

Here the Eth. chapter ends. Syr. adds as part of the same chapter the Prayer found in the Eth. Anaphora of the Apostles (cf. Brightman *LEW* p. 241) beginning, 'Holy, Holy, Holy, Trinity ineffable'; then some rubrics about the reception, and finally the prayer found in nearly all the Eth. Anaphoras, and called in them 'Pilot of the Soul' (cf. Brightman, p. 243). The same matter is found in the Eth. version in the three chapters (x-xii, A; xvi-xviii, B) which follow.

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THE EASTER CALENDAR AND THE SLAVONIC ENOCH.

IN the JOURNAL for January 1921 Dr Charles has replied to Mrs Maunder's paper 'The Date and Place of Writing of the Slavonic Enoch' (*The Observatory* xli, 1918, 309-316), or rather to my notice of it in the JOURNAL xx (1919) 252, for, as he himself tells us, he writes without having referred to Mrs Maunder's paper. In that notice I was careful to express neither agreement with nor dissent from any part of Mrs Maunder's criticism except in so far as she dealt with the scheme of the calendar. Here alone her argument falls within the range of my own studies, and in my opinion it is unanswerable.

Since it is impossible to discover from standard works on chronology when some of the calendrical elements contained in the Slavonic Enoch came into use, I have thought it may be useful both to students of the Easter calendar and to students of the Slavonic Enoch to have the dates set out when these elements first made their appearance. Being ignorant of Slavonic languages I use the English versions of Morfill¹ and Forbes² and the German version of Professor Bonwetsch.³

The calendrical elements in the Slavonic Enoch are contained in chapters xiii-xvi. They are almost entirely omitted from the shorter redaction, which the editors call B. The elements may be enumerated as follows:—

(a) xiii. A division of the Sun's course by six gates of $61\frac{1}{4}$ stadia each, apparently a sixfold division of the year, but unintelligible in its

¹ *Book of the Secrets of Enoch*, Morfill and Charles (1896).

² In 'Apocrypha and Pseudepigrapha of the Old Testament', Charles (1913) vol. ii *Pseudepigrapha* pp. 431-469.

³ 'Das slawische Henochbuch', *Abhandlungen der k. Gesellsch. zu Göttingen* neue Folge, i (1896).

present form. B assigns 42 or 35 days to each gate, so far as the text is preserved.

(b) xiv 1. The Sun's course is stated at $365\frac{1}{4}$ days.

(c) In xiv 3 the interval between evening and morning twilight seems to be stated at 'seven great hours', presumably reckoned as each one-twelfth of the interval between sunset and sunrise.

(d) xv 4. The Sun's circuit is said to last twenty-eight years and to begin again from the beginning. This sentence appears from Morfill's apparatus to be wanting in the Bulgarian version of the complete text, as well as in the shorter redaction.

(e) xvi 1, 2 describes the course 'of the moon, twelve great gates, crowned from west to east, by which the moon goes in and out of the customary times'. Then follows a list of the number of days with which the moon goes in by each of the twelve gates. These correspond very closely to the lengths of the months in the Julian calendar beginning with March and ending with February. In the translations given by Morfill and Forbes the months corresponding to April and November have 31 days each, while those corresponding to May and December have 30 days each. But it would appear from Morfill's apparatus that both MSS of the complete text read 35 for April, while for November the Bulgarian MS has 35 and the South Russian 31, and for December the Bulgarian has 31 and the South Russian 30. For May both agree on 30. In view of the corruptions in the numbers in both MSS, it seems safe to assume that the intention of the author was to represent the Julian calendar. This would appear to be rendered certain by the duration of the last month, which like February has 28 days. Dr Charles holds that this account cannot possibly apply to the Moon, but applies perfectly to the Sun, which must therefore be understood as the subject. It is clear, however, from the position of the account that it was intended to apply to the Moon. We must realize that we are dealing with a writer who was sufficiently unscientific to regard the Julian month as the period of a course of the Moon.

(f) xvi 4, 5. The Moon is stated to 'accomplish the $365\frac{1}{4}$ days of the solar year, while the lunar year has 354, and there are wanting twelve days of the solar circle, which are the lunar epacts of the whole year'. After '354' Morfill and Bonwetsch insert 'making twelve months of twenty-nine days'. They also read 'eleven days' instead of 'twelve days'. If Morfill and Bonwetsch are correct, 29 is an inexact figure for $29\frac{1}{2}$. A solar year exceeds twelve lunar months by a little less than eleven days, but I am not prepared to say whether 'eleven' or 'twelve' is the correct reading.

(g) The last passage is immediately followed by the words: 'Thus, too, the great circle contains five hundred and thirty-two years'. These

words are found in both MSS, but are bracketed in all the translations because in Dr Charles's opinion they have no real connexion with the context.

(h) xvi 6 contains an explanation of leap year.

(i) xvi 8 concludes the motion of the Moon with the statement: 'It has a sevenfold course in nineteen years', doubtless referring to the Metonic cycle of seven intercalations in nineteen years. Dr Charles in his separate edition has permitted the printer to give the length of nineteen solar years as 6939.1860 days instead of 6939.6018 days, and this transposition of figures has found its way into his note in *Pseudepigrapha*. He has also suggested suitable years of the cycle for intercalations, but in the *Pseudepigrapha* he has permitted the printer to drop one of the seven.

I come now to the dates when the different statements bearing on the calendar first made their appearance.

(a) as I have stated is unintelligible.

(b) The knowledge that the solar year lasted 365 $\frac{1}{4}$ days was of immemorial antiquity in Egypt.

(c) The interval here stated is, so far as I know, unique. It is not strictly calendrical.

(d) The twenty-eight years' cycle is a period in which each day of the year falls on the same day of the week as in the corresponding year of the preceding cycle. The earlier writers on the calendar do not find the day of the week by means of a cycle, and the earliest reference that I have been able to discover to the twenty-eight years' cycle is in the epistle of the Spanish monk Leo to the Archdeacon Sesuldus, which Dr Krusch, who has published the text,¹ dates in the year 627. The passage runs as follows²: 'Et non inmerito, quia lunaris cursus suum ordines metas x et viii consummans annis, in semet reuertitur, solaris uero, quia curso lunari uelocior est, per xxviii annos efficaci discursu graditer, et sic in semet, xxviii expletis annis, reuertitur.' It will be observed that the cycle is called 'solaris cursus', though it is really no more solar than is the nineteen years' cycle, which reconciles the solar year with the lunar month just as the twenty-eight years' cycle reconciles the solar year with the week.

This cycle appears to have come into vogue with great suddenness. There is no mention of it in the three chapters which the Emperor Heraclius added in the years 618-619 and 623 to Stephanus of Alexandria's *Diasaphesis*,³ nor yet in Isidore's *Etymologiae*, where

¹ 'Studien zur christlich-mittelalterlichen Chronologie' (1880) 298-302. For the date see note on p. 301

² *Ibid.* 300.

³ Edited by Usener *De Stephano Alexandrino* (1880).

the Paschal cycle is treated in vi 17, written about 627.¹ It is mentioned, however, in the Syntagma de Pascha prefixed to the Paschal Chronicle.² That Chronicle was completed, apparently at Constantinople, in the year 629–630,³ and in it the cycle is styled τὴν κατὰ φύσιν ὀκτωκαιεκοσαετηρίδα τοῦ ἡλίου. It is true that Professor Schwartz⁴ attributes the earlier parts of the Syntagma and of the Chronicle to a supposed Antiochene author of the year 507 and a later part of each to a supposed continuator of the year 562. But his argument is far from convincing, and Mgr Mercati⁵ has, as a result of a study of the unique MS of the Chronicle, raised the question whether the Syntagma de Pascha is really part of the Chronicle at all, and not rather an independent work which has been bound up with it. In any case the twenty-eight years' cycle is unmistakeably present in the computus of Maximus⁶ written in Africa in the year 640–641.⁷ If the Sesuldus of Leo's letter should prove to be the younger Sesuldus, and if the Syntagma de Pascha should prove to be of later date, Maximus will be the earliest author to mention this cycle.

If it is possible to date the Slavonic Enoch in the seventh or a later century, there seems to be no reason for rejecting the reference to this solar cycle, which comes in its proper place at the close of the description of the course of the Sun, and is, as will be seen, analogous to the references to other elements in the Easter calendar.

(e) The Julian calendar dates from 45 B.C. The passage seems to point to an author living in a country where this calendar was used, and, therefore, not to Egypt, where the Alexandrine year of twelve months of thirty days each followed by five or six *epagomenae* took its place.

(f) The knowledge that the solar year exceeded twelve lunar months by approximately eleven or twelve days is very ancient, but the use of lunar epacts appears to date from the third century of our era. 'Lunar epacts'—the plural form is the more correct—is a technical term and may be defined as follows: 'the age of the Moon expressed in days on an unvarying date of the calendar year'. If the age of the Moon on March 1 or any other date that may be preferred is tabulated for each of a series

¹ *Etyim.* v 39, 42 is dated in the seventeenth year of Heraclius (626–627).

² Migne *Patrologia Graeca* xcii (1865) 88 A–96 A.

³ *Ibid.* 101, 102.

⁴ Pauly-Wissowa *Real-Encyclopadie* iii (1899) 2474.

⁵ *Journal of Theological Studies* vii (1906) 412.

⁶ Migne *Patrologia Graeca* xix (1857) 1217–1280. See also Professor Schwartz's paper 'Christliche und jüdische Ostertafeln', *Abhandlungen der königl. Gesellsch. zu Göttingen*, philolog.-histor. Klasse, neue Folge, viii (1905) 81–88, and the facsimile at the end.

⁷ A. Mentz *Beiträge zur Osterfestberechnung bei den Byzantinern* (1906) 4.

of years, it becomes a simple matter to compute the approximate age of the Moon for any day in any year falling within the series, or to compute the approximate date of any phase of the Moon. These tabulated ages are the 'lunar epacts'. Since the solar year exceeds twelve lunar months by a little under eleven days, and falls short of thirteen lunar months by a little under nineteen days, the lunar epacts are normally increased by eleven days or reduced by nineteen days from year to year. That is why they are connected in this passage with the twelve (or eleven) days of the solar circle which are wanting to the lunar year. I have failed to find any example of the use of the term 'epacts' or of the use of the calendrical device indicated by the name earlier than the treatise 'De Pascha computus'¹ of the year 243 of our era, where we read of the Hebrews of the time of Moses: 'Hac itaque ratione non sua sed Dei sapientia instructi Hebraei circa cursum lunae iuxta regulam primam Graecorum more Aegyptiorum, et non secundum epactas lunares, non potuerunt errasse.' It will be observed that 'epactae lunares' are here treated with contempt, as part of some rival system of computation, doubtless the eighty-four years' cycle which is regulated by them, and to which this appears to be the earliest reference. It is also clear that the author of this treatise did not understand the term 'epactae lunares', for his own Easter table is actually based on the age of the Moon on March 1, and therefore on lunar epacts. Dr Charles refers in his paper in the JOURNAL to the Book of Enoch lxxii-lxxxii, and to his commentary on it in the second edition of his Book of Enoch, but, although some very inaccurate references are made in those chapters to the excess of the solar year over twelve lunar months, there is nothing there at all resembling lunar epacts.

(g) Dr Charles states that the great cycle of 532 years is produced by multiplying together the Metonic cycle of 19 years and the solar cycle of 28 years. He also states that the cycle was first proposed by Victorius of Aquitaine, c. A. D. 457: Both statements are based on erroneous information, though the former may be supported by the account of the cycle in the Syntagma de Pascha prefixed to the Paschal Chronicle. The oldest 532 years' cycle was the work of Annianus,² who, according to Syncellus,³ was the contemporary of Theophilus, the twenty-second archbishop of Alexandria, A. D. 385-412. If, as Unger argues,⁴ the passage in Syncellus, ed. Dindorf 59, is derived from Annianus, Annianus must have produced his cycle in the year 412, forty-five years earlier than Victorius. His great cycle contained twenty-eight cycles of

¹ Edited by Hartel in *Corpus Script. Eccl. Lat.* vol. iii pars iii (1871) 248-271.

² See Syncellus, ed. Dindorf (1829) i 63-65, 597.

³ *Ibid.* 62.

⁴ *Chronologie des Manetho* (1867) 38, 39.

nineteen years, but there is no evidence apart from the vague statement of the Syntagma de Pascha of his having used a cycle of twenty-eight years. It may be noted that Annianus gives the name ἡλιακὸς κύκλος to his own cycle of 532 years.¹

Dr Charles's criticism that the reference to this cycle has no connexion of any kind with its immediate context nor with any other statement or section of the book appears to be rather hasty. If the South Russian text is correct, the account of the course of the Sun ended with a reference to the twenty-eight years' cycle of the Sun. The account of the course of the Moon has brought the writer to the lunar epacts. These recur in cycles of nineteen years, and it seems appropriate to mention the combination of the two cycles in the great cycle of 532 years. No doubt it would have been more logical to refer definitely to the length of the lunar cycle before going on to the great cycle, but this is not the only instance of illogical arrangement in the chapter. Immediately after the reference to the 532 years' cycle the writer breaks off his account of the motion of the Moon to deal with leap year, which ought to have been treated in the previous chapter as concerned with the motion of the Sun. Then he returns to the Moon and explains how her circle is the lowest of all the circles, i. e. the nearest to the earth, and then throws in the nineteen years' cycle with its seven intercalations, which, as we have seen, ought to have been mentioned immediately after the lunar epacts as completing the comparison of the solar year and the lunar month.

(B) The reference to leap year implies the use of a calendar which contains this contrivance. The Julian calendar was probably the first civil calendar of this type, but the parapegmata carry back the contrivance to the time of Meton himself.

(i) The cycle of seven intercalations in nineteen years is the work of Meton and dates from 432 B.C. It appears to have been first introduced into the Easter calendar by Anatolius in the second half of the third century.²

In dating the calendrical chapters of the Slavonic Enoch we have to consider not merely the dates when the different calendrical elements contained in them made their first appearance, but also their relation to one another. It will be clear from this *résumé* that they not merely give *termini a quo*, of which the latest falls in the seventh century, but that they all form part of the Easter computus as developed in that century. In fact they contain the complete scheme by which the week, the solar year, and the lunar month were combined by the computists from that time onwards. They do not contain the feast of Easter itself, which would be an anachronism in a book attributed to Enoch. It seems

¹ Syncellus 64.

² Eusebius *Hist. Eccl.* vii 32.

clear that either the whole of the astronomy of the book is an interpolation, or the book was written many centuries later than Dr Charles supposes. The former alternative is difficult, because the astronomical section appears to be an integral part of the whole, as Mrs Maunder points out. If the latter alternative also presents difficulties, I must leave their solution to more competent scholars than myself, who may be trusted to do justice to the strong case that Mrs Maunder has made out.

In view of the evidence that points to a connexion between the Slavonic and the Hebrew Book of Enoch, Dr G. Buchanan Gray has kindly examined the latter to see what there is in it corresponding to this scheme of the calendar. The only calendrical information that he could discover is contained in chapter xvii, which, according to Dr Bittenwieser's article on Apocalyptic Literature in the *Jewish Encyclopaedia* i (1901), is wanting in the MS on which Jellinek's edition is based. Dr Gray has, however, been able to study it in a printed edition, which appears to be that which Dr Bittenwieser describes as printed at Lemberg in 1864, and also in the Bodleian MS Oppenheimer 556. In this work below the seven heavens is the sphere of the Sun, which, according to a sentence preserved in the MS but missing from the printed text, runs in the heaven 365,000 parasangs in one day. Below this sphere is that of the Moon, which, according to both copies, runs 354,000 parasangs in each night. The author also seems to assert that there are 31 days in each month. Below this sphere are the planets which run in their spheres and ways 339,000 parasangs in every night. Below them is the prince who is appointed over all the stars and with him are 365,000 myriads of angels. References to the length of the solar year—364 days—are contained, and references to the 354 days of twelve lunar months are implied, in the Ethiopic Book of Enoch,¹ which has, doubtless, suggested this passage, but the more elaborate calendrical matter of the Slavonic Enoch appears to have no parallel in the Hebrew book.

Lest readers of Dr Charles's paper which formed the occasion for this study should form an exaggerated conception of the unanimity with which scholars have accepted his conclusions, I may mention that Schürer in *Theologische Literaturzeitung* 1896, 347-350, while accepting Dr Charles's view as to the date of the Slavonic Enoch and its Jewish authorship, published a destructive criticism of his attempts to prove the dependence on it of other works, and that Dr Burkitt in *Jewish and Christian Apocalypses* (1914) 75, 76, has called in question the date and authorship as well as the dependence on it of other works.

¹ Chapters lxxii-lxxxii.

I shall be happy if this present study has contributed anything to the elucidation of these questions; but it will give me greater pleasure if the information which I give on the developement of the computus should make its way into future text-books of chronology.

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EPISTOLA APOSTOLORUM: A POSSIBLE QUOTATION.

In the pseudo-Cyprianic tract *de montibus Sina et Sion* 13 is this passage: 'Nam et nos qui illi credimus Christum in nobis tamquam in speculo uidemus, ipso nos instruente et monente in epistula Iohannis discipuli sui ad populum: (one 10th cent. MS reads "ad paulum") *ita me in uobis uidete quomodo quis uestrum se uidet in aquam aut in speculum.*'

It is undeniable that the *Epistola Apostolorum* might very fairly be described as *Epistola Iohannis ad populum*; for in c. 2, after the title and salutation, the Epistle proper begins: 'We John, Thomas, Peter... write to the Churches of East, West, South, and North.'

It is also undeniable that the quotation is quite agreeable to the spirit of the Epistle, e.g. pp. 66, 67: 'Ye shall not be partakers of (earthly creation) but shall be partakers of the eternity of my Father. As I am ever in Him, so shall ye also be in me.' We asked Him again, 'In what form? in the fashion of angels, or in flesh?' and so on.

A third point is that we know that the Epistle was current in Latin, for we have a leaf of it in a Vienna palimpsest.

And lastly, since we possess the whole text only in an Ethiopic version (from Coptic, from Greek) and the older Coptic version is badly mutilated, there is room for conjecture that clauses may have dropped out. The remains, moreover, of the Latin version shew that it omitted a long passage without notice.

These considerations favour the conjecture that pseudo-Cyprian may be quoting the *Epistola Apostolorum*. Against them is the solid fact that the passage is not to be found in the *Epistola*: but, as I have tried to shew, there is a possibility of getting round that.

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