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OTTO NEUGEBAUER

## On the «Spanish Era»

Non igitur unius Hispaniae peculiaris fuit ea Aera. SCALIGER, *De em. temp.* (1596 ed. 1629, p. 449)

Among the different forms of time-reckoning current in the European Middle Ages the «Spanish Era» of 38 B. C. has attracted much attention, not only because of its peculiar epoch date but also because the modern usage of the term «era» seems to have originated within this chronological framework. Thus many attempts have been made to explain this terminology as well as the epoch date, beginning with SCALIGER (not to mention Isidor of Seville) and culminating in a monograph (by A. D'ORS<sup>1</sup>) written in the year «Era 2000» (i. e. 1962).

In summarizing some of the main points under consideration I wish to lend support to a suggestion made more than a century ago (1874) by J. HELLER: to consider the epoch date as related to an Easter cycle, since 38 is the length of two 19-year lunar cycles.

HELLER's thesis has the great advantage of avoiding the necessity to search for some event around 38 B. C. that could have motivated the creation of a new era.<sup>2</sup> Just as in the sixth century the Dionysian era was established by reckoning the era Diocletian back to the conjectural year of the birth of Christ, so could a somewhat different Christology suggest an epoch year two 19-year cycles earlier.

HELLER even suggested an arithmetical procedure that singles out 38 B. C. as a starting point for Easter cycles:<sup>3</sup> the 84-year cycles used by Prosper of Aquitaine (5th century) in his «Chronicon»<sup>4</sup> lead, counting backward, to the epoch years 382, 298, 214, 130, 46 and -38; similarly Cyrill's Easter table for the 95 years from 437 to 531<sup>5</sup> brings us,

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<sup>1</sup> I have to thank Prof. CHR. HABICHT of the Institute for Advanced Study in Princeton for bringing this monograph to my attention.

<sup>2</sup> D'ORS (apparently without knowing HELLER's article) also recognized the Christian origin of the Spanish era. He, however, assumed (p. 26) the «era» to be a clandestine form of protest by Christians, in the time of Diocletian, who wished in this way to refer to the birth of Christ during the reign of Augustus. This extremely implausible conjecture explains neither the epoch year 38 B. C. nor the appearance of this era in Spain a century later.

<sup>3</sup> HELLER [1874], 24 and 27.

<sup>4</sup> Cf. IDELER, *Hdb.* II, 242.

<sup>5</sup> Cf. IDELER, *Hdb.* II, 255 f. 263.

in 95-year steps, to 342, 247, 152, 57 and again to -38.<sup>6</sup> Hence -38 is the only epoch date common to the Roman 84-year luni-solar cycle and the so-called 95-year 'cycle' within the Alexandrian 532-year cycle.<sup>7</sup>

A compromise of this kind, however inaccurate, may well have been an argument for the choice of endpoints of Easter tables, but neither Cyrill nor Prosper instituted an 'era' for the recording of secular events, as was the case with the 'Spanish Era'. It seems to me that only by relating the year -38 to some independently attested Christology could a system of Easter dates have become an era, similar in character to the *anni domini*.

HELLER's suggestion to look for an Easter cycle underlying the Spanish era found no more than polite recognition (e.g. by MOMMSEN, by LERSCH, and by GINZEL).<sup>8</sup> It therefore seems to me justifiable to introduce some new source material that suggests a connection between the Spanish era and the Alexandrian or North-African Easter computus, if only indirectly attested via Ethiopic texts. That the Ethiopic computus (*ḥasab*) originated in Alexandria is a well established fact and it is not, therefore, far-fetched to make use of Ethiopic sources in searching for uncanonical doctrines concerning the life of Christ. It is a consequence of the isolation of Ethiopia (intensified by the Arab conquest of Egypt) that unorthodox speculations could survive until modern times. The use of the Alexandrian calendar in Ethiopia up to the present day, and of the era of the World which places the birth of Christ in the year W 5501 (i.e. A.D. 8), are good illustrations of this situation.

Even closer to our special topic is another example of an unorthodox chronology. In the year 397 Quintus Julius Hilarianus, probably Bishop of Hilten (Africa proconsularis),<sup>9</sup> in a short treatise entitled 'De mundi duratione', assigned the Flood to the year 2257 of the World<sup>10</sup> instead of to the commonly accepted date 2242 (e.g. Prosper Aquit.<sup>11</sup>) or 2262 (following Africanus).<sup>12</sup> The same date is preserved in Ethiopic texts<sup>13</sup> as W 2256.<sup>14</sup> The difference in the correspondences of dates is interesting. While dates in Christian times differ by 7 or 8 years between 'A.D.' and Ethiopic years we find that the date W 2256/7 was simply taken over with the same numerical value.

<sup>6</sup> The reader should not be disturbed by the arithmetically correct use of negative numbers and the simultaneous references to 'B.C.' years. Cf. for this matter, below p.373.

<sup>7</sup> Cf. for this 'cycle' below p.374.

<sup>8</sup> KRUSCH, Chron. (1880), 143; MOMMSEN [1893], 361; LERSCH, Chron. I (1899), 95; GINZEL, Hdb. III (1914), 177.

<sup>9</sup> Cf. RE 10, 1, col. 614 (Julius 274). To him was dedicated a 'De ratione paschalis' by Agriustia of Timgad; cf. KRUSCH, Chron. 24.

<sup>10</sup> Migne PL 13, col. 1099 IV; also FRICK, Chronica minora I (1892), 159, 1 (where the treatise is given the name 'De cursu temporum').

<sup>11</sup> MGH Chron. min. I, 386, 13. 409, 385. GELZER, Africanus, II, 1, 4.

<sup>12</sup> GELZER, Africanus I, 52 f.

<sup>13</sup> Berol 84 20<sup>b</sup>, 19; 22<sup>b</sup> I, 5; BM Add 16217 19<sup>a</sup> I, 3/4 (both texts unpublished). – For references to Ethiopic MSS, cf. my book EAC, 245.

<sup>14</sup> For the apparent discrepancy of one year cf. below, p.373.

It is the same type of transmission which we shall suggest for an uncanonical chronology of the Passion.

### *Terminology*

In the subsequent pages *years* are always understood to be *julian* in structure, i.e. arranged in quadruples of three *ordinary* years (365 days long) and one *intercalary* or *leap* year (366 days). We shall deal, however, not only with years that begin with January 1 but also with *Alexandrian* years which start on Thoth 1, i.e. three times on August 29, once on August 30. For example the Alexandrian year that begins with -39 Aug. 29 (Sunday) is an ordinary year. The next year is intercalary, beginning at -38 Aug. 29 (Monday) and ending on -37 Aug. 29, the sixth epagomenal day (Tuesday). Consequently the first day of the next year is -37 Aug. 30 (Wednesday); its last day is Aug. 28 (Wednesday), since -36 is a julian leap year. And so forth.<sup>15</sup>

The months of the Alexandrian (and Ethiopic) year we shall denote by Roman numerals (Thoth = Maskaram = I); their length is always 30 days. The (5 or 6) epagomenal days are inserted between XII and I.

The fact that we are dealing with two types of years, one beginning with January 1, the other with August 29 or 30, is one of the causes of arithmetical inconsistencies which mar the literature, old and modern. For example, since the first day (Thoth 1) of the Ethiopic year 1 of the *Incarnation* is Aug. 29 of A.D. 8 its greater part belongs to A.D. 9.

Actually one can almost call it a lucky accident when concordances between eras with different epochs are found to be arithmetically correct, because different epoch dates are by no means the only cause of trouble. For example, the shift from ordinal to cardinal numbers or the inclusive or exclusive reckoning of endpoints of intervals (e.g. with regnal years) are a frequent cause of misunderstanding – not to mention copyist errors with Roman numerals, and with Greek, or Ethiopic (6 and 7) signs. And if all this were not enough, the misconceptions of modern historians about negative numbers compounds these errors.<sup>16</sup> The degree to which this can reach may be illustrated by the statement:<sup>17</sup> *das Jahr [der incarnatio] entspricht dem Jahre zwei vor Christi Geburt.* What leads to this pronouncement is the simple fact that in the Alexandrian calendar the nine months from conception to the birth of Christ fall into two different years, in contrast to the Latin calendar.

This lack of arithmetical accuracy (and elementary understanding) is not a modern privilege. Anyone wishing to see how a famous chronographer, Sextus Julius Africanus (around A.D. 200), operated with dates that differ by two years for the same event, may read pages 38 to 50 in GELZER's account. The reader will then understand why I

<sup>15</sup> Cf. also my EAC p. 113 ff.

<sup>16</sup> Cf. e.g., EAC, 55 n. 83.

<sup>17</sup> GELZER, Africanus I, 47.

will not discuss, in the following pages, every case in which dates diverge by  $\pm 1$  year. Any of the above-mentioned causes may be at work and it is not worth our while to investigate where the responsible error lies.

A very different terminological inaccuracy exists in the expression '95-year cycle' for Easter dates. Obviously 95 years cannot restore weekdays (which would require the factor 7) nor leap years (factor 4). Yet it is for a good reason that some Easter tables (e. g. Cyrill's) were computed for 95 years because, excepting leap years, 95-year intervals restore Easter dates.<sup>18</sup> For example one finds<sup>19</sup>

$k = 247$	$f = \text{VIII } 28$	$k = 95$	$f = \text{VIII } 29$
342	28	190	29
437	28	285	29
532	28	380	29

where  $k$  is the cycle number in the 532-year cycle and  $f$  the Easter date in the Alexandrian calendar. The next quadruple (beginning with  $k = 475$ ) results, however, in  $f = \text{VIII } 23$  and it requires five more quadruples to come back to VIII 28. Nevertheless subgroups of 95 years are a convenient size for tabulation and numerical control. This was obviously well known to the early computists operating with the 19-year lunar cycle.

It is, however, methodologically incorrect to string consecutive 95-year periods together as with a real cycle. Thus HELLER's procedure to go from 342 back to -38 in a sequence of 95-year steps (cf. p. 371) has not the same meaning as the repetition of really periodic intervals.

### The Term *Aera*

As is well known the Latin word *aera* is used in the modern sense of 'era' not only in connection with the 'Spanish era' but also in a small group (geographically and chronologically limited) of inscriptions from Spain<sup>20</sup> of undoubtedly Roman-pagan origin. Their dates range from '328' to '482', usually denoted only as *consulatu* (without names of consuls), once *aera consulum*, once simply *aera*. I see no convincing argument for identifying this 'consular era' of unknown epoch and unknown origin with the undoubtedly Christian 'Spanish era', which counts the years from 38 B. C. as '*aera*' or as '*aera Caesaris*' but never as consular. If indeed the Spanish era is based on an Easter cycle, as HELLER suggested, then the pagan inscriptions have no bearing on our present discussion.<sup>21</sup>

<sup>18</sup> Cf., e. g., IDELER, Hdb. II, 263. The changes always take place 95 years after a leap year.

<sup>19</sup> Taken from the tables in EAC, 61.

<sup>20</sup> Seven texts listed in D'ORS [1962], 10, six of which also, e. g., in MOMMSEN [1893].

<sup>21</sup> D'ORS, however, treats these texts as if based on the epoch 38 B. C. (e. g. p. 10). Since the inscriptions of the 'consular era' antedate the Gothic invasion, then any derivation of '*aera*' from Gothic *vera* = year (suggested by IDELER, Hdb. II, 430) is excluded.

It is also of no concern to us to reach a conclusion in the long debates about the philological origin of ‹aera›. It may suffice to note that MOMMSEN's pronouncement – that a Latin origin<sup>22</sup> is ‹philologisch unmöglich› – has not prevented the accumulation of many Latin examples<sup>23</sup> where ‹aera› is used in connection with counting or enumerating.<sup>24</sup>

An interesting use of ‹aera› for cycle number is quoted by KRUSCH:<sup>25</sup> *a passione domini usque a praesente anno, quod est era in ciclo 168, fiunt anni 699*. This means that the year 699 from the Passion equals a cycle year 168. Which cycle this is follows from the difference  $699 - 167 = 532$ , which is the well known Easter cycle of  $28 \times 19$  years. To count the years of an Easter cycle from the Passion makes good sense, and is the norm also adopted by Prosper of Aquitaine in the ‹Chronicon› (about 433).<sup>26</sup> The epoch of this cycle can be determined from a slightly earlier passage in KRUSCH's text: *Hic computabuntur anni era 168 Dextro et Prisco*. Since the year of this consulship is A.D. 196<sup>27</sup> we see that the cycle is counted from A.D.  $196 - 168 = 28$ , which is the year of the Passion assumed in Prosper's chronological system.<sup>28</sup> He places the birth of Christ 31 years earlier, but this is of no importance for the counting of his era (or rather cycle). How much the estimates for the biographical data of Christ can vary is seen, e.g., from Irenaeus who argued<sup>29</sup> that Christ must have reached the age of 50 to be recognized as ‹teacher›.

These are only a few examples of the fluidity of Christian chronology in the early centuries. Only by a slow selective process did a definitive orthodoxy emerge, while competing systems vanished more and more from sight.

### The ‹Spanish Era›

Literary evidence for the ‹Spanish Era› begins with Isidor of Seville in his ‹Historia Gothorum Vandalorum Sueborum› which reaches to aera 659 (i.e. A.D. 621).<sup>30</sup> It is of

<sup>22</sup> Suggested, e.g., by HELLER [1874].

<sup>23</sup> Cf. e.g. D'ORS, 12ff.; SCALIGER, *De em. temp.*, 448.

<sup>24</sup> KRUSCH, *Chron.*, 143, states that ‹era› can also mean ‹age of the moon›. For this he quotes three incomplete passages written around 455 under Vandal rule.

<sup>25</sup> KRUSCH, *Chron.*, 143 note 6.

<sup>26</sup> MGH, *Chron. min.* I, 410.

<sup>27</sup> MGH, *Chron. min.* I, 433.

<sup>28</sup> MGH, *Chron. min.* I, 410, 390.

<sup>29</sup> Irenaeus, *Against Heresies* II 22, 6 (trsl. ROBERTS-RAMBAUT, vol. I, Edinburgh 1862, pp. 196–202). Cf. also John 8, 57: ‹you are not yet fifty years old.› Bar Hebraeus, placing the crucifixion in the year 5550 of the World is probably influenced by Irenaeus, whose work was accessible to him in a Syriac translation (cf. *Sources Chrétiennes*, vol. 100). Cf. also GELZER, *Africanus* II, 19, and P. CORSSSEN, *Zeitschr. für die N.T. Wissenschaft* 2, 1901, 215.

<sup>30</sup> Latin text: MGH, *Chron. min.* 2, 267–303. English translation: G. DONINI – G.B. FORD, 2nd ed. Leiden 1970. ‹Era› is expressly defined in *De natura rerum*, ch. 6, 7; similarly in *Etymolog.* 36, 4.

interest that the earliest of his dates is denoted as *anno ante aeram conditam* 12 (i. e. 50 B. C.).<sup>31</sup> This clearly shows that *aera* is here used in the modern sense (e. g. like Era Diocletian) and not as a recurrent cycle year (as in our examples p. 375).

Isidor's *History* is a continuation of the *Chronicon* of Bishop Hydatius which covers events from A. D. 379 to 468.<sup>32</sup> The chronological skeleton of this work are Olympiads, supplemented by regnal years of East-Roman emperors. Nevertheless the Spanish *era* also occurs, but only at eight occasions, six of which are represented only in late Spanish manuscripts, obviously being later additions.<sup>33</sup> One manuscript (9th century) that contains the two remaining usages of *aera* refers first to the invasion of German tribes in *aera* 447 (A. D. 409) and, secondly, reports a lunar eclipse in *aera* 500 (A. D. 462 March 2).<sup>34</sup> The earliest manuscript (8th century) has no dates with *aera*. All this seems to indicate that we do not have literary evidence for *aera*, in the modern sense of the term, before Isidor, i. e. before about A. D. 600.

This does not mean, however, that the term *aera* was coined in the sixth century. Epigraphic evidence – all from Christian inscriptions – traces the use of *aera* back to the end of the fourth century,<sup>35</sup> i. e. to the first century of official recognition of Christianity. At the same time this is a period in which orthodoxy in such matters as Easter computus was by no means firmly established.

### *Ethiopic Chronology*

All Ethiopic eras are based on the era Diocletian (D) but in actual usage the era of *Grace* or *Mercy* (G) is perhaps more frequently encountered, beginning 76 = 4 × 19 years after D (i. e. A. D. 360). It is furthermore assumed that at the beginning of G exactly eleven 532-year cycles were completed since Creation. Hence we have for the era of the World (W)

$$(1) \qquad \qquad \qquad G \ 1 = W \ 5853$$

and thus

$$(2) \qquad \qquad \qquad D \ 1 = W \ 5777.$$

Starting from these relations one finds that the intervals between fundamental historical events are correctly expressed. For example

(3)	„Alexander“ 1	W 5184	-311
	Diocletian 1	5777	A. D. 284
	Council of Nicea	5818	325.

<sup>31</sup> Not 49 B. C., as given by DONINI-FORD, 3.

<sup>32</sup> Text and translation (by A. TRANOY) in: *Sources Chrétiennes* 218, 219 (1974).

<sup>33</sup> Cf. *Sources Chrétiennes*, 218, 73 (with 3 arithmetical errors in 6 dates).

<sup>34</sup> Incorrectly listed as a solar eclipse in: *Sources Chrétiennes* 218, 74.

<sup>35</sup> Earliest date: *cra* 419 (i. e. A. D. 381); cf. DIEHL, *ILCV* III, p. 273. Cf. also D'ORS [1962], p. 9 note 6.

This does not imply that some dates were not differently placed in the era W in relation to our era. This is exactly the case for the date of birth and of crucifixion of Christ. Different interpretations of different passages in the Gospels, and different numerical cosmogonic speculations led to different dates. For example (3) would lead to A.D. 1 = W 5494 whereas the commonly used Ethiopic chronology considers W 5501 (i.e. A.D. 8) as year 1 of the Incarnation.<sup>36</sup>

For our problem it is important to realize that, if some transformation changes the era W to the era A.D., then the same transformation will also apply to every other date chosen for the chronology of Christ and thus preserve all differences between various chronologies.

The standard Ethiopic chronology for the life of Christ is based on the following parameters:

(4)	W	<i>k</i>	<i>c</i>	<i>t</i>	<i>e</i>			
Conception	5500	180	9	7	28	VII	29	Sunday
Birth	5501	181	10	1	9	IV	29	Tuesday
Baptism	5531	211	2	3	11	V	11	Tuesday
Crucifixion	5534	214	5	7	14	VII	27	Friday

Here *k* counts the years in the current 532-year cycle, *c* the years in the current 19-year cycle, *t* is the *ṭentyon*, giving the weekday of Maskaram (= Thoth) 1 such that Wednesday = 1, *e* is the lunar epact of the year in question.

The variant chronology,<sup>37</sup> with which we associate the Spanish Era, changes these data to the following scheme:

(5)	W	<i>k'</i>	<i>c</i>	<i>t</i>	<i>e</i>			
Conception	5463	371	10	7	9	VII	29	Sunday
Birth	5464	372	11	2	20	IV	28	Tuesday
Baptism	5493	401	2	3	11	V	11	Tuesday
Crucifixion	5496	404	5	7	14	VII	27	Friday

We see here that Baptism and Crucifixion are lowered by 38 years in relation to the scheme (4), Conception and Birth, however, by only 37 years. The parameter *k'* is not the cycle number of the year W but related to it by

$$(6) \quad k' = k + 228 = k + 12 \times 19.$$

Indeed, the *k* for W 5463 would be 143 (= 180-37; cf. [4]) and *k'* = 371 = 143 + 228.

<sup>36</sup> The underlying cosmic chronology which placed Jesus in the middle of the last, sixth, millennium had been provided by the speculations of Sextus Julius Africanus in the third century.

<sup>37</sup> Extant in several manuscripts, the best version being BN 160 24<sup>a</sup> I, 19 to 24<sup>b</sup> I, 3 and 25<sup>b</sup> I, 2 to 27<sup>a</sup> II, 21.



For Christian chronology the crucial event lies in the time of Passion<sup>38</sup> and not in the date of Birth for which one has at any rate only the vague remark of Luke (3,23) that 'Jesus, when he began his ministry, was about 30 years of age.' For the Crucifixion, however, one has an abundance of historical data which fix this event to Friday VII 27. Passover in this year is dated by our texts to Thursday VII 26 which implies the lunar date 14 for this day and hence<sup>39</sup> the epact 14, thus  $c = 5$  in agreement with (4) and (5).

Also the other dates in (5) are the traditional ones with the exception of IV 28 as birthday. In fact our texts write IV 29 but indirectly admit that this is a *pia fraus* by remarking that 275 days of pregnancy lead to a date IV 28 if the preceding year was a leap year, which is exactly the case for W 5463. But in order to preserve the traditional date VII 29 Sunday for the Conception (the same date as for the Resurrection!) one must take the year W 5463 because in the preceding year VII 29 would be a Saturday and IV 29 in W 5463 a Monday. The reduction of Conception and Birth by only 37 years in relation to (4) is obviously designed to preserve the traditional dates.

The analysis of these numerical data reveals also the motive for moving the year of the Passion to a date two 19-years cycles earlier. In the canonical pattern the first day of the year W 1 (i.e.  $k = 1$ ) is a Tuesday (i.e.  $t = 7$ ) in agreement with Genesis concerning the creation of sun and moon. But someone must have felt that a proper *area mundi* should begin with Sunday, the first day of Creation. Now the beginning of a year with Sunday corresponds to a *tentyon*  $t = 5$ . A glance at the standard 532-year table, based on the era W or G, shows that  $t = 5$  occurs at  $k = 39$ ; i.e. only two 19-years cycles distant from  $k = 1$ .

But there remains some trouble. If we characterize in Ethiopic fashion four consecutive years by the names of the Evangelists: M, Mr, L, J (such that  $k = 1$  belongs to M) then  $k = 39$  belongs to L. Hence the new chronology changes the position of the intercalary years and thus modifies the Christian festival calendar. Here the 95-year intervals<sup>40</sup> come into play since they provide us in each 532-year cycle with four years which have the same *tentyon* and the same Easter date  $f$ . And since  $95 \equiv -1 \pmod{4}$  each of these four years must belong to a different Evangelist. In our case the four years in question are 39, 134, 229, and 324. The Evangelist M belongs to  $k = 229$  because  $229 \equiv 1 \pmod{4}$ . Hence, if we enter the 532-year table not with the parameter  $k$  but with  $k' = k + 228 = k + 38 + 190$  we deal with years of the World that begin with 1 I 1 = Sunday, the first day of Creation.

The transformation (6), p. 377, must be applied every time we wish to use the uncanonical chronology (5) which one finds in our texts in connection with the Easter computus, e.g. for finding the earliest or latest possible Easter dates. But there remains still another important quality of (6) to be mentioned: Since 228 is a multiple of 19 and

<sup>38</sup> Cf., e. g., the chronology of Prosper, above p. 375.

<sup>39</sup> Since always  $p + e \equiv 10 \pmod{30}$  we have in the present case  $26 + e \equiv 10$  thus  $e \equiv -16 \equiv 14 \pmod{30}$ .

<sup>40</sup> Cf. above p. 374.

since all Jewish festivals have the period 19 the change from (4) to (5) has no effect on the relation of the Christian Easter canon to the dates for Passover. Hence the new chronology which begins the years of the World with the first day of Creation and consequently moves the birth of Christ to the year -37 (i.e. 38 B.C.) in relation to the traditional chronology (4) avoids all disturbances (excepting one for the date of Birth by one day) both of the Jewish and Christian tradition.

### *Summary*

When Dionysius Exiguus in the first half of the sixth century invented the 'Christian Era' he assumed that the birth of Christ occurred 283 years before the reign of Diocletian, probably following common Roman tradition. A radical change, however, was his use of the Alexandrian 'Computus' for the determination of Easter, based on the 532-year cycle.

In Alexandria this computus had been used at least since the time of Athanasius (4th cent.) but hardly as early as the Council of Nicea<sup>41</sup> (325). When it reached Ethiopia we do not know. Again it is the time of Athanasius when the official conversion of this country took place, but we have no way of dating the original composition of the Ethiopic treatises which carry on the Alexandrian Easter computus. Fortunately this incertitude is of little importance since it is extremely unlikely that significant changes were introduced in Ethiopia in this system – its basically simple arithmetical structure is too rigid to allow even for minor modifications.

As for the chronology of Christ the Ethiopic calendaric system reveals a doctrine according to which his birth precedes only by 276 years the reign of Diocletian. And we know now that a second theory existed which increased that interval by 37 years for the date of birth, by 38 years for the crucifixion.

If one admits that it is extremely unlikely that such doctrines are of Ethiopic origin we may assume that they were of Alexandrian origin (most likely in the fourth century) and thus also known in North Africa. Indeed it seems as if there existed evidence for it at Church Councils though I was not able to reach a clear picture of these sources.<sup>42</sup>

It seems to me that all this is compatible with the following hypothesis: In the early stages of the Easter computus, based on the 19-year cycle, two different chronologies of Christ, two 19-year cycles apart, were developed and found support in North Africa and in Ethiopia. Both systems were retained in the Roman version of the Christian

<sup>41</sup> The attribution of this computus to the Alexandrian Patriarch Demetrius (A.D. 213/14), found in many Ethiopic texts, is probably not to be taken seriously.

<sup>42</sup> First mentioned by SCALIGER, *De em. temp.*, 1596, 449f. (ed. of 1629). This is probably the source of KEPLER's statement in the Rudolphine Tables, 1627, 37: 'Aera Caesaris (Octavii) Hispanica usitata in Conciliis' (KEPLER, *Werke* 10). Cf. also E. SCHWARTZ, *Acta Conc. Oecum.*, t. II vol. IV, 29 ff.

chronology, one as *anni domini*, the other as the *aera Caesaris* (of course Caesar Augustus into whose early reign it reaches), retaining their difference of 38 years.

There seems to be very little chance for the discovery of additional evidence that could close all gaps in this admittedly hypothetical picture of the genesis of the Spanish Era. It has, however, at least the advantage of taking the problem out of its isolation and to connect it with the mainstream of early Christian chronological speculations and doctrines which still lie at the foundation of our present era.

### *Bibliographical Abbreviations*

- DIEHL, ILCV = E. DIEHL, *Inscriptiones Latinae Christianae Veteres*, 1961  
 EAC → NEUGEBAUER, EAC  
 FRICK, Chron. min. = K. FRICK, *Chronica Minora*, Bibl. Teubneriana 1903  
 GELZER, Africanus = H. GELZER, *Sextus Julius Africanus und die byzantinische Chronographie*, I 1898, II 1885/1896  
 GINZEL, Hdb. III = F. K. GINZEL, *Handbuch der mathematischen und technischen Chronologie III*, 1914  
 HELLER [1874] = JOH. HELLER, *Ueber den Ursprung der sogenannten spanischen Aera*, *Histor. Zeitschr.* 31, 1874, 13–22  
 IDELER, Hdb. II = L. IDELER, *Handbuch der mathematischen und technischen Chronologie II*, 1826  
 KRUSCH, Chron. = B. KRUSCH, *Studien zur christlich-mittelalterlichen Chronologie*, 1880  
 LERSCH, Chron. I = B. M. LERSCH, *Einleitung in die Chronologie*, 1899  
 MOMMSEN [1893] = TH. MOMMSEN, *Aera*, *Neues Archiv der Gesellschaft für ältere deutsche Geschichtskunde* 18, 1893, 271–278 = *Gesammelte Schriften* 6, 1910, 359–361  
 MGH = *Monumenta Germaniae Historica*  
 Migne PL = Migne, *Patrologia Latina*  
 NEUGEBAUER, EAC = O. NEUGEBAUER, *Ethiopic Astronomy and Computus*, *Österr. Akad. d. Wissenschaften, Philos.-Hist. Kl., Sitzungsber.* 347, 1979  
 D'ORS [1962] = A. D'ORS, *La Era Hispanica*, *Estudio General de Navarra*, *Mundo Antiguo* 1, Pamplona 1962.  
 SCALIGER, De em. temp. = J. SCALIGER, *De emendatione temporum*, 1583/1629