12	1
<i>General Reform :</i>			
Scope of enquiry by National Committee . . . . .	13	39	12
General attitude of public opinion . . . . .	14	39	16
Establishment of a perpetual calendar . . . . .	14	41	
Equalisation of quarters. . . . .	15	45	5
	15	45	7
	14	40	
<b>United States of America.</b>			
<i>Fixing of Easter :</i>			
General attitude of public opinion . . . . .	8	14	1
Attitude of Protestant Churches . . . . .	9	24	
<i>General Reform :</i>			
Scope of enquiry by the National Committee . . . . .	13	39	6
General attitude of public opinion . . . . .	14	39	16
Establishment of a perpetual calendar :			
(a) Public opinion. . . . .	14	41	
(b) Opinion of Protestant Churches . . . . .	15	45	2
	16	46	4

RELIGIOUS AUTHORITIES AND ORGANISATIONS.

<b>Holy Sec.</b>			
<i>Fixing of Easter</i> . . . . .	9	19, 20 26, 28	
<i>General Reform</i> . . . . .	15	46	1
	16	46	1
<b>Orthodox Church.</b>			
<i>Fixing of Easter</i> . . . . .	9	21	
<i>General Reform</i> . . . . .	16	46	2
<b>Church of England.</b>			
<i>Fixing of Easter</i> . . . . .	9	22	
<i>General Reform</i> . . . . .	9	23	
	16	46	2
<b>Federal Council of Churches of Christ in America.</b>			
<i>Fixing of Easter</i> . . . . .	9	24	
<i>General Reform</i> . . . . .	16	46	4
<b>German Evangelical Church Committee.</b>			
<i>Fixing of Easter</i> . . . . .	9	24	
<b>Federation of Swiss Protestant Churches.</b>			
<i>Fixing of Easter</i> . . . . .	9	24	
<b>Protestant Churches and Federations of Churches in : America, Austria, Belgium, Czechoslovakia, Denmark, France, Germany, Great Britain, Hungary, Italy, Lithuania, The Netherlands, Norway, Poland, Roumania, Spain, Sweden, Switzerland :</b>			
<i>Fixing of Easter</i> . . . . .	9	24	
<b>Jewish Religious Authorities.</b>			
<i>General Reform :</i>			
Establishment of a perpetual calendar . . . . .	14	42	1
	15	43	
	16	46	3, 4
<b>Seventh Day Adventists.</b>			
<i>General Reform :</i>			
Establishment of a perpetual calendar . . . . .	14	42	
	16	46	3
<b>Seventh Day Baptists.</b>			
<i>General Reform</i> . . . . .	16	46	

INTERNATIONAL ORGANISATIONS.

<b>International Chamber of Commerce.</b>			
<i>Fixing of Easter :</i>			
Resolutions adopted in 1925 and 1929 . . . . .	7	11	
<b>International Railway Union.</b>			
<i>Fixing of Easter</i> . . . . .	7	12	
<i>General Reform :</i>			
Scope of enquiry . . . . .	13	39	13
General opinion of Administrations members of the Union . . . . .	14	39	17
Establishment of a perpetual calendar . . . . .	15	45	6

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