Empirico-Statistical Analysis of Narrative Material and its Applications to Historical Dating

A.T. Fomenko

Volume 2: The Analysis of Ancient and Medieval Records

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CONTENTS

INTRODUCTION

We present certain empirico-statistical methods for the analysis of narrative and numerical data extracted from different texts of historical character such as chronicles or annals. They are based on several statistical principles worked out by the author, and originally reported at the Third International Vilnius Conference on Probability Theory and Mathematical Statistics in 1981. The principal results were published in the papers [15]–[32], [293]–[299], [304]–[319] and in the book: A. T. Fomenko, *Methods for Statistical Analysis of Narrative Texts and Applications to Chronology*, Moscow Univ. Press, Moscow, 1990 (in Russian). See also Part 1.

The methods are applied to the problem of correct dating of the events in ancient and medieval history. These results induce conjectures on the redating of some important ancient historical events.

Generally speaking, we might say that the commonly accepted "Modern Textbook" of ancient and medieval European, Mediterranean, Egyptian and Middle Eastern history is a fibered (layered) chronicle obtained by gluing together four nearly identical copies of a shorter "original" chronicle. The other three chronicles are obtained from the "original" chronicle by redating and renaming the events described in them; we rigidly move the "original" chronicle in its entirety backwards in time by approximately 333, 1053 and 1778 years. Thus, the full "Modern Textbook" can be reconstructed from its smaller part, namely from the "original" chronicle for the 9–17th cc. A.D. See Appendix 1, Figs. 101–104.

Of course, the research described here cannot claim to establish any final conclusions, especially since we have used purely mathematical methods to analyze what is really very complicated, multifaceted and sometimes subjectively embellished material from the historical chronicles. Without doubt, a complete treatment of the problem requires a combination of different methods, including those of pure history, archaeology, philology, physics, chemistry, and, finally, mathematics, which, as the reader has seen (Part 1), is capable of giving us a new vantage point from which to view the problem of chronology.

Chapter 1

METHODS FOR THE STATISTICAL ANALYSIS OF NARRATIVE TEXTS

1. The Maximum Correlation Principle for Historical Chronicles and Its Verification by Distribution Functions. Analysis of Russian Chronicles

The coefficient $d(X, Y)$ permitting us to estimate quantitatively the stability of the maximum principle relative to original data perturbations was introduced in Part 1, Ch. 2, §4. We give here a short description of it, and recall the basic related concepts. Let $t_1(X), \ldots, t_p(X)$ be the years in the time interval (A, B) in which the volume graph for a narrative text X exhibits splashes (= spikes or peaks). Suppose that the vector $T(X) = \big(t_1(X), \ldots, t_p(X)\big)$ is related to the "authentic event" vector $T(A, B)$, where (A, B) is the period described in the text. If there are two texts X and Y, then the simplest relations among them are described by the diagram

$$T(X) \longleftarrow T(A,B) \longrightarrow T(Y) \quad \text{and} \quad T(A,B) \longrightarrow T(X) \longrightarrow T(Y).$$

As the proximity measure for $T(X)$ and $T(Y)$, we can use the following, viz.,

$$R(X,Y) = \sum_{i=1}^{p} \min \big|t_i(X) - t_j(Y)\big| + \sum_{j=1}^{q} \min \big|t_j(Y) - t_i(X)\big|.$$

For brevity, $R(X, Y)$ will be called in the following the *distance* between X and Y. I offered V. V. Fedorov from the All-Union Institute of Systems Research, Moscow, to verify the maximum correlation principle by the ordinary statistical methods. In 1981, Fedorov suggested the above function, which turned out to be convenient for computerization and was carried out with the participation of I. S. Shiganov. The meaning of $R(X, Y)$ is extremely simple. We fix a certain maximum for a text X, and find the nearest one of another text Y. We then calculate the distance in years between them, and sum these distances for all maxima of the first text. Interchanging the texts, we repeat the procedure. $R(X, Y)$ is obtained by summing up the results. I have performed the experiments without any further symmetrization of distance so defined, i.e., considering the first and second sum separately, thus being able to construct the non-symmetrical distance matrix.

Table 1

	1	2	3	4	5	6	7	8	9	10	11	12
1. *Russian Primary Chronicle* (850–1110 A.D.) $E = 61$	0 0	0.550 0.497	0.569 0.515	0.305 0.422								
2. *Nikiforovskaya letopis'* (850–1430 A.D.) $E = 63$	0.660 0.993	0 0	0.01 0.03	0.001 0.002								
3. *Suprasl'skaya letopis'* (850–1446 A.D.) $E = 132$	0.840 0.999	0.001 0.004	0 0	0.003 0.003								
4. *Akademicheskaya letopis'* (1336–1446 A.D.) $E = 33$	0.155 0.699	0.343 0.929	0.375 0.887	0 0								
5. *Dvinskoy letopisets* (complete version) (1390–1717 A.D.) $E = 52$					0 0	0.015 0.012						
6. *Dvinskoy letopisets* (shorter version) (1390–1717 A.D.) $E = 47$					0.013 0.012	0 0						
7. *Nikiforovskaya letopis'* (850–1255 A.D.) $E = 31$							0 0	0.006 0.008				
8. *Suprasl'skaya letopis'* (850–1255 A.D.) $E = 30$							0.006 0.005	0 0				
9. *Livy's History of Rome* (757–287 B.C.) $E = 15$									0 0	0.002 0.108		
10. *F. Gregorovius' History of the city of Rome in the Middle Ages* (300–754 A.D.) $E = 15$									0.003 0.130	0 0		
11. *Suprasl'skaya letopis'* (1336–1274 A.D.) $E = 15$											0 0	0.003 0.58
12. *Akademicheskaya letopis'* (1336–1374 A.D.) $E = 15$											0.001 0.111	0 0

With such an approach, the number of maxima for two compared texts can be different, and we must not equalize them by introducing the *multiple maxima*. This choice of proximity measure has been mostly determined by the simplicity of its calculation on a computer. Without doubt, the use of other natural proximity measures is possible, discovering experimentally that they can reliably distinguish between dependent and independent texts. Use a rather standard statistical technique, and find the distribution function $f(R)$ of a random variable $R(\xi, \eta)$ for some collection of assumptions including that of independence of the vectors $T(\xi)$ and $T(\eta)$. We then find the distance $R(X, Y)$ between two concrete texts X and Y of interest. If the probability of appearance of such or a lesser distance is small, then it is natural to reject the hypothesis regarding the independence of X and Y, and regard them as related, or dependent in our sense. The computational experiment dealt with 12 texts (see Table 1). We performed the modelling for truncated normal and Poisson distributions. Therefore, we give two probabilities calculated for each of them. The first number is the probability for the normal distribution, and the second for the Poisson distribution. Denote by E the number of maxima of the volume graph, and indicate the bounds for the described historical periods in parentheses. It can be seen from the table that the approaches of the present section and [15] (Part 1, Ch. 2, § 4) mostly lead to qualitatively the same results, which makes us hope that my initial hypotheses regarding the representability of information about the splashes of the volume functions for historical texts is correct.

2. The Maximum Correlation Principle and Its Verification by Frequency Histograms. Method for the Discovery of Dependent Historical Texts. The Period of "Confusion" in the History of Russia (1584–1600 A.D.)

As another example, we give the results of an analysis of a collection of sources dating from the end of the 16th and beginning of 17th cc. A.D., the period of "confusion" in the history of Russia. The investigation was performed by the author in 1981–1982. The large textual volumes and complexity of integer relations create enormous difficulties if we intend to study the texts traditionally. The 30 sources were separated into annual fragments, or "chapters", and then the volume of each portion in words was determined. The job was done by N. S. Kellin and L. E. Morozova at the author's request. The obtained data were systematized and tabulated, indicating the textual volumes for each year from 1584 to 1619, the period traditionally referred to as "confusion". Part of the table (from 1584 to 1598) is given in Table 2, marking off years on the horizontal axis and the numbers of the following basic historical texts along the vertical axis, viz.,

(1) *Povest' o chestnom zhytii*, (2) *Povest' kako voschytiti*, (3) *Povest' kako otomstiti*, (4) *Zhytiye Dmitriya* (T.), (5) *Zhytiye Dmitriya* (M.), (6) *Skazaniye o Grishke*, (7) *Skazaniye o Fyodore*, (8) *Skazaniye o samozvantse*, (9) *Povest' Shakhovskogo*, (10) *Zhytiye Iova*, (11) *Skazaniye Avraamiya* (1), (12) *Skazaniye Avraamiya* (2), (13) *The 1617 Chronograph*, (14) *Vremennik Timofeeva*, (15) *Povest' Katyreva* (1), (16) *Povest' Katyreva* (2), (17) *Inoye skazaniye*, (18) *Piskarevskiy letopisets*, and (19) *Novyi letopisets*.

The volume graph was constructed for each text, and years in which they exhibit splashes were indicated by 1 in Table 3. We also studied *Izvet Varlaama*, *Bel'skiy letopisets* and *Skazaniye o Skopine*.

Table 2

	1584	1585	1586	1587	1588	1589	1590	1591	1592	1593	1594	1595	1596	1597	1598
1	432	288		200	375	376	1112	1632							2784
2	140	455		458				105							196
3	230			800				157							380
4	120							740							48
5	180			500	400	300	306	500							400
6	152		52	180				76							68
7	240	200	206	240	200	208	210	2884				20	22	26	756
8	20							93							128
9	128							600				20	26	28	360
10	240	200	100	102	106	450		60	56	52	51	50	50	52	
11	44			42				108							306
12	54			42				347							112
13	312			172	43	42		132							324
14	900			120				4420	26	22	20	20	26	28	3000
15	150			120				300							500
16	152			86				300				10	10	12	434
17	264			675				863	92	90		90	92	94	1034
18	325	75	50	44	32	46	122	430	86	35	140	20	110	110	1160
19	441	99	150	152	54	54	189	1548	522	36	342	648	50	50	540

All the 22 texts mostly describe the same events in one historical period; hence, they are dependent in the sence of the above definition, which is explicitly seen in Table 3 with expressed correlation between the local maxima of different texts. Almost all graphs show splashes simultaneously, viz., in 1584, 1587, 1591, 1598, and 1606. The textual dependence is also confirmed by formal computations. We have calculated the distance $R(X,Y)$ (see § 1) between each two texts X and Y from the indicated collection. Recall that we found the distance from each maximum of the graph of *vol* $X(t)$ to the nearest one for *vol* $Y(t)$, and summed up the obtained values for all the splashes. Obtaining a certain quantity $r(X,Y)$, we interchanged X and Y, and repeated the procedure in order to find $r(Y,X)$. We took the sum of $r(X,Y)$ and $r(Y,X)$ as $R(X,Y)$. It is clear that, generally speaking, $r(X,Y)$ and $r(Y,X)$ are different. In principle, we can construct two square matrices made up of $r(X,Y)$ and $R(X,Y)$. In general, they differ in the non-symmetry of $\|r(X,Y)\|$ and symmetry of $\|R(X,Y)\|$ obtained by symmetrizing $\|r(X,Y)\|$. To estimate how dependent Texts 1–22 are, we constructed the frequency histogram for $R(X,Y)$, for which we marked off the integers 0,1,2,3, ... on the horizontal. Recall that the "distance" $R(X,Y)$ assumes integral values, since we measured the distance between the points of the splashes in years. We then determined how many times zero distance was entered into the integral matrix $\|R(X,Y)\|$. The obtained value was marked on the vertical line passing through the point 0 on the horizontal axis. We also saw how many times unity was recorded in $\|R(X,Y)\|$. We marked the obtained value on the vertical line passing through the point 1, etc., and derived a certain frequency histogram. If there were many small $R(X,Y)$ in the distance matrix $\|R(X,Y)\|$, then the histogram maximum was shifted to the left, closer to the origin.

It occurred in the case of dependent texts. The more dependent they were, the greater was the maximum shifted to the origin, i.e., to the left. The less dependent they were, the more to the right was the histogram maximum (Fig. 35).

Table 3

	1584	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100	101	102	103	104	105	106
1	1							1							1								
2		1		1				1							1				1		1		
3	1			1				1							1			1					1
4	1							1							1			1					1
5	1			1				1							1								1
6	1			1				1							1								1
7	1			1				1							1			1					1
8	1							1							1				1				1
9	1							1							1								1
10	1					1		1						1						1			1
11	1			1				1							1						1		1
12	1			1				1							1			1		1		1	
13	1			1				1							1								
14	1			1				1							1								1
15	1			1				1							1			1				1	
16	1			1				1							1					1			1
17	1			1				1							1								1
18	1							1			1				1		1			1		1	
19	1			1				1				1			1		1			1			1
20	1			1				1							1				1				1
21	1			1				1			1					1	1				1		1
22															1		1			1		1	

Thus, the direction of the shift of the histogram maximum indicates whether or not the investigated texts are dependent, and how strong the dependence is. The method was applied by the author to analyze the above textual group, and the result is shown in Fig. 36.

It is seen explicitly that almost all of the histogram and its basic maximum are shifted to the left, which means that practically the whole of the square matrix $\|R(X,Y)\|$ of order 22×22 consists of small numbers, i.e., almost all the distances between X and Y are small. We also constructed the histogram for the case of independent texts for the purpose of comparison, for which we took the following chronicles:

A—*Russian Primary Chronicle* (850–1110 A.D.), B—*Akademicheskaya letopis'* (1336–1446 A.D.), and C—*Nikiforovskaya letopis'* (850–1430 A.D.).

They were compared with the above 22 texts. We constructed the volume graphs, indicated the splash-points, and calculated all the distances $R(X,Y)$, where X

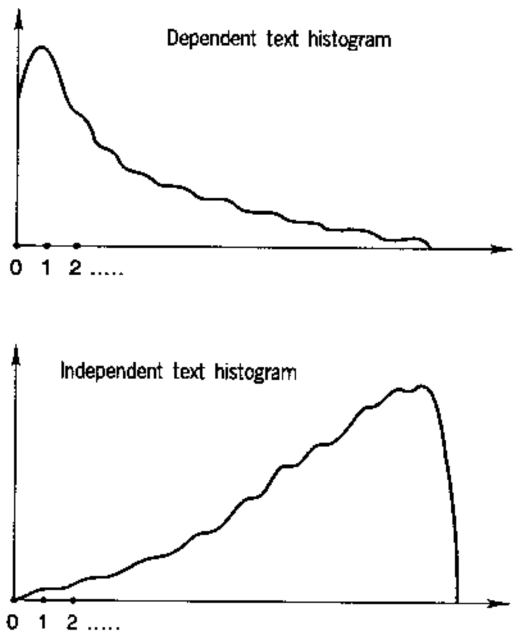

Figure 35. Histograms for dependent and independent texts
Figs 1-34 appear in Vol. I of this work

ranged over three texts A, B, and C, while Y ranged over 22 texts of the "confusion" period. We obtained a rectangular matrix $\|R(X,Y)\|$ of order 3×22. The corresponding frequency histogram is shown in Fig. 37.

A qualitatively different character of the graph is explicit, viz., almost the whole is shifted to the right. It is not surprising, since the texts A, B, and C describing the events of the 9–15th cc. A.D. are independent of Texts 1–22 of the "confusion" period. The performed experiment thereby confirmed again the validity of the maximum correlation principle. The volume graphs for dependent texts turned out to make splashes almost simultaneously, whereas the graphs for independent texts exhibited splashes in different years. Note that the explicit dependence of the "confusion" period does not at all mean that the contents is identical. In point of fact, each text possesses its own characteristics and casts light on some events, while omitting the others, accentuating them differently, etc. Nevertheless (and this is important!), the graphs for the different chroniclers turn out to "exhibit splashes" practically simultaneously in spite of their individualities. Without suspecting that themselves, they thereby realize the maximum correlation principle in practice, proceeding from approximately the same surviving information stock. We stress that the origin of the *primary information stock* is subject to other and more complicated laws than those discovered above. It is possible that some insignificant event was described in many a text, whereas a substantially more important event was reflected only in one of them or not described at all.

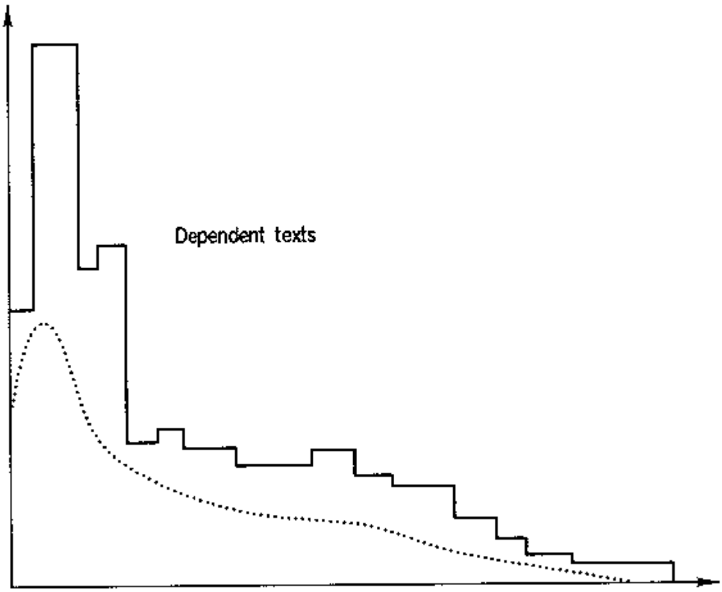

Figure 36. Frequency histogram for dependent texts

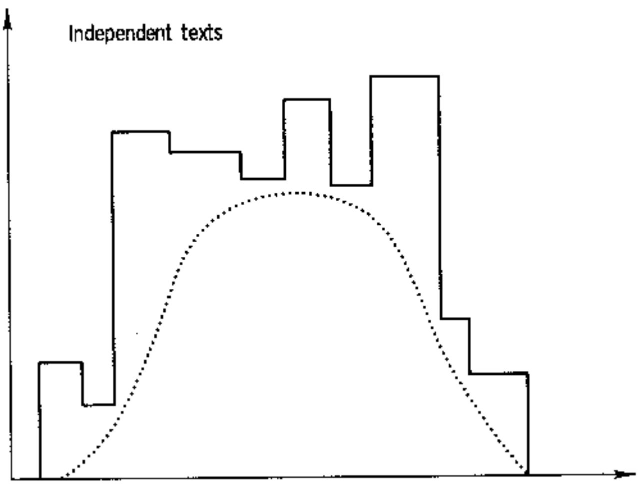

Figure 37. Frequency histogram for independent texts

Thus, to investigate the dependence or independence of a text group, we can also do as follows. Consider two groups of texts $(X) = (X_1, \ldots, X_k)$ and $(Y) = (Y_1, \ldots, Y_p)$ describing two time intervals of the same length. The question arises whether they are dependent. To find the answer, we should construct all volume graphs, e.g., annually, and superimpose the described intervals. We mark all the splash points for the volume graphs, and calculate the "distance" between each pair of texts. The obtained values are naturally organized into a square matrix of order $(k+p) \times (k+p)$, viz.,

$$\|R((X),(Y))\| = \left\| \begin{matrix} \|R(X_i,X_j)\| & \|R(X_i,Y_a)\| \\ \|R(Y_a,X_i)\| & \|R(Y_i,Y_j)\| \end{matrix} \right\|$$

$$= \left\| \begin{array}{ccc|ccc} R(X_1,X_1) & \dots & R(X_1,X_k) & R(X_1,Y_1) & \dots & R(X_1,Y_p) \\ \dots & \dots & \dots & \dots & \dots & \dots \\ R(X_k,X_1) & \dots & R(X_k,X_k) & R(X_k,Y_1) & \dots & R(X_k,Y_p) \\ \hline R(Y_1,X_1) & \dots & R(Y_1,X_k) & R(Y_1,Y_1) & \dots & R(Y_1,Y_p) \\ \dots & \dots & \dots & \dots & \dots & \dots \\ R(Y_p,X_1) & \dots & (Y_p,X_k) & R(Y_p,Y_1) & \dots & R(Y_p,Y_p) \end{array} \right\|$$

It contains sufficiently complete information to make a hypothesis regarding textual dependence or independence. The dependence between the texts of the first group $(X) = (X_1,\dots,X_k)$ and that inside the second group $(Y) = (Y_1,\dots,Y_p)$ reveal themselves by the smallness (almost zero) of all entries in $\|R(X_i,X_j)\|$, whereas that between the texts of (X) and (Y) by at least one of $\|R(X_i,Y_a)\|$ and $\|R(Y_a,X_i)\|$ consisting of small numbers, i.e., "being close to zero".

Thus, we can generally construct four frequency histograms for each of

$$\|R(X_i,X_j)\|, \quad \|R(X_i,Y_a)\|, \quad \|R(Y_a,X_i)\| \quad \text{and} \quad \|R(Y_a,Y_j)\|.$$

For example, let them be of the form shown in Fig. 38, which means that the texts $X_1,\dots,X_k$ are independent of each other, $Y_1,\dots,Y_p$ are also independent, whereas $(X) = (X_1,\dots,X_k)$ is dependent on $(Y) = (Y_1,\dots,Y_p)$.

The method efficiency was demonstrated by us above with the example of "confusion" period texts. Note that our method permits us to process extremely large samples of information, which is especially important in discovering intrinsic dependences, and that we discovered all the earlier-known dependences between certain of the above-listed "confusion" texts, revealed by the classical methods for primary source analysis. Besides, we also obtained certain new results, e.g., "*Povest' o chestnom zhytii tsarya Fyodora Ivanovicha*" reveals an interesting dependence on the other texts of the "confusion" period.

The suggested method also permits us to solve some other problems, e.g., it may happen that the large matrix $\|R((X),(Y))\|$ is "strongly asymmetric", i.e., for example, the elements of $\|R(X_i,Y_a)\|$ are much greater than those of $\|R(Y_a,X_i)\|$, which may indicate the "dependence direction". The texts of the group (X) are then dependent on those in the group (Y), but not vice versa, which can point to the fact that those from (Y) served as primary sources for (X). In other words, the texts of (Y) became the components of later texts from (X). Meanwhile, all (or almost all) local maxima of the texts in (Y) were preserved, and new local maxima of the texts in (X) were added. Thus, we see that our method permits us, at least in principle, to foresee the "dependence direction", i.e., roughly speaking, "who copied whom".

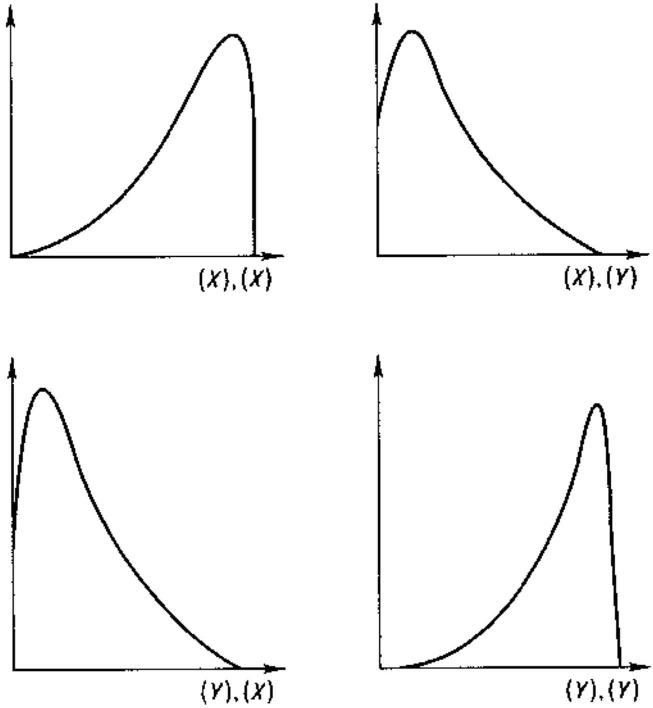

Figure 38. Frequency histograms for the square matrix

3. A Method for Dating Historical Events Described in Chronographic Texts, and Its Verification Against Reliable Historical Data

The obtained statement of the maximum correlation principle permits us to offer a new method for dating ancient events described in texts of chronographic nature. Let Y be a historical text satisfying the above constraints, and describing unknown events whose absolute dating was lost. Let years t be counted from some date of local importance, viz., the foundation of a city, coronation of a king, etc. How can we restore the absolute dates of the described events? Count the "chapter" volume graph (function) or other above-mentioned graphs based on partitioning a text into fragments each of which describes its own year. Compare the obtained volume graph with those for other texts whose absolute dating is already known as reliable. If we discover a text X for which $d(X,Y)$ (see [15] and Part 1, §4) is small, i.e., of the same order as for dependent texts (e.g., not exceeding 10^{-8} for the above number of maxima), then we can conclude with sufficiently large probability, it being the greater the smaller $d(X,Y)$ is, that the events described in these two texts are possibly coincident or close. In other words, we should consider and analyze the hypothesis about their possible dependence. Certainly, the method is not at all universal, and possesses sufficiently narrow application area. Therefore, some conclusive results or other can be deduced only by involving other dating methods. Meanwhile, two texts which are possibly dependent may be outwardly different: e.g., two versions of the same chronicle written in different countries, etc. It is important that we date a text on the basis of the study of its quantitative characteristics, and not its contents, which can be subjectively tinged. The described method was checked against medieval and texts already dated. The obtained results led to the same datings. We illustrate by two simple examples demonstrating the efficiency of the method.

Example 1. Let Y = *Dvinskoy letopisets* (shorter version) describing the events in a 327-year interval [248]. Let us attempt to date these events with the use of the described method, i.e., proceeding only from the analysis of its quantitative characteristics, and not involving the contents. Going through the list of the *Complete Collection of Russian Chronicles*, we discover a text X whose volume graph exhibits splashes practically in the same years as that of Y. It turns out that $d(X, Y) = 2 \times 10^{-25}$. Therefore, we can conjecture that the texts are dependent, and, probably, describe the same epoch and region. In particular, we have dated the events described in Y. The text X discovered by us is a lengthy version of the *Dvinskaya Chronicle (Dvinskoy letopisets)* describing 1390–1717 A.D. The dating of Y obtained by us coincided with its standard one, which confirms the efficiency of the method.

Certainly, the answer was quite obvious in this elementary example, because we possess both versions of the *Dvinskaya Chronicle* (the shorter and complete one). However, we have demonstrated the possibility of dating an unknown text only on the basis of analysis of its formal quantitative characteristics. This method does not call for the investigation of the contents. On the one hand, this sharply narrows the area of application. On the other hand, the method permits us to substantially simplify many operations requiring the processing of large information samples. In particular, the method is applicable to texts written in a unintelligible language, e.g., texts which contain a large number of undecipherable abbreviations, notations, etc.

Example 2. Let Y = *Akademicheskaya letopis'* [248]. Following the above procedure, we attempt to date the described events. Going through the Chronicles, and finding the volume functions, we discover the text X = part of the *Suprasl'skaya letopis'* (see above) describing 1336–1374 A.D., whose volume graph shows splashes in the same years as that of Y. We find that $d(X, Y) = 10^{-14}$. We thereby date the events in Y with respect to the texts already dated. The dating obtained by us coincides with that usually given, and is generally known.

In 1980, I studied several dozen examples of the same kind, confirming the efficiency of the method in all the cases: The obtained datings coincided with those known earlier.

The suggested method is not at all universal. The most stable results are obtained for texts of large volume, describing sufficiently large time intervals, several decades or centuries long. The method's application to "short" texts should be done accurately.

4. Methods for Ordering and Dating Old Geographic Maps and Descriptions

4.1. The map-code and the map-improvement principle

Each geographic map described in a historical text graphically or verbally reflects the state of geography in the epoch when it was made. With the development of science, cartography developed, too, and erroneous information, generally speaking, decreased, while the amount of correct information increased. It would be interesting to work out a formal method of statistical character, permitting us to date one or another geographic description and map, and, in particular, find a chronologically correct relative ordering in time of the collection of surviving maps on the basis of the analysis of configurational and terminological particulars. In the present section, we offer such a technique, list the results of the associated experiment permitting us to check the algorithm, and apply it for the purpose of dating. Since considerable geographic data have been accumulated until now, its systematic study requires some global approach which can be based on the statistical "map-improvement principle" formulated below, verified and confirmed by dated sources. Such an approach permits us to process considerable cartographic information, and discover statistical regularities characterizing the evolution of geographic ideas. It should be noted that a considerable number of works have appeared recently that are devoted to the analysis of cartographic features of old maps [249], [270], [271], [272].

Since we had to study a considerable number of geographic data, quite heterogeneous and fixed in ancient maps, we had to create a table, called by the author the *map-code* (MC), that accumulates all the basic features of concrete map. The list of the basic features was made up according to their importance, "invariance", and frequency of use by cartographers. This optimal map-code compiled on the basis of the concrete ancient map study permits us to represent each map given graphically or verbally as a table containing all basic map features in the order of decreasing "invariance". The MC was constructed in accordance with the same principle as the enquête-code (EC), introduced and studied by the author in Part 1. We only give here its basic divisions: Whether it is (1) a terrestrial globe; (2) a plane map; (3) the map of the world; (4) a regional map; whether it depicts (5) the structure of the "map boundary" (water, land, etc.) in the case of the map of the world, position of the poles, equator, tropics, climatic zones and time zones; (6) map orientation, i.e., the use of the names "North", "South", etc., terms "above" or "below", Cybele (see [270], pp. 32–33), cartographic or chorographic orientation; whether it supplies (7) a complete list of all geographic names translated: continents, oceans, seas, lakes, rivers, states and individual regions, peoples and tribes, so-called "blank spaces"; (8) principal topological (geometric) characteristics of water reservoirs: bays and seas joined by them, representation of seas as large water reservoirs or narrow "rivers", the latter method being characteristic of many old maps, which can be explained by coastal navigation); (9) topological characteristics of the Mediterranean as the sea represented most often and accurately.

Thus, filling in all the items, we can represent each map as a set of characteristics, each of which can be considered as a "formal name" describing the properties of the map. Meanwhile, Item 7 (list of the map names) is especially important, because it indicates whether the map belongs to a particular cartographic tradition first of all. The geometric characteristics (configurations of water reservoirs, rivers, etc.) are more complicated for formalization; hence, in a rough "sorting-out", the maps were only classified in accordance with Items 1–7. Note that the geographical size of the region described in one item of the MC should not be too large if we employ Items 8 and 9 to compare MCs in order to eliminate a possible influence of various projections also used today in making plane maps. If desired, we can introduce additional and more differentiated characteristics into the MC structure; however, we should always fulfil the condition that this list of characteristics must be included in each map from the collection under investigation, i.e., it must be indicated for each of them whether a particular feature is present.

Consider some set of concrete maps, enumerate them arbitrarily, and order them as $M(1), M(2), \ldots, M(H)$. The map is denoted by $M(T)$, where the number T varies from 1 to H. The question arises: How does one find a chronologically correct order, in time, so that their sequence may correspond to their real datings and coincide with the order in which they were made? To solve the problem without resorting to some side information (which is often unavailable), and only making use of the data fixed in the maps themselves, we shall do as follows: For each map $M(T)$, we fill its table MC (T) and make up the list of the basic features, indicating whether they are present or not. We introduce the concept of *correct* and *incorrect feature*. We call a feature *correct* if it corresponds to geographic reality, and *incorrect* otherwise. For example, the absence of a strait between the Black and the Mediterranean Sea should be regarded as an incorrect feature. We now formulate the *map-improvement principle* describing the chronologically correct ordering of maps with respect to the time they were made: (1) *in passing from one map to another map, the incorrect features not corresponding to real geography vanish and do not appear on subsequent maps any longer* ("errors are not repeated"), and (2) a *correct feature which has appeared* (*e.g., a bay or river*) *is fixed and retained on all the subsequent maps.*

This principle is natural, because it is based on the fact that the maps were always made mostly for the purpose of practice, seafaring, military expeditions, trade, etc. Therefore, it was important for map owners in each epoch that their maps should reflect reality more precisely. Under these conditions, the appearance of a correct feature had to be immediately fixed and retained; on the contrary, if some feature turned out to be incorrect, it was immediately removed and not retained any more. In spite of its obvious nature, the principle needs verification. Note that it is not a consequence of other principles formulated by the author in [15]–[25]. To check, it is convenient to formalize the whole procedure as follows. Fix a map $M(T_0)$ numbered T_0, and find the value $L(T_0, T_0)$ equal to the number of features first appearing there, both correct and incorrect, and absent on all the earlier maps (as they are ordered now). We then calculate $L(T_0, T)$ showing how many of them were preserved on $M(T)$, where T is greater than T_0. We can thereby construct the graph of $L(T_0, T)$ for each $M(T_0)$.

The map-improvement principle can now be re-stated as follows: A sequence of maps is ordered chronologically correctly if and only if each graph of $L(T_0, T)$ is of the form shown in Fig. 39, i.e., vanishes to the left of T_0, attains an absolute maximum

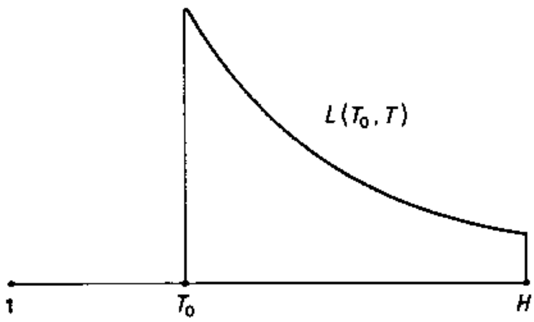

Figure 39. The map-improvement principle

at T_0, and falls monotonically to the right. This picture is precisely equivalent to the above formulation, viz., appearing on a map, each correct feature does not vanish, whereas each incorrect one vanishes sooner or later if we discover that it does not correspond to reality (see Fig. 40).

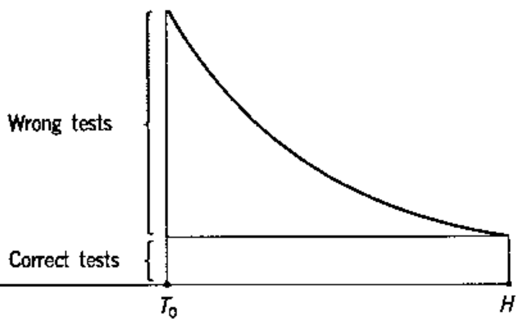

Figure 40. Evolution of correct and incorrect features for geographic maps

The collection of the graphs of $L(T_0, T)$ can be conveniently organized into a square matrix $L\{T\}$ (see Fig. 41) if T_0 is the number of the rows, and T of the columns.

In the case of the maps ordered chronologically correctly, $L\{T\}$ should be of the following form, viz., the absolute maxima of each row are on the principal diagonal, the graph decreasing monotonically along each row and column. That the $L(T_0, T)$ decrease with respect to the columns (as the numbers T_0 decrease) means that each map fixes the fewer incorrect features the more ancient they are.

Certainly, in the real situation, $L\{T\}$ can be remote from the theoretical matrix

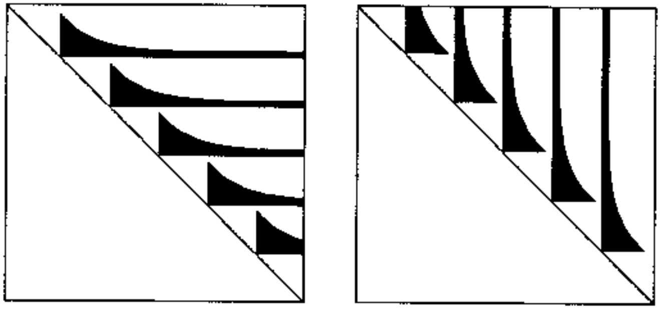

Figure 41. The square matrix $L\{T\}$

for concrete maps, i.e., the graphs of $L(T_0, T)$ can have only the approximate form shown in Fig. 39. However, if the maps were ordered chronologically incorrectly, the graphs of $L(T_0, T)$ deviate still more from the ideal in Fig. 39. To estimate quantitatively the closeness of $L\{T\}$ to the theoretical, it is convenient to make use of the averaged graph of $L_{\text{aver}}(T)$ by averaging the elements in the diagonals parallel to the principal axis. (See Fig. 42.)

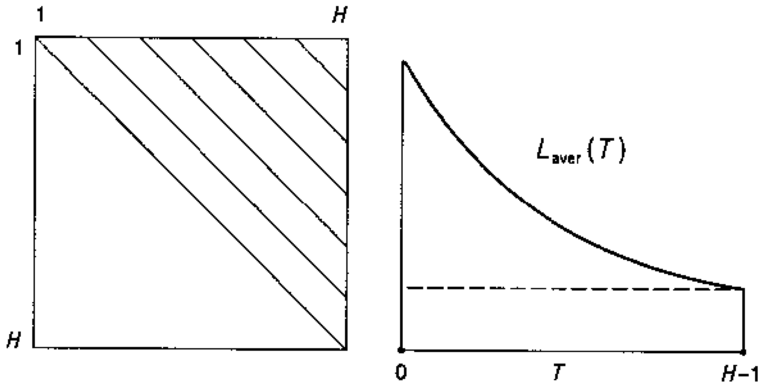

Figure 42. Averaged graph for the square matrix $L\{T\}$

We have

$$L_{\text{aver}}(T) = \frac{1}{H - T} \cdot \sum_{p - T_0 = T} L(T_0, p).$$

The more $L\{T\}$ deviates from the theoretical, the more distorted is the averaged graph.

4.2. Confirmation of the map-improvement principle

After the described formalization, we can experimentally verify the map-improvement principle. We use concrete medieval and modern maps whose ordering is free of doubt. Here, we indicate the most interesting of them: (1) the map of the world by Cosmas Indicopleustes, 6th c. A.D. (see [13], V. 1, p. 20, Fig. 11); (2) plane map by Cosmas Indicopleustes, 6th c. A.D. (*ibid.*); (3) arabic map by al-Istakhrī 950 A.D. (*ibid.* V. 3, p. 221, Fig. 45); (4) map by Macrobius of the 10–15th cc. A.D. ([249], p. 85, Fig. 9); (5) map of the 11th c. in the Cottonian collection from the British Museum (*ibid.* V. 3, p. 223, Fig. 47); (6) map of the 12th c. A.D. from the Turin Library ([13] V. 2, p. 300, Fig. 111); (7) several European maps of the 14th c. in the History Museum, Moscow; (8) map from the 15th-c. book *Opus sphericum* by Sacro Bosco; (9) map of the world of 1470, the so-called *Rad Karte* ([273], p. 13); (10) a map of the world by Stefano Borgia of the 15th c. ([13], V. 2, p. 633, Fig. 162); (11) 6th-c. plane map of the world, representing the terrestrial globe, by Johannes Stabius (Stabius–Dürer–Karte, 1515) ([273], p. 15); (12) map of the 16th-c. book *Mũndialis Sphere Opusculũm* by Sacro Bosco of 1519; (13) map by T. Occupario of 1522 (from the History Museum, Moscow); (14) map of the world by Diego Ribeiro of 1527, ([273], p. 14); (15) map of Cornelius Niccolai of 1598 (from the History Museum, Moscow); (16) terrestrial globe of the 17th c. (from the History Museum, Moscow); and (17) several modern maps.

The map-improvement principle was absolutely verified against this, not very considerable, data, and the averaged graph of $L_{\text{aver}}(T)$ practically coincided with the theoretical one in Figs. 39 and 42. In particular, it means that the above relative order of medieval maps was generally chronologically correct.

Hence, a method follows for finding a chronologically correct order of a collection of maps whose datings are unknown or doubtful, for which we first enumerate the maps under investigation in an arbitrary order, and construct the associated matrix $L\{T\}$, i.e., all the graphs of $L(T_0, T)$. We then start mixing up the maps, i.e., change their relative order by means of all possible permutations σ, each time computing the matrix $L\{\sigma T\}$ associated with the permutations, and strive for reducing the matrix to the ideal and theoretical form (see Figs. 39 and 42). This ordering of the maps for which the matrix is closest to the theoretical, and the graph of $L_{\text{aver}}(T)$ is monotonically decreasing, should be taken as chronologically correct and required. The fact that the map-improvement principle was confirmed permits us also to offer a method for dating old maps. Let A be a certain map whose dating is unknown. Construct its map-code, and subjoin it to the map-code collection of the maps already dated. Construct the graphs of $L(T_0, T)$ and the matrix $L\{T\}$ for all the maps of the collection, and assign A its number T_0. In accordance with the above procedure, we find the chronologically correct order for the whole collection. In particular, we find a place for A, which permits us to date the map with respect to the other dated maps. The method was applied to the following series of old maps: (1) the well-known map from the *Geography* of Ptolemy (edition of 1545; see [249], p. 97, Fig. 11), traditionally related to the 1st–2nd cc. A.D. fell into the 15th–16th cc. A.D., near maps 8–15 from the above list; (2) the famous *Tabula pentingeriana* ([13], V. 3, pp. 232–233, Fig. 48), traditionally related to the time of Augustus Octavian fell into the 11–12th cc. A.D.; (3) a series of ancient maps, though being later graphic reconstructions from the verbal description in old texts (see [249]): by Hesiod, traditionally dating from the 6th c. B.C. (*ibid.*, p. 38, Fig. 1); Hecataeus, traditionally dating from the 6–5th cc. B.C. (*ibid.*, p. 39, Fig. 1); Herodotus, traditionally dating from the 5th c. B.C. (*ibid.*, p. 44, Fig. 2); Democritus, traditionally dating from 5–4th cc. B.C. (*ibid.*, p. 45, Fig. 2); Eratosthenes, traditionally dating from 276–194 B.C. (*ibid.*, pp. 68–71, Fig. 6); globe by Crates, traditionally dating from 168–165 B.C. (*ibid.*, p. 77, Fig. 7) all fell into the 9–15th cc. A.D. when dated by means of the graphs of $L(T_0, T)$ (see above) with respect to the indicated scale of Maps 1–17, and all after Cosmas Indicopleustes. Each of the maps was completed by its list of geographic names (see the definition of the MC). For example, Herodotus' map was extended with the data gathered from a map in [67*]. It should be noted that the traditional datings of the indicated old maps are outside the 6–18th cc. A.D. embraced by Maps 1–17. The performed experiment showed that the complete collection of all these maps, including Nos. 1–17, if we retain the traditional datings, did not satisfy the map-improvement principle; we, therefore, preferred Maps 1–17 as established sufficiently stably in chronological respect. An argument for the use of such an approach is that the rejection of the traditional dates permitted us to discover a new the map ordering which is well consistent with the graphs in Figs. 39 and 42.

4.3. Herodotus' map

The above confirmation of the map-improvement principle means that if the maps are ordered chronologically correctly, their quality improves as the ordinal number increases. The maps characterized by approximately the same features and quality turned out to be placed close to each other; the younger the map, the closer it is to the modern one graphically. The beginning of the scale contains the maps distorted most of all, and the exact contemporary ones are at the end. The map quality becomes satisfactory only from the end of 16th to the beginning of the 17th cc. A.D. One of the seas described by Herodotus was indentified by the historians as the Black Sea; however, it turned out that the figures given by Herodotus are not at all consistent with the data about the size of the Black Sea, known from ancient geographies (see the Russian edition of the *Histories*, [67*], p. 521).

One of Herodotus' seas was identified with the Caspian Sea; it then turns out, that in the opinion of Herodotus, the Caucasus borders on this "Caspian" Sea in the West ([67], [67*], Bk. 1, Nos. 203–204). It can mean that Herodotus' map was turned upside down, with North placed at the bottom, and South at the top. But then such a position of the map superimposes Assyria on Europe (Germany) and, in particular, Babylon on Rome. This change of map orientation (at least, in certain parts of the *Histories*) does not contradict the other geographic data given by Herodotus.

According to him, the Persians lived in Asia up to the Southern Sea said to be the Red Sea ([67], Bk. 4, No. 37). According to the modern version, the Persians must have lived in Asia up to the Southern Sea called today the Persian Gulf. The farther the worse. Describing the peninsula (regarded by today's historians as Arabia), Herodotus writes that it starts with the Persian land and extends to the Red Sea (*ibid.*, Bk. 4, No. 39). Sounding true, this contradicts the historians' assertions that Herodotus' Red Sea is, actually, the Persian Gulf (*ibid.*) Therefore, the commentator "corrects" Herodotus: "Here, the Red Sea is the Persian Gulf" (see the Russian edition of the *Histories*, [67*], App. Bk. 4, Comm. 34). Further, the Red Sea, as we understand it today, may extend above the Persian-occupied land according to Herodotus, Bk. 40, under No. 40, under only one condition, viz., if the map is turned upside down with respect to the modern one.

Saving the traditional localizations, the historians are, therefore, forced to identify here the Red Sea with the Persian Gulf ([67*], App., Bk. 4, Comm. 36). However, this is not a way out, because the Persian Gulf is situated lower (or east) than the area inhabited by the Persians, but not at all above it. Herodotus made much trouble for the historians with his "Red Sea". It had to be identified with the whole of the Indian Ocean when it was mentioned in Bk. 2, No. 102. (*ibid.*, App. Bk. 2, Comm. 110). And East and West were interchanged again. Herodotus identified the Red Sea with the Southern Sea in Bk. 4. No. 37, which embarrasses the historians still more when they attempt to adjust Herodotus to the framework of traditional localizations. They are now forced to identify the Red (i.e., Southern) Sea with the Black Sea! ([67*], App., Bk. 1, Comm. 12). And again the East and West are interchanged with respect to the "Persians". After the relocalizations of the type, Red Sea = Southern Sea = Black Sea = Northern Sea = Mediterranean Sea = Persian Gulf = Our Sea = Indian Ocean, any talk about Herodotus' data confirming the traditional locatizations is taken as inaccurate. The study of other examples, which we omit here, demonstrates the possibility of the following overlappings, viz., Assyria = Germany, Babylonia = Rome, Persia = Gaul (France?), Media = Hungary. The repeated mentions by Herodotus of the *Crestonaei* are taken as extremely strange. According to Herodotus, there exists an entire region called *Crestonia* and a city *Creston*. The *Crestonaei* originated from the other countries in Greece ([67*], pp. 27, 239, 240, 524). Herodotus also uses the term *Crossaea* ([67*], pp. 345, 408, 344). These numerous indications are unwillingly associated with the "Crusaders" ("cross" is also a "Crusade" term) flooding Greece in the 12–13th cc. A.D. Comparison of the *Crestonaei* with the Crusaders is also natural because certain ancient authors called the Christians "Chrestians". Even Tacitus wrote *Chrestianos* instead of Christianos in the original of his manuscript of the *Annals* (15, 44; irrespective of the fact whether or not they were forged; see the study of Anderson). Note that the modern commentators do not discuss Herodotus' numerous "Crusade" terms, though the other tribes, peoples and cities were given extensive commentary. Moreover, the most detailed map of the world according to Herodotus was included in the edition [67*]. It was made by historians in 1964 (see the Russian edition of Herodotus and "Das Geschichtswerk des Herodotos von Halikarnassos". Berlin, 1964.). Even small towns and villages mentioned in the *Histories* were marked. Neither the *Crestonaei* nor *Creston* nor *Crossaea* are mapped (?!).

4.4. Medieval geography

In general, geographical knowledge in 16th-c. Europe was very far from modern, e.g., T. Occupario's map of 1522 (Moscow History Museum) represented Europe and Asia in proportions sharply different from the modern ones. Greenland turns out to be a European peninsula, Scandinavia is drawn into a thin strip, the Bosphorus and Dardanelles are much extended and enlarged, the Black Sea is turned askew, and the Caspian Sea elongated horizontally and made literally unrecognizable. The only region reflected more or less faithfully is the Mediterranean (where seafaring was developed most), but then Greece was represented as a triangle without the Peloponnese. Ethnographic evidence was still farther from that fixed by traditional history of the time. For example, Dacia is placed in Scandinavia, Albania on the Caspian Sea, *Gottia* (the Goths' land?) again in Scandinavia, China is completely absent, *Judei clausi* can be seen in north of Siberia, etc. By the way, France is called *Gallia*, the Don by its ancient name *Tanais*, and *Russia* and *Moscovia* are separated, the latter being placed far north, near the Arctic Ocean. Cornelius Niccolai's map of 1598 is also rich in similar distortions, but now to a lesser degree. During this century, geographical knowledge accumulated very rapidly. For example, the terrestrial globe of the 17th c. in the Moscow History Museum already reflects reality quite well. We now point to the possibility, in principle, of substantially different, in the geographic and ethnic sense, introduction of vowels into ancient texts. Having studied the biblical (vowel-free) mentions of ASR, N. A. Morozov supplies them with the translation "leader" or "Führer", and relates the term to Germany, whose geographic position is well consistent with that of Assyria (the canonical translation of Ashur), given in the Bible with respect to the other geographic locations if we make Jerusalem coincident with Rome or Pompeii. The data permitting us to understand Rome in Italy by the term "guardian city" (Samaria) are given in [13], V. 2. We then cannot help stressing the passage:

"... and Remaliah's son (in N. A. Morozov's translation, Romulus the Thunderer—A. F.) the chief of Samaria (probably, the city's founder—A. F.)" (Is 7:9).

It is written just in this way "RML–IEU", i.e., Romulus the Thunderer, but it was Romulus who had founded Rome! A still stranger impression is made by the study of biblical vowel-free names of countries and peoples.

For example, according to N. A. Morozov,

"Tu–HERM implies a German not only due to the consonance with the primary name of his country *Die Germa*, but also because the sound *T* is often affixed to Jewish words when they become nominatives" ([13], V. 2, pp. 613–614).

N. A. Morozov extensively analyzed the ancient text, and asserted that almost all of the largest peoples of medieval Europe and the Mediterranean had been mentioned in the Bible, and almost always just where they are located today. The traditional localizations of the biblical lands of Asia Minor are then questioned, the example being old Phoenicia and its cities Tyre and Sidon. Due to the above possibility of the European locations of many a biblical event and term, it should be noted that the word *Venetia* could have been read by the ancients both as Venice in its Roman version and *Phoinikē* (or Phoenicia) in the German version, reading *v* as "fau" and the assimilation "C" = "K", as might be seen in the words "caesar" = "kaesar" (note by T. N. Fomenko). This simple observation does not contradict the other biblical data regarding Phoenicia and, moreover, is confirmed by them. It is traditionally believed that Phoenicia was a powerful sea state reigning over the whole of the Mediterranean, founding its colonies in Sicily, Spain, Africa, etc., trading widely with remote lands in articles confirming its power (see, e.g., Ez. 27). The powerful medieval republic of Venice does, in fact, satisfy all these data. On the other hand, traditional history states that the main Phoenician cities were modern Tyre and Sidon (Saida). Here are official sailing directions of the 19th c. [96], describing Saida with 1600 people in 1818. "There is a small harbour South of it. The jetty barely noticeable today was earlier a small port, now completely covered by sands. Plague sometimes rages here. Saida exhibits no remembrances of its earlier magnificence. A reef comes out of the southern shore, and it is shallow near the northern shore. The depth is insufficient between the town and island, the pass narrow and stony. You cannot gather water here, because a large sloop cannot approach the shore" ([96], cited by [13], V. 2. p. 637).

In the 19th c., this small town was at the mouth of a river, and existed mainly from its gardens. The strategic position was hopeless. During the Crusades, it passed from one rule to another many times, and had never existed as a large independent medieval trading centre ([13], V. 2). All the above-said is in striking contrast with the reports about great Sidon and Phoenicia. The situation with Tyre is still more discouraging:

The earlier town vanished without leaving a trace. The newer one is situated on a stony island joined to the mainland by an isthmus. The principal trading articles are tobacco, coal, dried figs, wood. The markets are scarce. The port admits only small boats ([13], pp. 640–641). All of this is again sharply different from the biblical legends about "great Tyre". Its flotillas (!) went as far as the Atlantic, traded in fabrics of different make, ebony, luxury goods, indigo, glass and hardware, etc. The Bible devotes many of its pages to the description of the literally grandiose trade by Tyre (Ez. 27:1–24).

Studying the spelling of Tyre in the ancient original, N. A. Morozov conjectured that, in fact, Tyre might mean "Caesar" city (Constantinople). Constantinople indeed was a large medieval seaport of the power supported by the Venetian and Genoese fleets.

5. Frequency Distributions in Rulers' Numerical Dynasties

5.1. Parallel rulers' dynasties

In this section, we give the list of rulers and the duration of their rules, possessing small coefficients $\lambda(a,b)$. See Part 1, §5 for the definition of $\lambda(a,b)$.

The above algorithm acts as follows if we compare two authentic *dynastic streams* (i.e., sequences of all rulers in the region). We select a *dynastic jet*, i.e., a subsequence of rulers whose sum completely covers the whole time interval embraced by the dynasty. Since the authentic dynastic streams contain many co-rulers, we can select, generally speaking, several different jets, or numerical dynasties, from each stream. Besides, we fix all *possible versions* of the start and end of each reign. We recall once again that these dates are determined differently by different chroniclers; therefore, all these divergences were naturally taken into account in the choice of jets. This fact also increases the number of possible jets distinguished for a chosen dynasty.

It may turn out in comparing two dynasties that only two jets are dependent in the set of all possible pairs of them, whereas the others are independent. It is important that the rule durations are considered only approximately, since the error function $f(a_i)$ was introduced into the algorithm. In other words, if a rule duration a_i is less than 20 years, then the difference $a_i - b_i$ is considered by us only to the accuracy of ± 2 years. If a_i varies from 20 to 30, then to the accuracy of ± 3 years. However, if a_i is greater than 30 years, then the admissible error may attain ± 10 years, and then increase linearly with the growth of $[a_i/10]$ ($[\,]$ meaning the integer part of the real number). Hence, it suffices to know only very approximate values of rule durations, and not the exact ones, which are unknown in many cases. It turns out that the nature of the rule-duration graph is important (i.e., the form of the broken curve). Thus, both the algorithm and the results obtained on its basis are extremely stable with respect to perturbations of the rule durations within the indicated limits.

The application of the method to historical data traditionally believed to belong to before the 13th c. A.D. unexpectedly led to the discovery of dynastic pairs (jets) a and b, regarded as independent in all respects, but for which the proximity coefficient $\lambda(a, b)$ is of the same order as for necessarily dependent dynasties, i.e., does not exceed 10^{-8}. Below, we give Tables 4–18 indicating (relative to dating traditionally) the rulers from the most interesting special dynastic pairs discovered, for which $\lambda(a, b) < 10^{-8}$ (Figs. 43–64). It means that they are probably dependent, and are duplicates or parallels. We compare the rule-duration graphs for the rulers enumerated consecutively, and also consider the overlapping of two dynasties on the time axis after a rigid shift of one of them until it coincides with the other. The mutual dispositions in time of individual rulers are nevertheless retained (under such rigid shift). For better visuality, we join the starting points and ends of the overlapping rulers by vertical lines. We illustrate this with further important examples. Calculating the average shift, we have compared the rule ends. That all these overlapping dynasties in Tables 4–18 (Figs. 43–64) are parallel is perfectly consistent with the decomposition of the Global Chronological Diagram (GCD) (Fig. 65), i.e., the modern ancient and medieval history "textbook" (see its definition and description in the Part 1), into the sum of four identical chronicles. Its description in Table 19 (Figs. 66(1), 66(2), 66(3), 67) is more detailed than in [24], Fig. 3. The line E (left column) schematically represents the ancient and medieval history of Europe, the Mediterranean and Near East with respect to traditional dating, whereas B gives the biblical chronology and history described in the Old and New Testaments. This history is represented with an upward shift by *c.* 1,800 years in accordance with its overlapping of the events of European history, discovered by the author. The letters K, T, П, P, C, H in the GCD, Figs. 65, 66, Table 19, represent different historical epochs or periods. For brevity, we re-designated the epochs denoted *ibid.* by black triangles and the letters MT simply by T. The line C_0 in Table 19 is the original, i.e., the chronicle that probably describes the authentic history of the above regions and their authentic chronology (see the first line at the bottom of Figs. 65, 66). Line C_1 (third line from the bottom in Fig. 65) represents the distorted original C_0

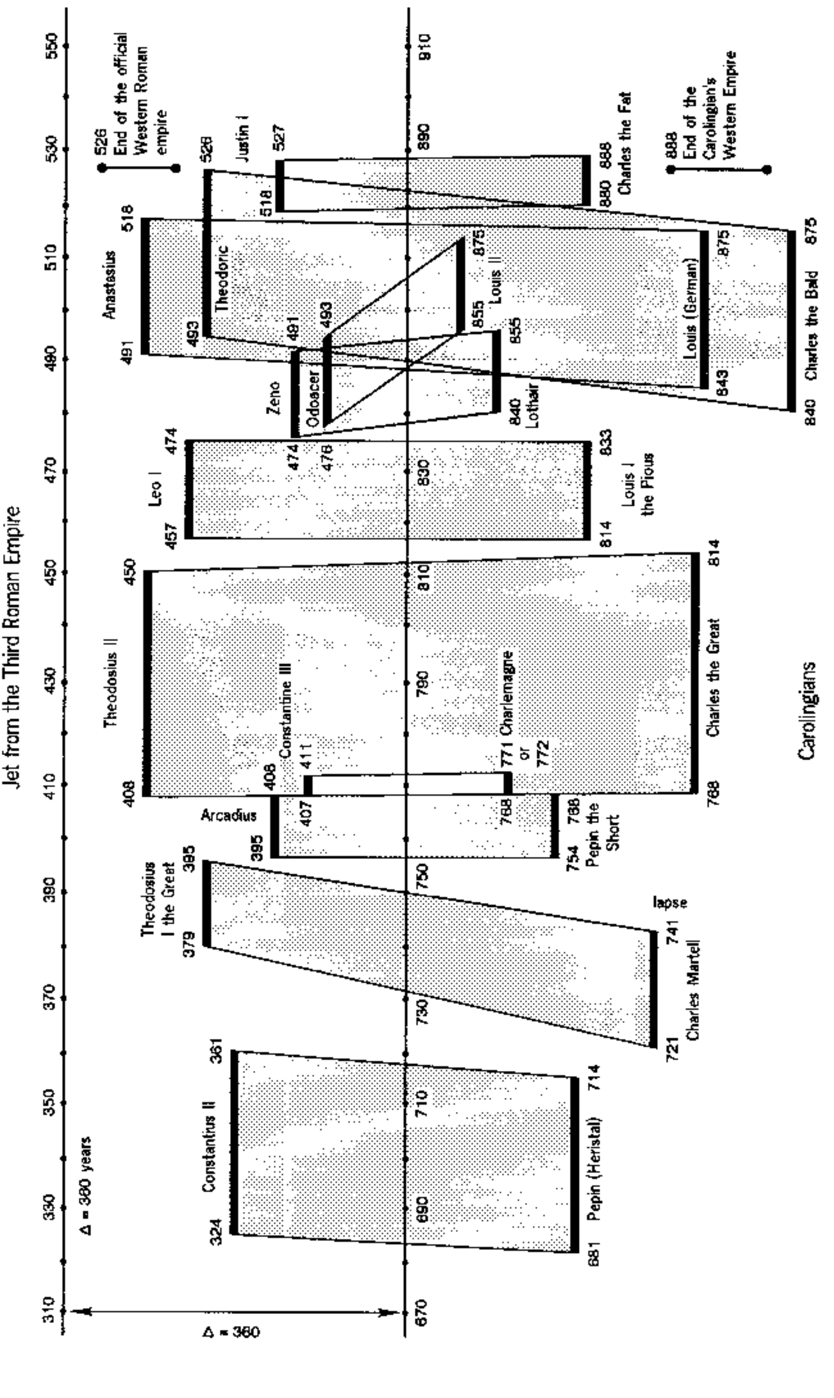

Figure 43. Parallel between the Carolingians in the 7–9th cc. A.D. and the Third Roman Empire in the 3–6th cc. A.D. The 360-year rigid shift

to which several duplicates have already been added, whereas C_2, C_3, and C_4 in Table 19 (fourth, fifth and sixth lines from the bottom in Fig. 65), are the duplicates-copies of the line C_1 driven backwards through 333, 1,053, and 1,778 years, respectively. Thus, Table 19 contains events indexed identically by numbers or letters, and placed on the same horizontal axis, i.e., duplicates identifiable completely or partly on the basis of new dating methods. Moreover, those indexed by several letters in the first and second columns are the sums (overlappings) of events on the same horizontal axis in the remaining table columns with the same number. For example, for Event 16: Event P/C in the 1st column of the Table 19 is obtained by (overlapping) summing Event 16: Event C from the line C_2, and Event 16: Event P from C_1. Table 18 contains the duplicates discovered by my enquête-code method [15], [21] (Part 1). The personages in one column are duplicates, as well as the events listed in the first, their originals being, probably, those in 13th-c. Italy. Table 17 is devoted to the description of the discovered parallel between the events in medieval and ancient Greece. Their coincidence occurs when shifting the ancient events rigidly upwards by c. 1,800 years. This table is also completely consistent with the GCD decomposition into the sum of four identical chronicles C_1, C_2, C_3, and C_4.

In the tables, we indicate the rule periods, and the duration in parentheses (e.g., Arcadius 395–408(13)). We also give certain enquête-code fragments to give an idea of the parallels of events. The complete enquête-code tables are extremely large and are omitted here. For the reader's convenience, the bibliographic references are indicated in the tables and some diagrams.

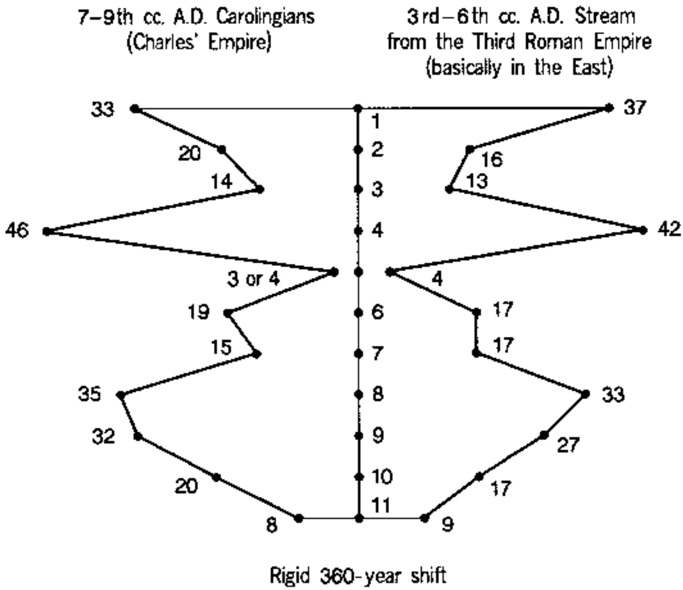

Figure 44. Parallel between the Carolingians and the Third Roman Empire

5.2. Statistical parallel between the Carolingians and the Third Roman Empire

Table 4 (Figs. 43, 44)

Carolingians, Charlemagne's Empire in the 6–9th cc. 360-year shift (see rule variations in [74], [124])	Jet from the Third Roman Empire in the 3rd–4th cc. A.D. (mainly, Eastern; see rule variations in [74], [288])
1) Pépin of Héristal 681–714 (33)	1) Constantius II 324–361 (37)
2) Charles Martell 721–741 (20)	2) Theodosius I 379–395 (16)
3) Pépin the Short 754–768 (14)	3) Arcadius 395–408 (13)
4) Charlemagne 768–814 (46)	4) Theodosius II 408–450 (42)
5) Carloman 768–771 or 772 (3 or 4) "Charlemagne's donation" (774 A.D.) of Italian lands	5) Constantine III 407–411 (4) Donation of Constantine (4th c. A.D.) of Rome
6) Louis I the Pious 814–833 (abduction) (19)	6) Leo I 457–474 (17). Restoration of "antiquity" under Carolingians (on the left)
7) Lothair the Western 840–855 (15)	7) Zeno 474–491 (17)
8) Charles the Bald 840–875 (35)	8) Theodoric 493–526 (33)
9) Louis the German 843–875 (32)	9) Anastasius 491–518 (27)
10) Louis II the Western 855–875 (20)	10) Odoacer 476–493 (17)
11) Charles the Fat 880–888 (8). Dissolution of Carolingian Empire in the West. Shift by c. 360 years. War	11) Justin I 518–527 (9). Dissolution of official Third Roman Empire in the West. Gothic war of 6th c. A.D.

The average shift with respect to the end of the rules equals 359.6 years, which coincides with the 360-year first basic rigid shift, making coincident the left column with the right. This parallel (one of the basic ones) identifies block II on line C_2 with II on E (Fig. 65).

5.3. Statistical parallel between the Holy Roman Empire and the Third Roman Empire

Table 5 (Figs. 45, 46)

Roman Empire in 10–13th cc. A.D. (see rule variations in [74], [124] and [44])	Third Roman Empire in 4–6th cc. A.D. (see rule variations in [74], [333] and [44])
1) Otto III the Red (= Chlorus) 983–1002 (19). Julius Caesar's duplicate	1) Constantius I Chlorus 293–306 (13). Caesar's duplicate, 340-year shift
2) Henry II 1002–1024 (22)	2) Diocletian 284–305, 304 (21)
3) Conrad II 1024–1039 (15)	3) Licinius 308–324 (16)
4) Henry III 1028–1056 (28)	4) Constantine I 306–337 (31)

5) Henry IV 1053–1106 (53). Hildebrand 1049–1085 (36) = original of Basil the Great. Start of Hildebrand's well-known reform in 1053, his struggle with Henry IV (Canossa); 1049 = beginning of his activity in Rome; 1085 = his death	5) Basil the Great (?) 333–378 (45). Shift from Henry to Basil the Great is 728 years (= 1106–378). Shift from "birth" of Hildebrand to Basil the Great is 720 years (1053–333). Well-known reform of Basil (Basilius) the Great. Struggle of Basil the Great with Valens (Herod?)
6) Henry V 1098–1125 (27)	6) Honorius 395–423 (28)
7) Lothair 1125–1138 (13)	7) Theodosius I 379–395 (16)
8) Conrad 1138–1152 (14)	8) Arcadius 395–408 (13)
9) Frederick I 1152–1190 (38)	9) Theodosius II 405–450 (42)
10) Henry VI 1169–1197 (28)	10) Valentinian III 425–455 (30)
11) Anarchy and Philip Ghibelline 1198–1208 (10). Favourites Subur, Petrus, Rainerius	11) Anarchy and Ricimer 456–472 (16). Favourites Severus, Petronius and Ricimer (see two close names on the left)
12) Otto IV 1201–1217 (17 or 16) or 1197–1218 (21). Capture of Rome and Coronation. Otto IV is German	12) Anarchy and Odoacer 476–493 (17). Capture of Rome and coronation. Odoacer is leader of German Herules
13) Frederick II as a Roman King 1220 (last coronation)–1250 (30). Execution of Vineis (Boëthius?)	13) Theodoric 497–526 (29) (see variation in [44]). Names of Theodoric and Frederick are close
14) Or Frederick II 1196–1250 (54) and co-ruler Otto IV until 1218. Death of Frederick II is the start of war in Italy in 13th c. A.D.	14) Or Theodoric + Odoacer (co-ruler) 476–526 (50). Death of Theodoric is start of Gothic war in Italy in 6th c. A.D.
15) Conrad IV 1237–1254 (17). His adversary is Charles of Anjou	15) Dynasty of Goths 526–541 (15). Adversaries are Belisarius and Narses
16) Manfred 1254–1266 (12)	16) Totila 541–552 (11)
17) Conradin (very young) 1266–1268 (2). His death in Naples. Defeat in battle with Charles of Anjou near Troy and Naples. End of Empire in 10–13th cc. A.D. Defeat and fall of Hohenstaufen	17) Tejas (very young) 552–553 (1 or 2). His death near Naples. Defeat in battles with Narses near Troy and Naples (Trojan war). End of Third Roman Empire in Italy. Defeat and fall of dynasty of Goths

The average shift with respect to the end of the rules is 723 years, which is close to the 720-year rigid shift making the left column coincident with the right.

This is one of the basic parallels.

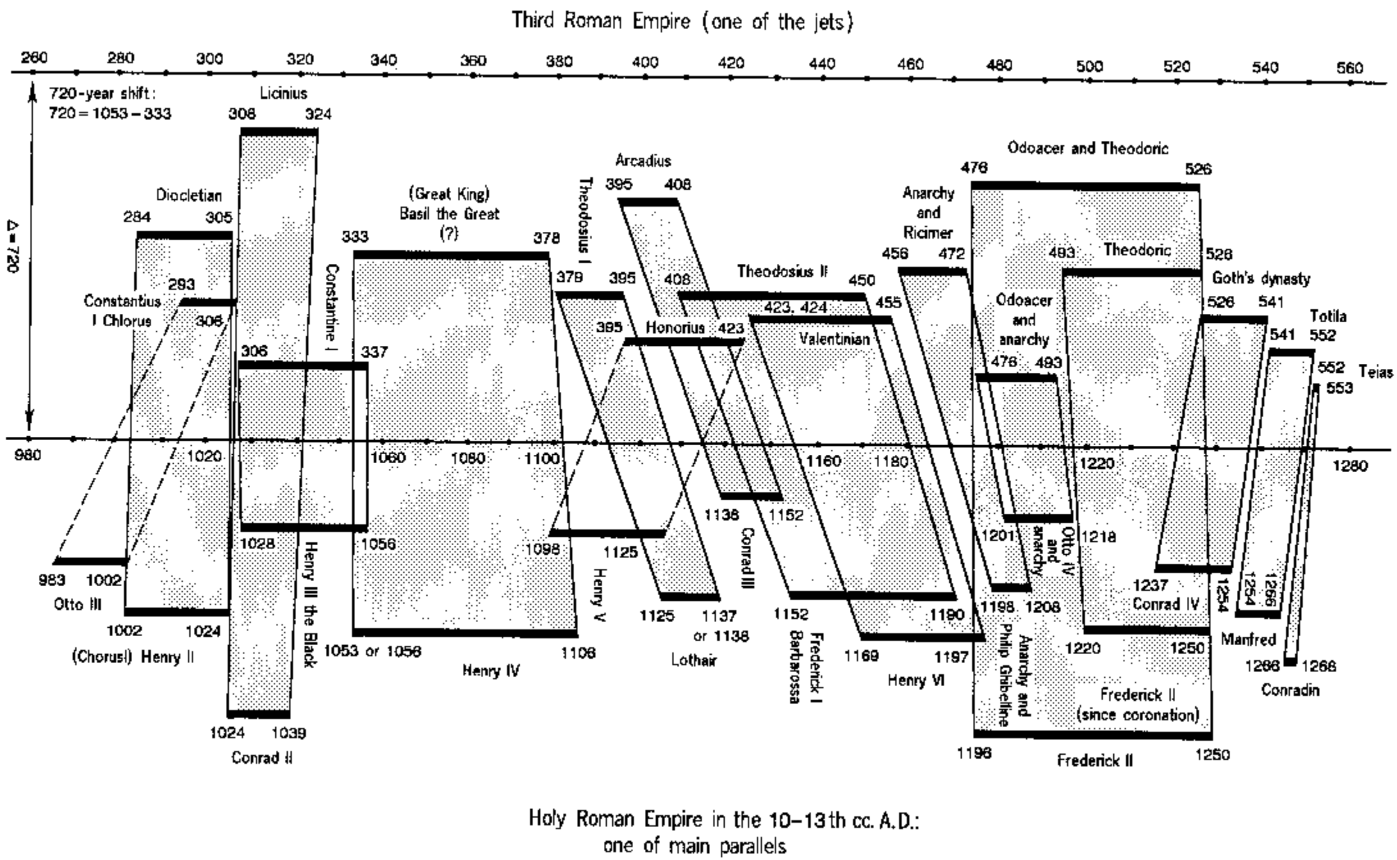

Figure 45. Parallel between the Holy Roman Empire in the 10–13th cc. A.D. and the Third Roman Empire in the 4–6th cc. A.D. The 720-year rigid shift

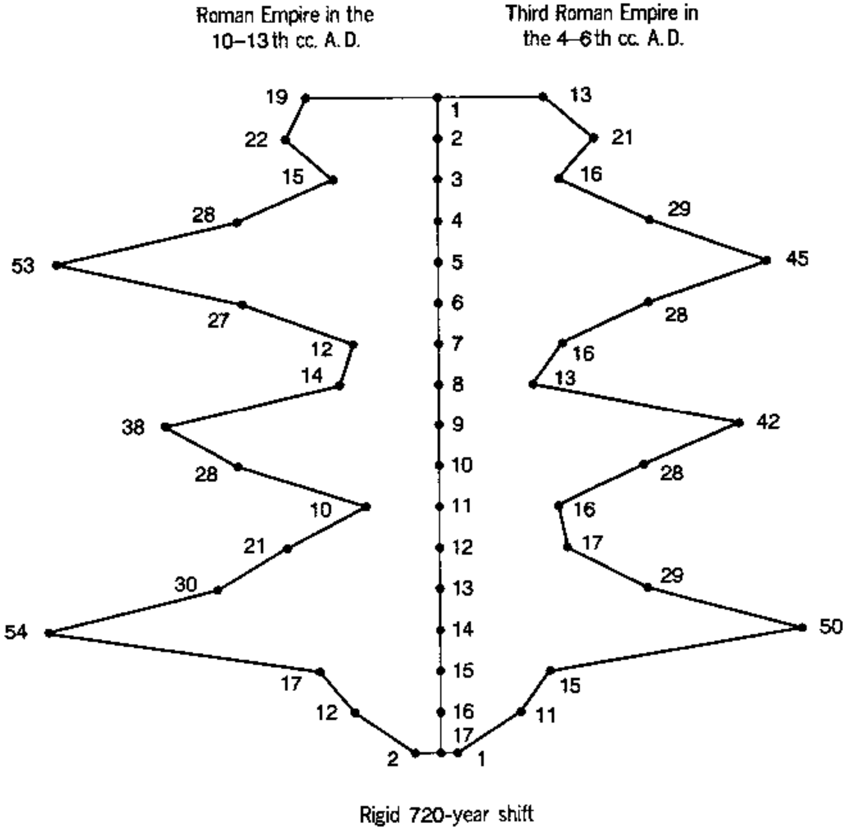

Figure 46. Parallel between the Holy Roman Empire and the Third Roman Empire

5.4. Statistical parallel between the Holy Roman Empire and the Empire of the House of Hapsburg

Table 6 (Figs. 47, 48)

Holy Roman–German Empire in the 10–13th cc. A.D. Start of Saxon Dynasty in 911 (see the rule variations in [74], [124] and [274])	Empire of the House of Hapsburg in the 13–17th cc. A.D. Start of Austrian duchy in 1273. Overlapping on the left arises under 362-year rigid shift
1) Conrad I 911–918 (7)	1) Adolf of Nassau 1291–1298 (7)
2) Henry I 919–936 (17)	2) Rudolf Hapsburg 1273–1291 (18)
3) Otto I the Great 936–973 (37). Overlapping of Alberic II and Albrecht I	3) Henry VII 1309–1314 and Louis V 1314–1347 (altogether 38)

4) Otto II from death of Otto I in 973 until his death in 983 and Otto III 983–1002 (altogether 29 years)	4) Charles IV 1347–1378 (31)
5) Henry II 1002–1024 (22)	5) Wenceslas 1378–1400 (22)
6) Conrad II from his coronation in Rome in 1027 until his death in 1039 (12)	6) Rupert Palatinate 1400–1410 (10)
7) Henry III the Black 1028–1056 (28). Great Schism under Hildebrand in 1054	7) Sigismund 1410–1438 (28). Great church schism 1378–1417 (see Ezra, Nehemiah and Esther)
8) Henry IV 1053–1106 (53)	8) Frederick III 1440–1493 (53)
9) Henry V 1098–1125 or Henry V from his coronation in Rome in 1111 until his death in 1125. Lothair II 1125–1137 (27 or 26)	9) Maximilian I Pius 1493–1519 (26). Publishing of Ptolemy's *Almagest* written under Antoninus Pius (138–161). Coincident under the shift 1,000 + 300
10) Eruption of Vesuvius in 1138–1139. Wars in Italy with participation of Germany 1143–1155. Revolt of Arnold of Brescia	10) Eruption of Vesuvius in 1500. German invasion and war in Italy, 1494–1527. Revolt in Brescia in 1512 (on the left)
11) Frederick I Barbarossa 1152–1190 (38). Famous emperor; captured Rome in 1154. Date difference is 373 years (shift). Pope Adrian IV. Founded Franciscan and Dominican orders in 1223 and 1220	11) Charles V 1519–1556 (37). Famous emperor. During his rule: Frederick the Wise and war with Barbarossa (!). Capture of Rome by Charles V in 1527. Pope Adrian VI. Foundation of order of Jesuits (*c.* 1540)
12) Henry VI 1191 (coronation in Rome)–1197 (6)	12) Ferdinand 1556–1564 (6)
13) Philip 1198–1208 (10)	13) Maximilian II 1564–1576 (12)
14) Frederick II 1211–1250 (39). Three coronations in 1196, 1211 and 1220	14) Rudolph II 1576–1612 (36)
15) William 1250–1256 (6)	15) Mathias 1612–1619 (7) (Matthew)
16) Conrad IV 1237–1254 (17)	16) Ferdinand II 1619–1637 (18)
17) End of Empire 1250–1254	17) End of Empire 1618–1619
18) War in Italy 1250–1268. Start of 17-year anarchy in Germany (1256)	18) Start of 30-year war in Germany in 1618

This is one of the basic parallels which identifies block C on line C_2 (see the GCD in Fig. 65) with block C on line E. The rigid shift by *c.* 360 years, i.e., is the first basic shift.

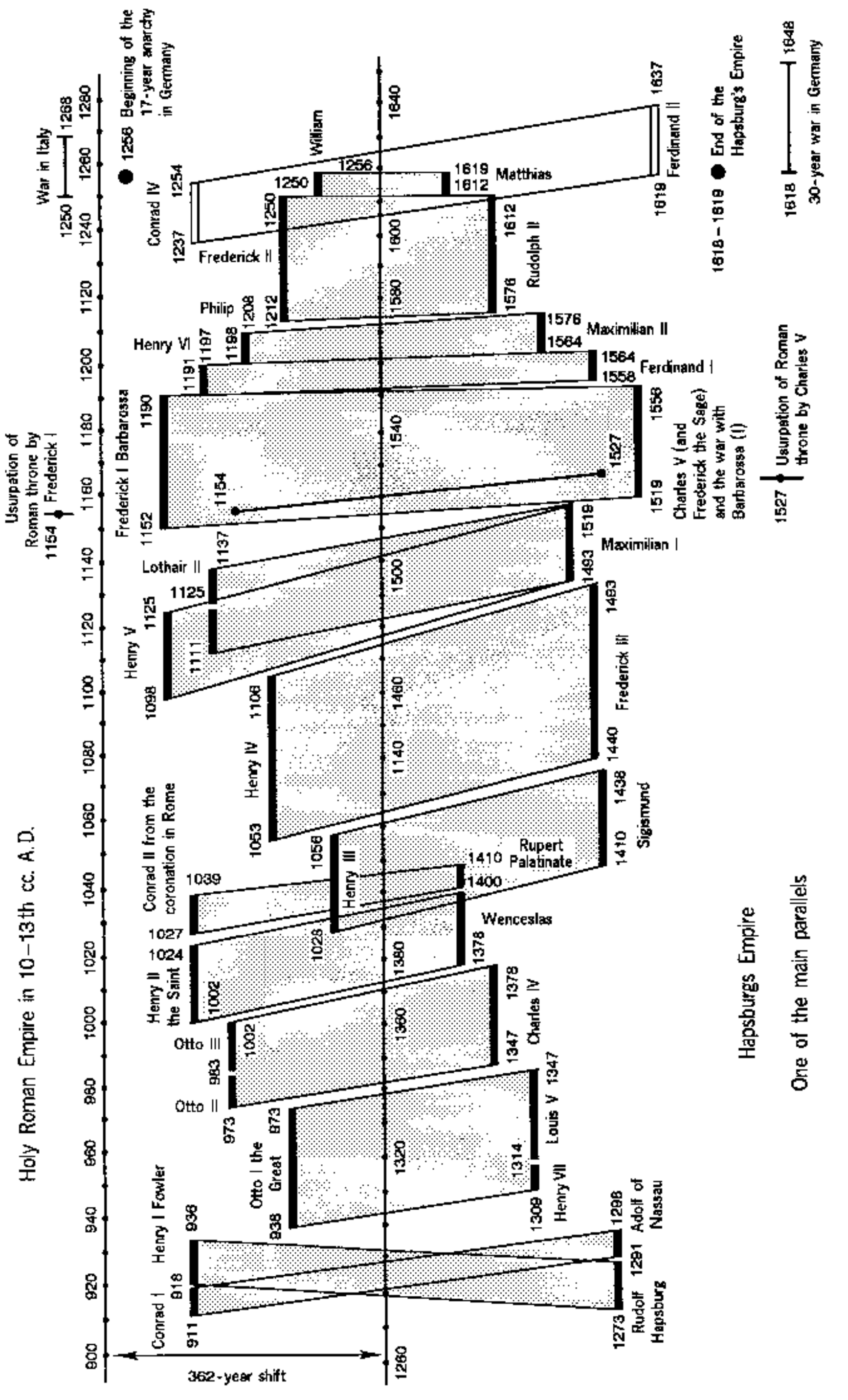

Figure 47. Parallel between the Holy Roman Empire in the 10–13th cc. A.D. and the Hapsburg Empire in the 13th cc. A.D.
The 362-year rigid shift

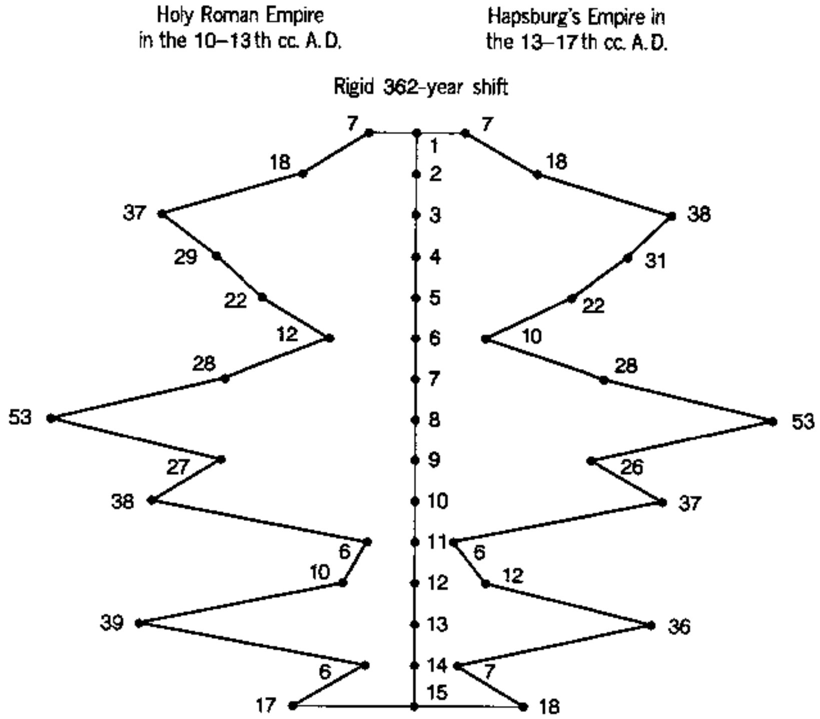

Figure 48. Parallel between the Holy Roman Empire and the Hapsburg Empire

5.5. Statistical parallel between the Holy Roman Empire and the Second Roman Empire

Table 7 (Figs. 49, 50)

Holy Roman–German Empire in Italy in 10–13th cc. A.D. Lasts for 292 years from 962 or 964 to 1254 (see rule variations in [74], [44], [274] and [39])	Second Roman Empire from the 1st c. B.C. to the 3rd c. A.D. in Italy. Lasts for 299 years from 82 B.C. to 217 A.D. Overlapping under the rigid upwar shift by 1,053 years
Start of Empire: three great emperors in 10th c. A.D., viz., Otto I the Great (anarchy and war), Otto II the Wild, Otto III the Red (Chlorus):	Start of Empire: three great emperors in the 1st c. B.C. viz., Pompey the Great (anarchy and war). Sulla Lucius (interchanged with No. 1), Julius Caesar (= Chlorus in 3rd Empire):
(A) Otto I as German king 936–973 (37). Octavian, son of Alberic (Caesar's duplicate) comes to power at age 16 (young)	(A) Octavianus Augustus 23 (or 27) B.C.–14 A.D. (37). Octavianus, adopted son of Julius Caesar, comes to power at age 19 (young)

(B) Otto II 960 (German coronation)–983 (23)	(B) Tiberius 14–37 (23). Shift due to 11th c. A.D. = X. I = 1st c. since Christ
(C) Emperors are German Kaisers. Gold coins of 10–13th c. A.D. empire are practically unavailable, and are, possibly, referred to the right column. Empire is officially called Holy	(C) Emperors are Caesars (Kaisers), often with the name of Germanicus. Many ancient Roman gold coins date from Second Empire. Emperors are called *Augusti* (sacred)
1) Henry II the Saint and Conrad the Salian 1002–1039 (37)	1) Octavianus Augustus (Saint) 23 B.C.–14 A.D. (37)
2) Conrad II the Salian 1024–1039 (15). Hildebrand 1053–1073–1085 (pope in Rome). Cencius' treason, "pope's passion" [44]	2) Germanicus 6–19 (13). Jesus Christ 0–33, Hildebrand's duplicate under the shift by 1,053 years, Judas' treachery, "Saviour's passion"
3) Henry III the Black 1028–1056 (28)	3) Tiberius and Caligula 14–41 (27)
4) Henry IV 1053–1106 (53). Names on right are close (contain common part: Tiberius Claudius Nero Germanicus)	4) Tiberius, Caligula, Claudius and Nero 14–68 (54). This overlapping is doubtful
5) Henry V the **Black** 1098–1125 (27), German king (?) or	5) Claudius and Nero 41–68 (27). Complete name contains "Black"
6) Henry V the **Black** 1111–1125 (14), Roman emperor	6) Nero 54–68 (14). This version contains no overlapping
7) Lothair 1125–1137 (12)	7) Two Tituses Vespasianuses 69–81 (12)
8) Eruption of Vesuvius 1138–1139 (duplicate of 1500?)	8) Eruption of Vesuvius burying Pompeii and Herculaneum in A.D. 79
9) Conrad III 1138–1152 (14)	9) Domitian 81–96 (15)
10) Frederick I Barbarossa 1152–1190 (38). Chronicles mix him up with Frederick II	10) Trajan and Hadrian 98–138 (40). Both are called Trajan (name overlapping)
11) Henry VI 1169–1197 (28)	11) Antoninus Pius 138–161 (23)
12) Philip Ghibelline 1198–1208 (10)	12) Lucius Verus 161–169 (8)
13) Otto IV 1198–1218 (20). Erection of famous equestrian statue of Marcus Aurelius ([44], V. 4, [44*], V. 4, p. 568, Comm. 74)	13) Marcus Aurelius 161–180 (19). Equestrian statue of Marcus Aurelius, famous antique Roman relic. Confusion in medieval chronicles [44]
14) Frederick II 1211–1250 (39). His title *Gattin* (Gothic?)	14) Commodus and Caracalla 180–217 (37), duplicate of Theodoric of the Goths, 6th c. A.D.
15) Conrad IV 1237–1254 (17)	15) Septimius Severus 193–211 (18)
16) Interregnum 1256–1273 (17). End of 10–13th-c. Roman Empire. War in Italy in mid-13th c., duplicate or original of Gothic (Trojan war)	16) Anarchy, Julia Maesa and her favourites 217–235 (18). End of 2nd Roman Empire. War in Italy in mid-3rd c. A.D. Wars with Goths

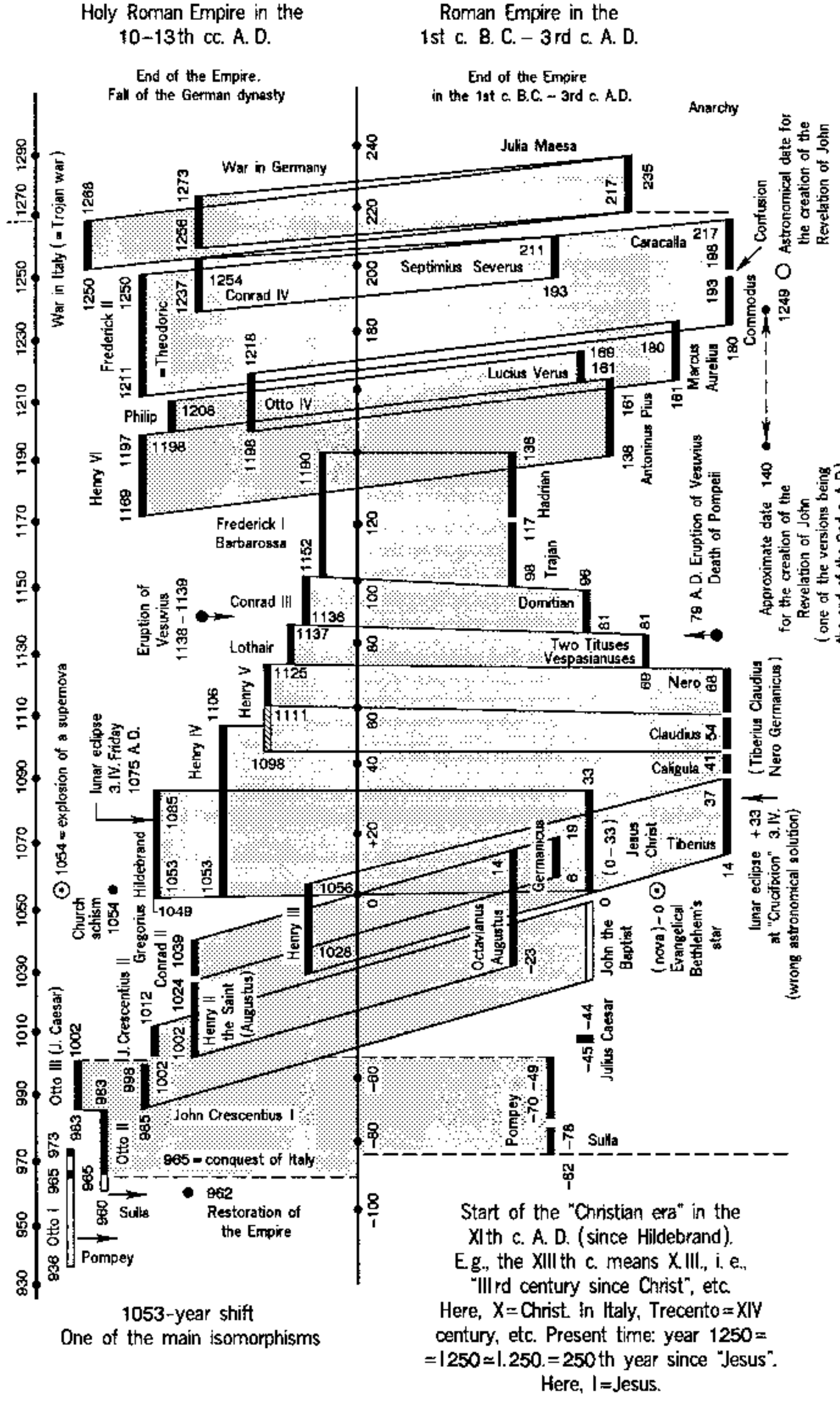

Figure 49. Parallel between the Holy Roman Empire in the 10–13th cc. A.D. and the Second Roman Empire from the 1st c. B.C. to the 3rd c. A.D. 1053-year rigid shift

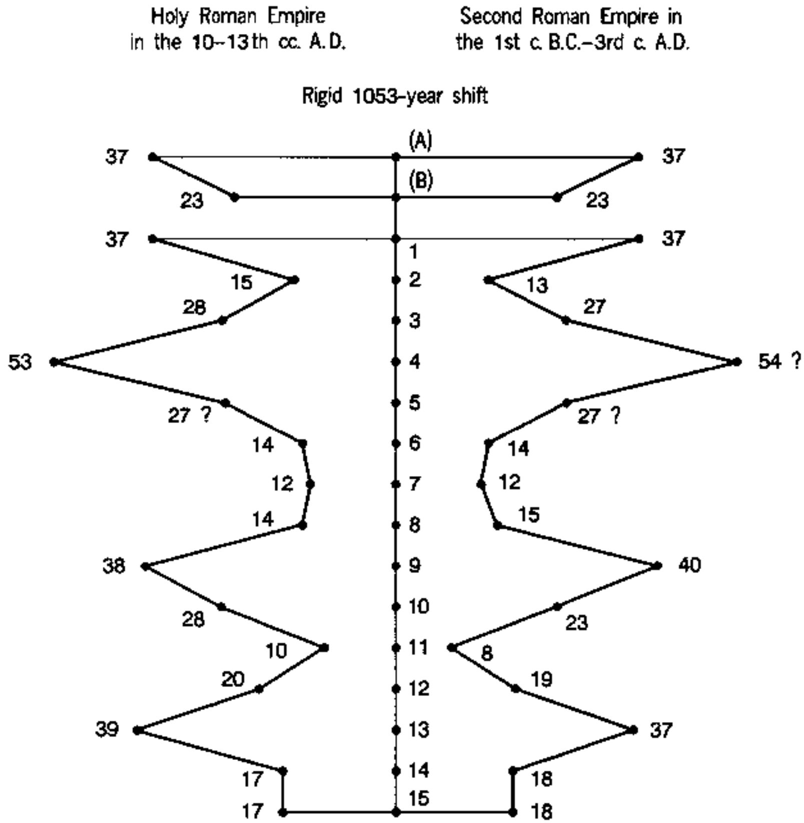

Figure 50. Parallel between the Holy Roman Empire and the Second Roman Empire

The average shift with respect to the end of the rules is 1,039 years, which is close to the second basic rigid shift by 1,053 years, making the left column coincident with the right. This is one of the basic parallels which identifies block P on line C_3 (see the GCD, Fig. 65) with block P on line E.

5.6. Statistical parallel between the Holy Roman Empire and the kingdom of Judah

Table 8 (Figs. 51, 52)

Holy Roman–German Empire in 10–13th cc., 911–1307 A.D. Start of Saxon dynasty in 911. Empire lasts for 396 years. German rules are also indicated. We superimpose 911 A.D. on 928 B.C. on the right (see rule variations in [74],	Kingdom of Judah in 10–5th cc. B.C. Starting in 928 B.C., it lasted for 395 years according to Bible [39]. Coincident with left column under rigid shift by c. 1,830 years, i.e., (1838 = 928 + 910). Dates are counted from

[124], [44], [274], [39] and Bible referred to as B)	"zero", assuming 928 B.C. as the year "zero" ([39] and Bible = [B])
1) Henry I 919–936 (17)	1) Rehoboam 0–17 (17)
2) Lothair 947–950 (3)	2) Abijah 17–20 (3)
3) Otto I the Great 936–973 (37)	3) Asa 20–55 (35) or 20–61 (41)
4) Otto II 960–983 (23)	4) Jehoshaphat 55–79 (24), or 61–86 (25)
5) Otto III the Red 983–996 (Roman coronation) (13)	5) Joram Judaean (8) [B] or (6) [39], Ahaziah (Ochozias) Judaean, altogether (9) and (7), i.e., 86–94 [B]
6) (*continued*) Otto III 996 (Roman coronation)–1002 (6)	6) Athaliah (Athalia) (95–101) (6) (see dates in Second Book of Chronicles, First and Second Book of Kings)
7) Henry II 1002–1004, Conrad II 1024–1039 (altogether 37)	7) Joash Judaean 92–130 (38) [39] or (40) [B]
8) Henry III 1028–1056 (28)	8) Amaziah 130–159 (29)
9) Henry IV 1053–1106 (53). Struggle with pope Hildebrand. Famous excommunication (Canossa). Came to power at age 6. Departed to his lonely castle at end of life. Betrayal and coronation of his son Conrad. Son rules instead of father ([44], V. 5)	9) Uzziah 159 [39] – 211 (52) [B] or (43) [39]; 211 = 159 + 52 [B]. Struggle with chief priest Azaria. Exclusion of Uzziah from house of Lord. Came to power at age 16. Was leper at end of his life and lived in "his own house", his son actually ruling (Second Book of Chronicles 26:21–23)
10) Lothair II 1125–1138 (13)	10) Jotham 211–227 (16) [B] or (7) [39]
11) Conrad III 1138–1152 (14)	11) Ahaz 227–243 (16) [B] or (20) [39]
12) Henry VI 1169–1197 (28). Attack of Frederick I on Rome in 1167. "Pestilence" in German armies and their retreat. Overlapping of Germany and Assyria (see on right)	12) Hezekiah 256–285 (29). Attack of Jerusalem under King Hezekiah by Assyrian king Sennaherim. "Pestilence" in Sennaherim's army and his retreat (2 Kings 19:35–36; cf. Theodoric in 6th c.)
13) Frederick II 1196–1250 (54). Well-known Roman emperor	13) Manasseh 285–340 (55) [B] or (45) [39]. Well-known king
14) Conrad IV 1250–1254 (4)	14) Amon 340–342 (2)
15) Charles of Anjou 1254–1285 (31)	15) Josiah 342–373 (31)
16) Confusion and events in Italy (?) 1285–1307 (22). End of 10–13th c. empire	16) Jehoahaz (less than 1), Jehoiakim (11), Jehoiachin (less than 1) and Zedekiah (11) 373–397 (22) or (24). End of kingdom

17) Adolf of Nassau 1291–1298 (7)	17) Jehoiakim 374–385 (11)
18) Albert I 1298–1308 (10)	18) Zedekiah 386–397 (11)
19) Avignon exile of popes (and Holy See) in France 1305–1376 (70) (up to January 1376)	19) Babylonian captivity by Persians 397–467 (70). Persia (PRS) = France (?)

According to [39], the kingdom of Judah started in 928 B.C. Since the zeroth year of the kingdom of Judah was in 910 A.D., the shift is c. 928 + 910 = 1,838 years, which is close to the third basic shift by 1,778 (or 1,800) years [18], [24] and [21]. This is one of the basic parallels which identifies block P on line E (see the GCD Fig. 65) with block P on line B (Bible).

5.7. Statistical parallel between Roman coronations of the Holy Roman emperors and the kingdom of Israel

Table 9 (Figs. 53, 54)

Roman coronations of Holy Roman–German emperors in 10–13th cc. A.D. Rigid shift by 1,840 years (see the rule variations in [74], [124] and [44])	Kingdom of Israel started in 922 B.C. according to Bible [39]. For simplicity, year count started from zero (922 B.C. = 920 A.D.)
1) Hugh of Arles 926–947 (21), king of Italy, start of Empire	1) Jeroboam 0–22 (22). Start of kingdom of Israel
2) Lothair 947–951 (3), king	2) Nadab 22–24 (2)
3) Otto I the Great 936 (German coronation)–960 (start of Otto II) (24) or 936 (German coronation)–962 (Roman coronation) (26). Pope John XII = Octavian [44] (see Octavianus Augustus)	3) Baasha 24–48 (24) (see Table 5, viz., Asa Judaean = Otto I's duplicate; proximity of names Asa = Baasha (Jesus?). Cf. Hildebrand in 11th c. A.D. **Jesus** was born under Octavianus Augustus in 1st c. A.D.
4) 962 (Roman coronation)–973 (German coronation) (11), death of Otto I in 973 and German coronation of Otto II	4) Omri (Omrai) 51–63 (12). All rule durations are restored according to 2 Chronicles and 1–2 Kings (Bible)
5) 973 (German coronation)–996 (Roman coronation) (23)	5) Ahab 63–85 (22). Biblical "double count" leads to gaps [13]
6) 996 (Roman coronation)–1014 (Roman coronation) (18) (see complete table of all variations on right; in Fig. 89 and [21]	6) Ahaziah (2), Jehoroam Israelian (12) 85–99 (14). This is first version of Jehoroam according to Bible
7) 1014 (Roman coronation)–1027 (Roman coronation) (13)	7) Jehoroam 94–106 (12), second version according to Bible
8) 1014 (Roman coronation)–1046 (Roman coronation) (32)	8) Jehu (28), gap (2), confusion 99–127–129 (altogether 30 years)

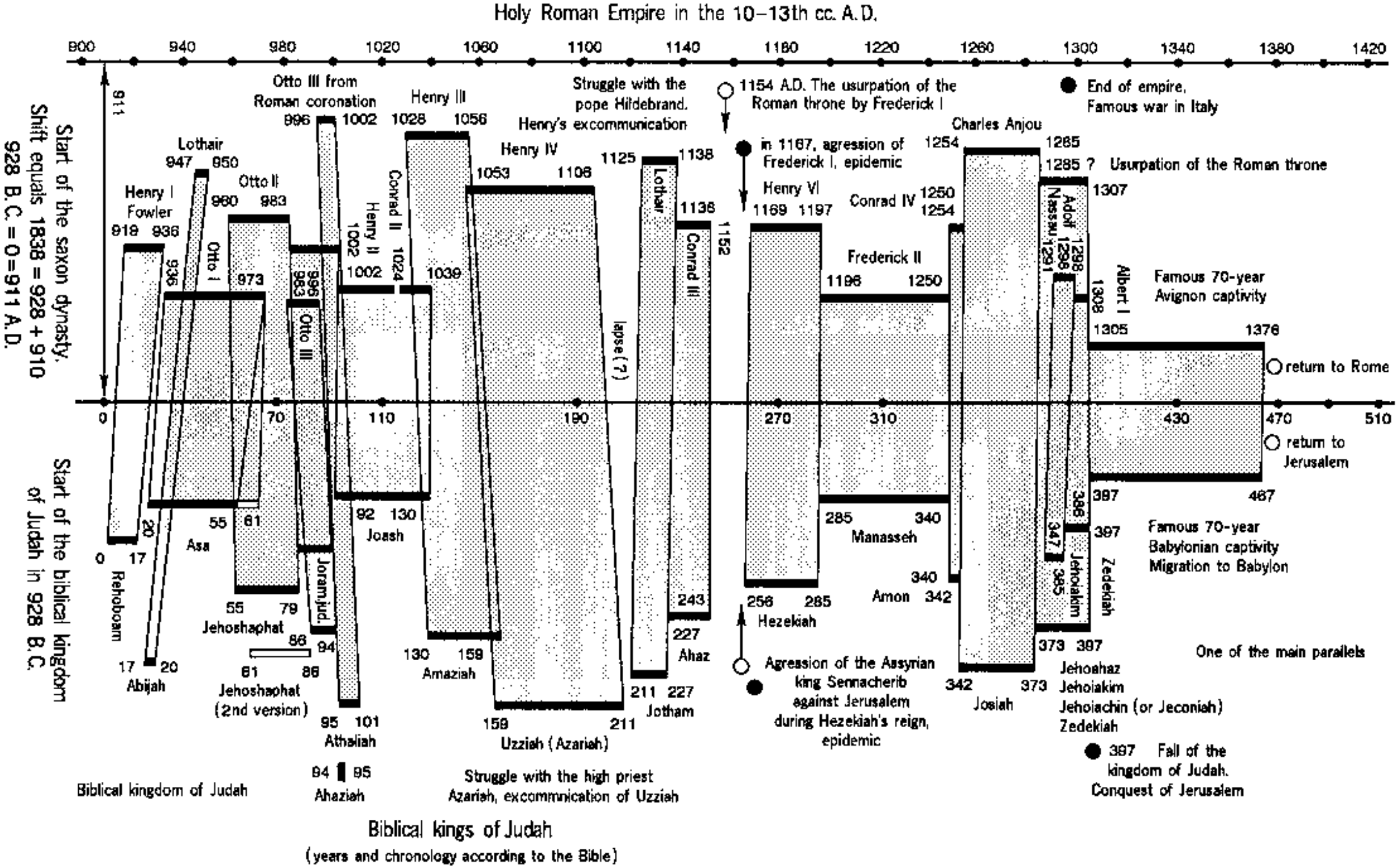

Figure 51. Parallel between the Holy Roman Empire in the 10–13th cc. A.D. and the biblical kingdom of Judah in the 10–6th cc. B.C. The 1838-year rigid shift

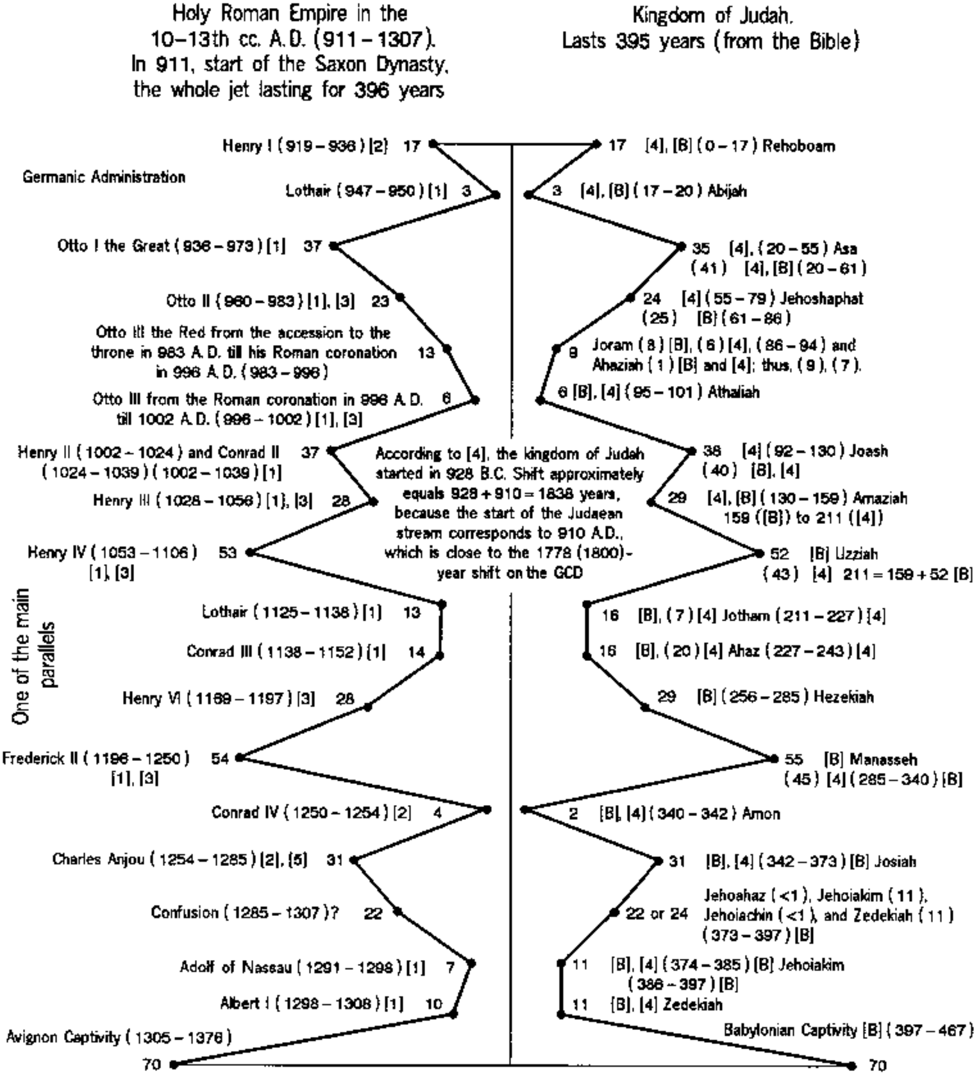

Figure 52. Parallel between the Holy Empire and the biblical kingdom of Judah

References to Fig. 52:

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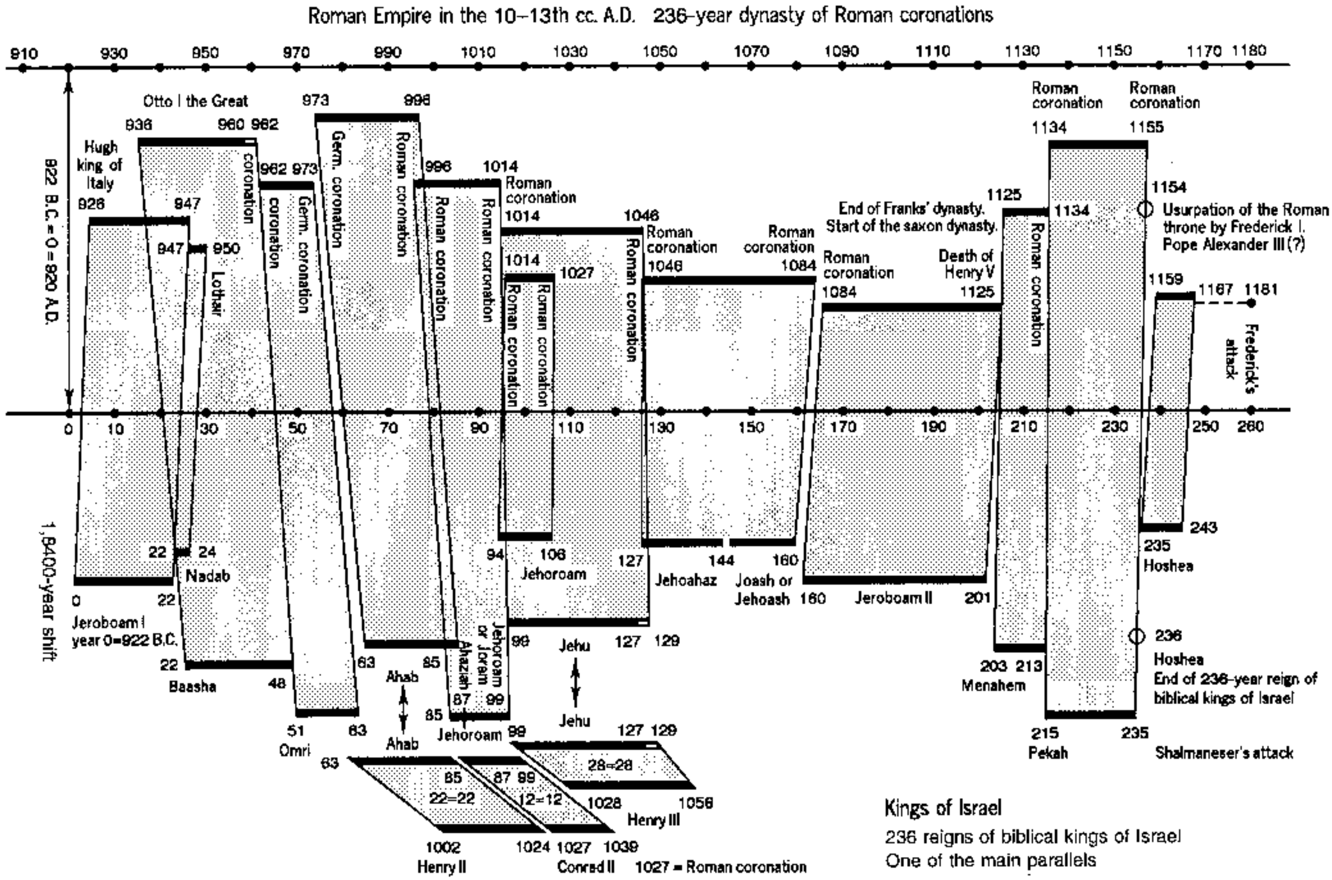

Figure 53. Parallel between the Holy Roman Empire in the 10–13 cc. A.D. and the biblical kings of Israel in the 10–7th cc. B.C. The 1840-year rigid shift

9) 1046 (Roman coronation)–1084 (Roman coronation) (38) and beginning of Saxon dynasty	9) Jehoahaz (17), Joash = Jehoash (16) 127–144–160 (altogether 33 years)
10) 1084 (Roman coronation)–1125 (Death of Henry V, end of Frankish dynasty and the beginning of Saxon dynasty)	10) Jeroboam II 160–201 (41). Overlapping of Assyria and Germany, Persia and France, Babylon and Rome or Avignon and Hittites and Goths
11) 1125–1134 (Roman coronation) (9)	11) Menahem 203–213 (10)
12) 1134 (Roman coronation)–1155 (Roman coronation) (21)	12) Pekah 215–235 (20)
13) Pope Alexander III 1159 (his election)–1167 (attack of Frederick I) (8). German wars in Italy 1143–1155. Capture of Rome by Frederick I in 1154	13) Hoshea 235–243 (8). Assyrian wars, attack of Shalmaneser. Overlapping of Assyria and Germany (left). End of kingdom of Israel. Overlapping of pharaohs from Bible and TRK and TRNK (Franks, Goths) (Part 1)

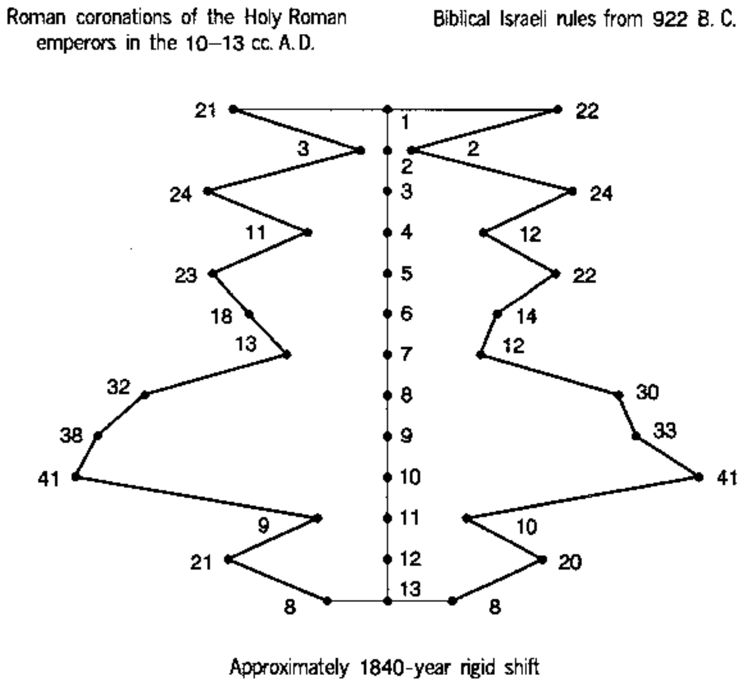

Figure 54. Parallel between the Roman coronations of the Holy Roman emperors and the biblical Israeli rules

According to [39], the kingdom of Israel started in 922 B.C. Since the zeroth year of the kingdom of Israel in the table was 920 B.C., the shift is *c*. 920 + 922 = 1842 years, which is close to the third basic shift by 1,778 (or 1,800) years on the GCD (Part 1). This is one of the basic parallels.

5.8. Statistical parallel between the First Roman pontificate and the Second Roman pontificate

Table 10 (Fig. 55)
(See the rule variations in [74], [119])

First Roman pontificate (141–314 A.D.)	Second Roman pontificate (314–532 A.D.) Note consistency with Second and Third Roman Empires
1) Pius I 141–157 (16)	1) Silvester I 314–336 (18)
2) Anicetus 157–168 (11)	2) Julius I 336–353 (17)
3) Soter 168–177 (9)	3) Liberius 352–367 (15)
4) Eleutherius 177–192 (15)	4) Damasus I 385–398 (13)
5) Victor I 192–201 (9)	5) Siricius 385–398 (13)
6) Zephyrinus 201–219 (18)	6) Anastasius I Innocent 398–417 (19)
7) Calixtus 219–224 (5)	7) Boniface 418–423 (5)
8) Urban I 224–231 (7)	8) Celestine I 423–432 (9)
9) Pontianus 231–236 (5)	9) Sixtus III 432–440 (8)
10) Fabian 236–251 (15)	10) Leo I 440–461 (21)
11) Confusion 251–259 (8)	11) Confusion, Hilarius 461–467 (6)
12) Dionysius 259–271 (12)	12) Simplicius 467–483 (16)
13) Felix I (or Eutychianus?) 275–284 (9)	13) Felix II 483–492 (9)
14) Eutychianus (or Felix I?) 271–275 (4)	14) Gelasius 492–496 (4)
15) Gaius 283–296 (13)	15) Symmachus 498–514 (16)
16) Marcellinus 296–304 (8)	16) Hormisdas 514–523 (19)
17) Marcellus I 304–309 (5)	17) John I 523–526 (3)
18) Eusebius 309–312 (3)	18) Felix III 526–530 (4)
19) Meltiades 311–314 (3)	19) Boniface III 530–532 (2)

This is a secondary parallel induced by the principal one. See also Figs. 94, 95 in Appendix 1.

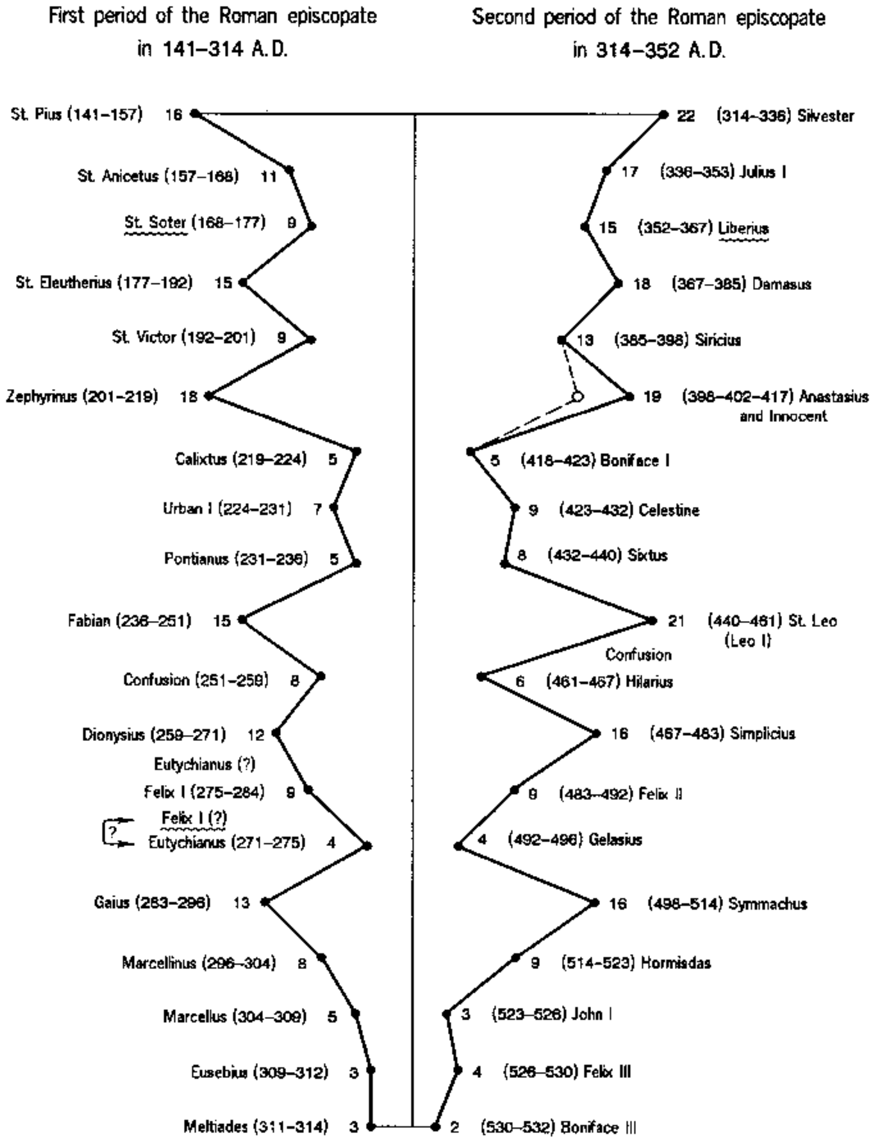

Figure 55. Parallel between the first period of the Roman episcopate in 141–314 A.D. and the second period of the Roman episcopate in 314–532 A.D.

References to Fig. 55:

[1] J. Blair, *Blairs Chronological and Historical Tables from the Creation to the Present Time*, etc., G. Bell & Sons, London, 1882.

[2] S. G. Lozinsky, *History of the Papacy*, Ogiz, Moscow, 1934 (in Russian).

5.9. Statistical parallel between the First Roman Empire (regal Rome) and the Third Roman Empire

Table 11 (Fig. 56)

Regal Rome, First Empire 753–500 B.C. according to Livy. Shift by *c.* 1,050 years. Dates shift is written as X+300, where X are years since foundation of Rome	Third Roman Empire jet in 3rd–4th cc. A.D. Time intervals are indicated in [21]. Some rulers, important representatives of above time intervals are listed. Periods of their rules may be non-coincident with bounds of distinguished interval. (See detailes in Ch. 2, § 4 (4.2))
1) Romulus Quirinus (37)	1) Constantine I 300–337 (37)
2) Numa Pompilius (43)	2) Basil the Great 337–380 (43)
3) Tullus Hostilius (32)	3) Honorius 380–423 (43)
4) Ancus Marcius (24)	4) Aetius 423–444 (21)
5) Tarquinius the Elder (38)	5) Ricimer 444–476 (32)
6) Servius Tullius (44)	6) Odoacer and Theodoric 476–526 (50)
7) Tarquinius the Proud (25)	7) Dynasty of Goths 526–552 (26)
8) Fall of regal Rome, expulsion of kings, war with Tarquins *c.* 500 B.C. (see below)	8) Fall of Third Roman Empire, expulsion of Goths. Gothic war in 6th c. A.D. (see below)
9) Tarquins' clan, TRQN (freed of vowels), adversaries of Rome. Their duplicate is Trojans (see Troy)	9) Goths' clan of Roman adversaries in 6th c. war. Goths' allies are Franks, i.e., TRK Cf. "f" = "t"
10) Valerius (Volusius' son), Roman army commander, Tarquins' adversary. His name freed of vowels is VLRS. Charging Valerius with betrayal	10) Belisarius, Roman army commander and Goths' adversary. His name freed of vowels is BLSR. Charging Belisarius with betrayal
11) Letter of Tarquinius the Proud to Roman senate. Conspiracy in Rome and its discovery. Under shift by 1,050 years, this occurred in 543–544 A.D.	11) Letter of Goth Totila to Roman senate. Conspiracy in Rome and its discovery. These events occurred in 543 A.D. Date shift on left is written as $X + 300$, where X are years since foundation of Rome
12) First battle of Rome in 545. Tarquins lost	12) First battle of Rome in 545–547. Goths lost

13) Second expedition to Rome in 546. Army commander Lartius, Roman. Tarquins' defeat	13) Second expedition to Rome in 548–549. Army commander Narses (= Narcius?), Romaic. Goths' defeat

This secondary parallel is a consequence of the second basic shift by *c.* 1,000 years.

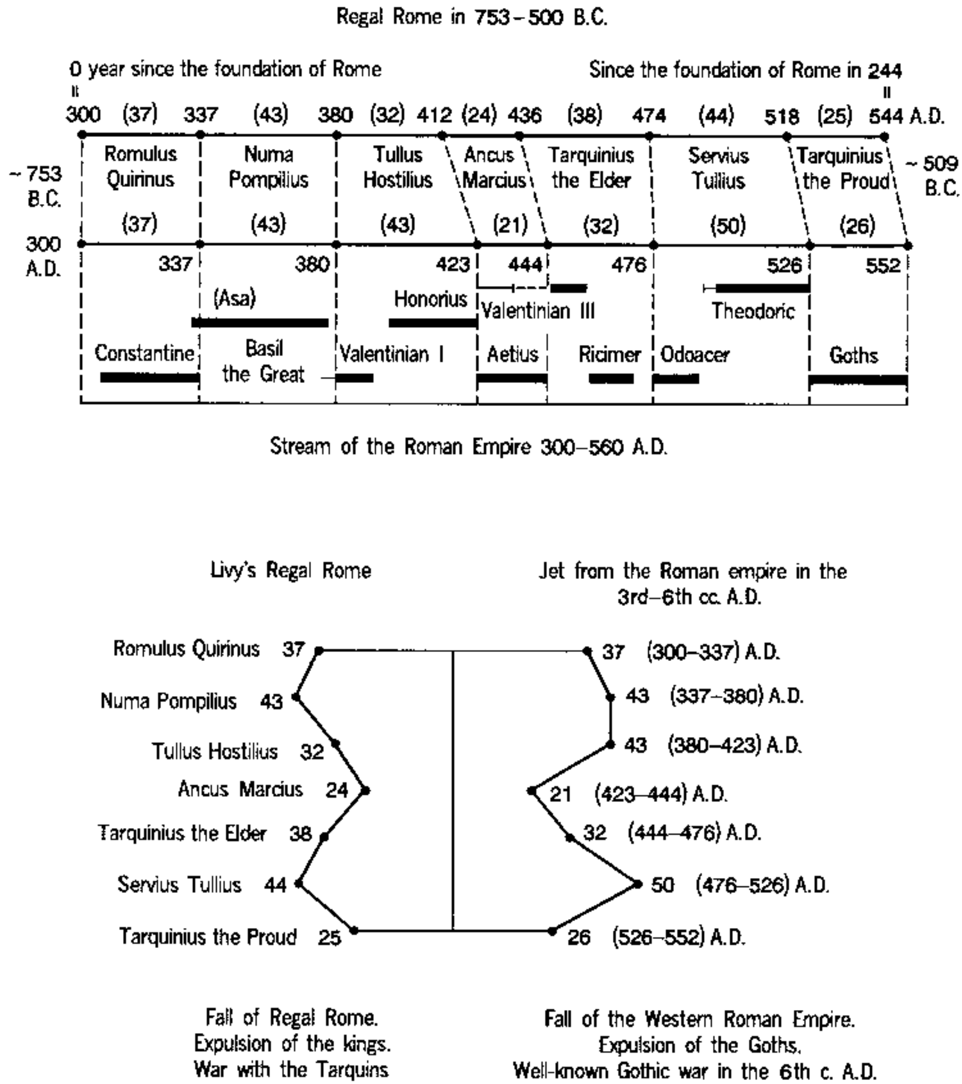

Figure 56. Parallel between Livy's regal Rome in 753–500 B.C. (First Roman Empire) and the Roman Empire in the 3–6th cc. A.D. The 1053-year rigid shift

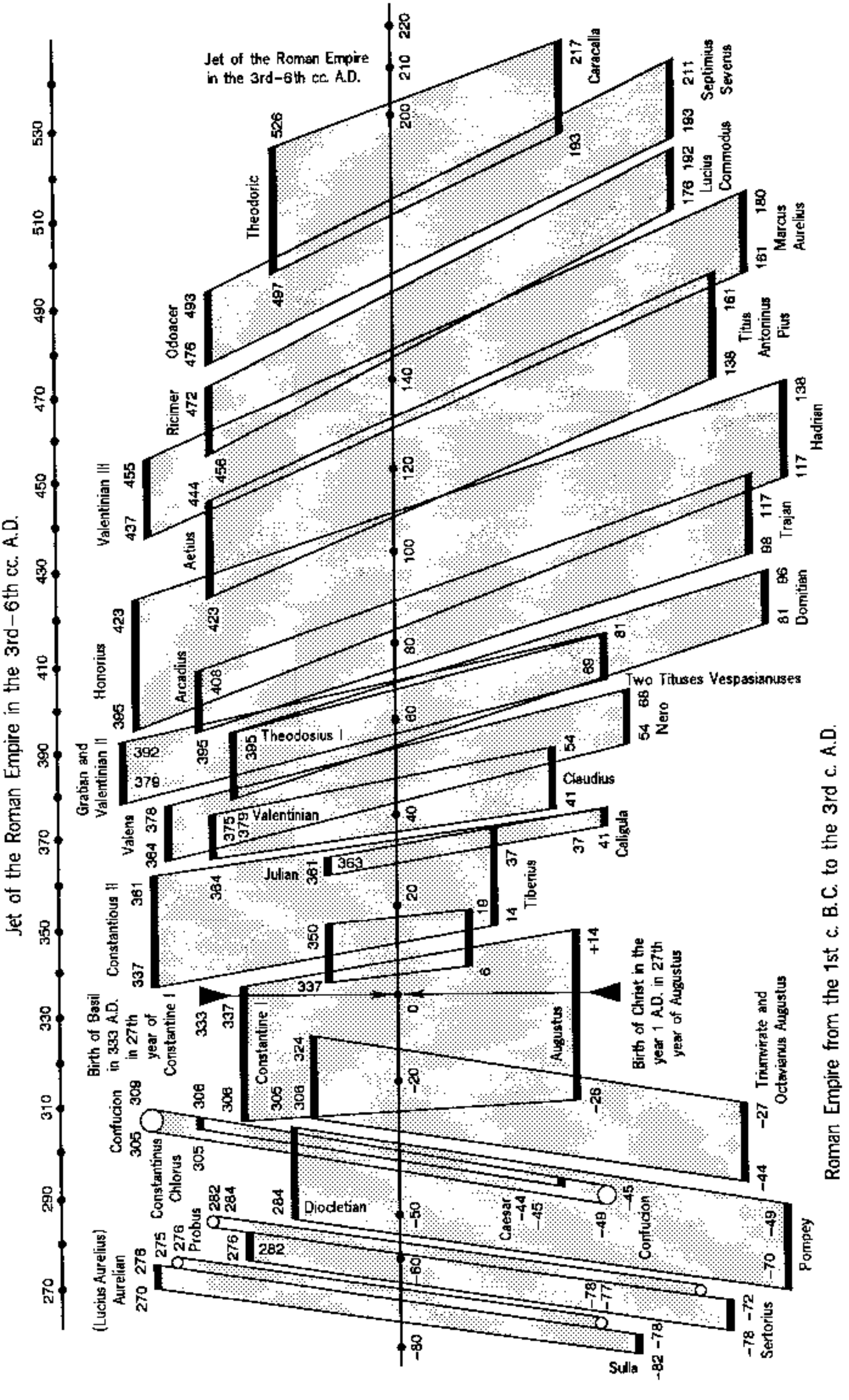

Figure 57. Parallel between the Second Roman Empire from the 1st c. B.C. to the 3rd c. A.D. and the Third Roman Empire from the 3rd to the 6th cc. A.D. The approximately 333-year shift

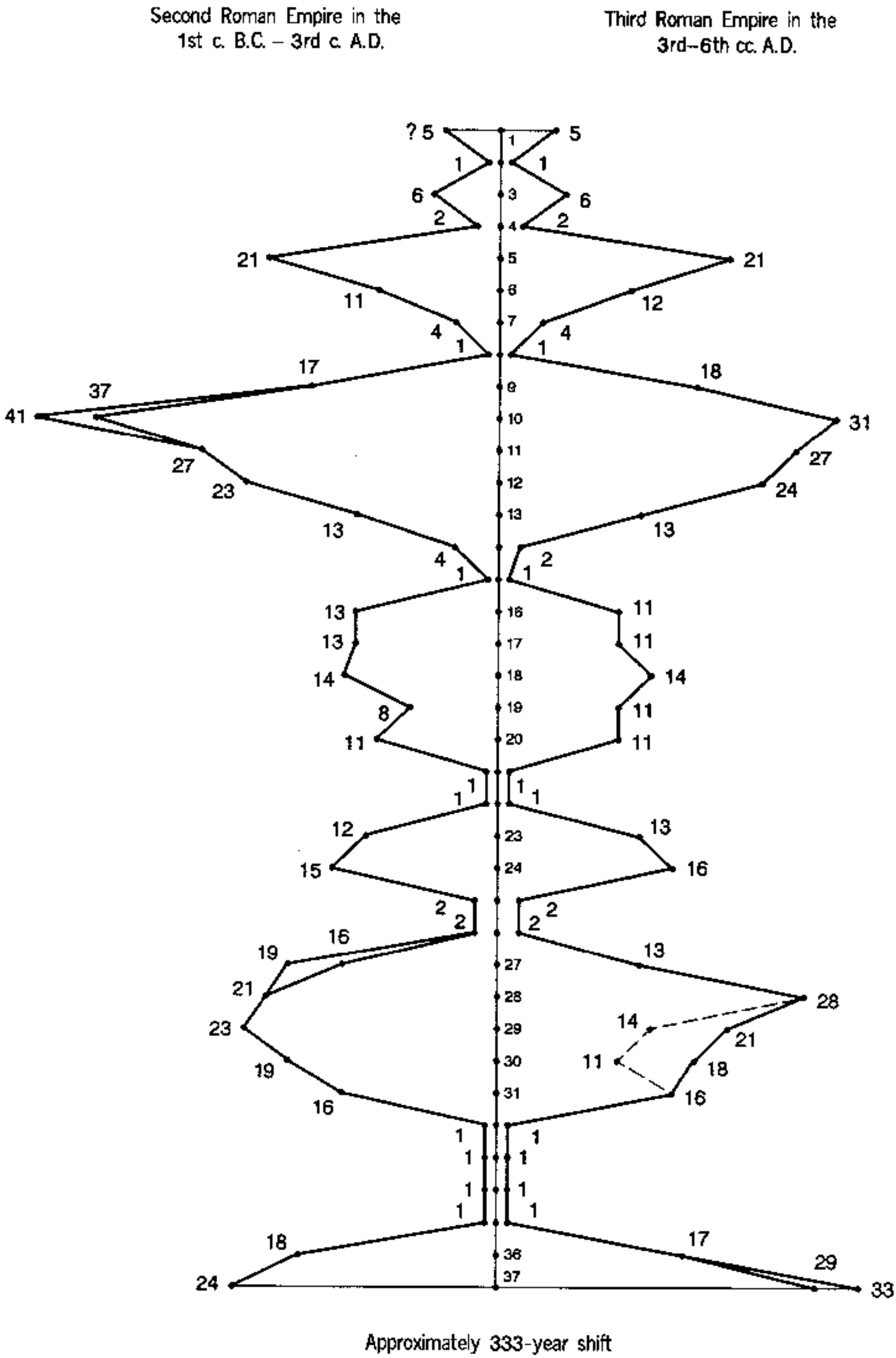

Figure 58. Parallel between the Second Roman Empire and the Third Roman Empire

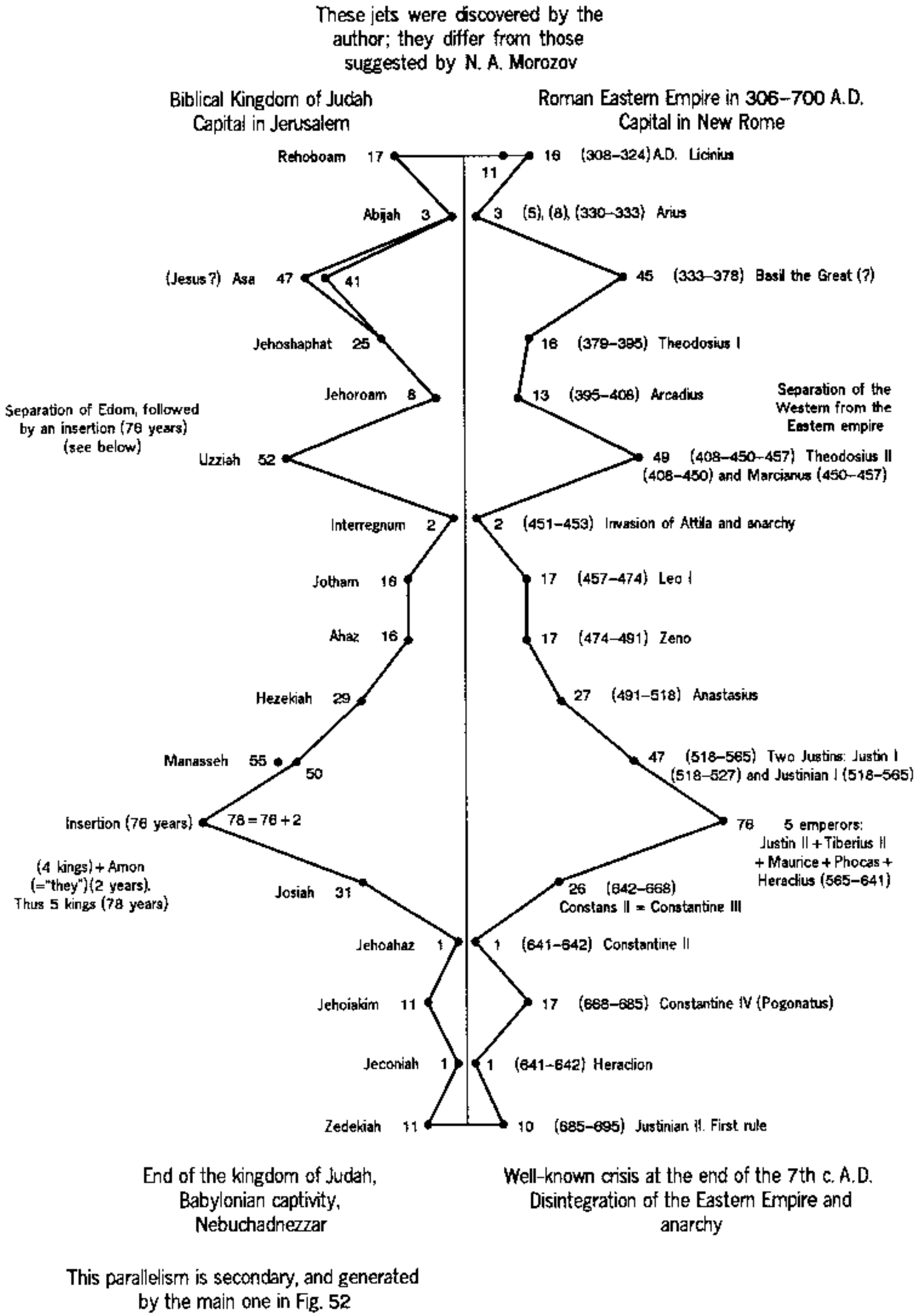

Figure 59. Parallel between the Eastern Roman Empire in 306–700 A.D. and the biblical kingdom of Judah in the 10–6th cc. B.C.

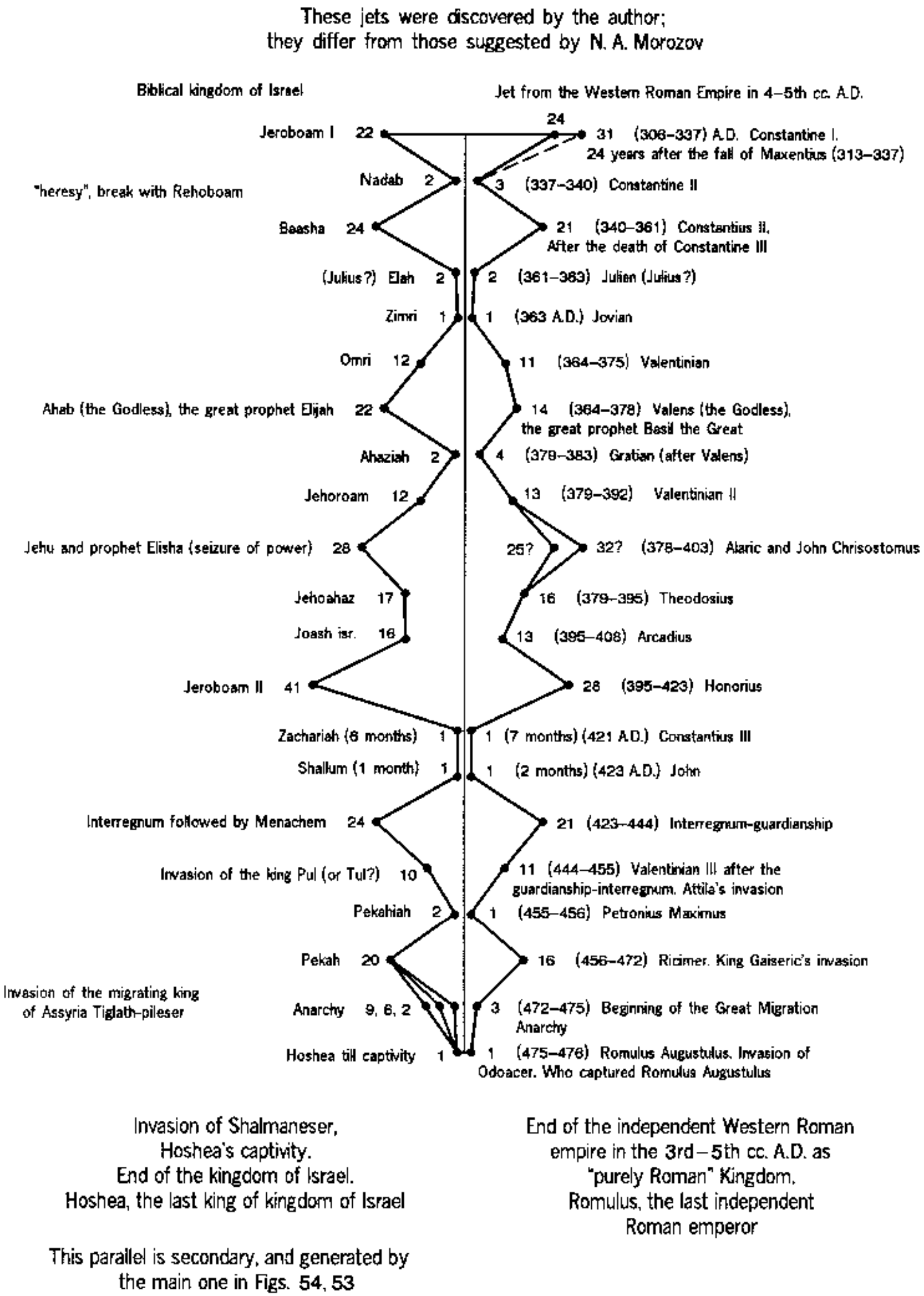

Figure 60. Parallel between the Western Roman Empire in the 4–5th cc. A.D. and the biblical kingdom of Israel in the 10–7th cc. A.D.

5.10. Statistical parallel between the Second Roman Empire and the Third Roman Empire

Table 12 (Figs. 57, 58)

Second Roman Empire from 82 B.C. to 3rd c. A.D. First eight numbers of column are approximate, which, however, does not influence proximity of jets. Confusion periods are also indicated	Jet from Third Roman Empire in 3rd–6th cc. A.D. (see rule variations in [74], [288], [13] and [39]). The year count is sometimes indicated since co-ruler's death (see analysis of complete list in [21])
1) Lucius Sulla 82–78 (5)	1) Lucius Aurelius 270–275 (5)
2) Confusion 78–77 (1)	2) Confusion 275–276 (1)
3) Sertorius 78–72 (6)	3) Probus 276–282 (6)
4) Confusion 72–71 (2)	4) Confusion 282–284 (2)
5) Pompey the Great 70–49 (21)	5) Diocletian the Great 284–305 (21)
6) Co-rulers: Pompey and Caesar 60–49 (11)	6) Co-rulers: Diocletian and Constantius Chlorus 293–305 (12)
7) Confusion 49–45 (4)	7) Confusion 305–309 (4)
8) Julius Caesar, winner in 1st Triumvirate 45–44 (1)	8) Constantius Chlorus, winner of 1st tetrarchy 305–306 (1). Rule after Diocletian, see No. 5
9) Triumvirs and Octavianus Augustus (Octavian) 44–27 (17)	9) Tetrarchs and Constantine Augustus 306–324 (18)
10) Octavianus Augustus 27 B.C.–14 A.D. (41) or 37 if counting from 23 B.C.	10) Constantine Augustus 306–337 (31)
11) Nativity of Jesus in 27th year since Augustus Octavianus (27)	11) Birth of Basil the Great in 27th year since Augustus Constantine (27)
12) Tiberius 14–37 (23)	12) Constantius II 337–361 (24). Rule after Constantine, see No. 10
13) Co-rulers: Tiberius and Germanicus 6–19 (13)	13) Co-rulers: Constantius II and Constans 337–350 (13) from end of No. 10
14) Caligula 37–41 (4)	14) Julian 361–363 (2) from end of No. 12
15) Confusion 41 (1)	15) Confusion 363 (1)
16) Claudius 41–54 (13)	16) Valentinian I 364–375 (11)
17) Co-rulers: Claudius and Pallas 41–54 (13)	17) Co-rulers: Valentinian and Valens (Pallas?) 367–375 (11)
18) Nero 54–68 (14)	18) Valens 364–378 (14)
19) Co-rulers: Nero, Burrus and Seneca 54–62 (8)	19) Co-rulers: Valens, Valentinian and Gratian 364–375 (11)

20) Galba 68–69 (1)	20) Jovian 363–364 (1) interchanged 18)
21) Confusion 69 (1)	21) Confusion 378 (1)
22) Two Tituses Vespasianuses 69–81 (12). Their names are coincident	22) Gratian and Valentinian II after Valens and Confusion 379–392 (13)
23) Domitian 81–96 (15)	23) Theodosius I 379–395 (16)
24) Nerva 96–98 (2)	24) Eugenius 392–394 (2)
25) Nerva co-ruling 96–98 (2)	25) Eugenius co-ruling 392–394 (2)
26) Trajan 98–117 (19)	26) Arcadius 395–408 (13)
27) Hadrian 117–138 (21)	27) Honorius 395–423 (28)
28) Titus Antoninus Pius 138–161 (23)	28) Aetius 423–444 or 423–438 (21) until No. 29
29) Marcus Aurelius 161–180 (19)	29) Valentinian III 437–455 (18) or 444–455 (11).
30) Lucius Commodus 176–192 (16)	30) Ricimer 456–472 (16)
31) Pertinax 193 (1)	31) Olybrius 472 (1)
32) Didius Julian 193 (1)	32) Glycerius 473–474 (1)
33) Clodius 193 (1)	33) Julius Nepos 474–475 (1)
34) Pescennius Niger 193–194 (1)	34) Romulus Augustulus 475–476 (1)
35) Septimius Severus 193–211 (18)	35) Odoacer 476–493 (17)
36) Caracalla 193–217 (24). Well-known reforms in Second Empire	36) Theodoric 493–526 (33) or 497–526 (29), well-known reforms
37) End of Second Roman Empire. Crisis in mid-3rd c. A.D. Gothic war. Shift by c. 333 years	37) End of Western Third Roman Empire, Gothic war in mid-6th c. A.D.

This parallel is the consequence of the first basic shift, secondary and due to the basic overlappings listed above. Both jets include extra numerical data which were not taken into account in calculating the jet proximity coefficient. They are discovered by the author, and differ from those suggested by N. A. Morozov.

5.11. Statistical parallel between the kingdom of Judah and the Eastern Roman Empire

Table 13 (Fig. 59)

Kingdom of Judah (biblical) with capital in Jerusalem 10–7th c. B.C.	Eastern Roman Empire in 306–700 A.D., with New Rome as capital (= Constantinople)
1) Rehoboam (17)	1) Licinius 308–324 (16)
2) Abijah (3), "Yahweh is father"	2) Arius 330–333 (3) or (5) or (8) as variants (see detailes in [13])
3) Asa (Jesus?) 46 or 41	3) Basilius the Great(?) 333–378 (45)

4) Jehoshaphat (25)	4) Theodosius I 379–395 (16)
5) Jehoroam Judaean (8), Edom's separation, 76-year insertion (see below)	5) Arcadius 395–408 (13), separation of Western from Eastern Empire
6) Uzziah (52), participates in church arguments, condemned and declared "leprous"	6) Theodosius II 408–450 and Marcian 450–457 (49), confrontation at council of Ephesus
7) Interregnum (2), gap in 2 Chronicles	7) Attila's hordes and anarchy 451–453 (2)
8) Jotham (16)	8) Leo I 457–474 (17)
9) Ahaz (16), Syrian king Rezin and Pekah attack Jerusalem, Ahaz asks for Tiglath-pileser's (Theodoric's duplicate?) help	9) Zeno 474–491 (17) , German leader Odoacer attacks Rome, Western ruler Ricimer (= Rezin?) 456–472, Zeno asks Theodoric of Goths for help
10) Hezekiah (29)	10) Anastasius 491–518 (27)
11) Manasseh (55 or 50), famous king, charged with Jerusalem massacre (mutiny ?), overlapping of the capital and New Rome	11) Two Justins: Justin I 518–527 and Justinian I 527–565 or 518–565 (47), suppression of Nika riot in New Rome, massacre
12) 76-year insertion, 4 kings, Amon ("they") (2), altogether 5 kings (78)	12) Five Emperors: Justin II, Tiberius II, Maurice, Phocas, Heraclius 565–641 (76)
13) Josiah (31), Pharaoh's attack	13) Constans II 642–668 (26), Arabian attacks
14) Jehoahaz (1)	14) Constantine III 641–642 (1)
15) Jehoiakim (11)	15) Constantine IV 668–685 (17)
16) Jeconiah (1)	16) Heraclius 641–642 (1)
17) Zedekiah (1), Pharaoh Nebuchadnezzar captures people (of Judah)	17) Justinian II, first rule 685–695 (10), wars of Empire, Arabs
18) End of kingdom of Judah, Babylonian captivity	18) Crisis at end of 7th c. A.D., dissolution of the Eastern Empire

This parallel is secondary, and follows from those listed above and the author's [21]. The shift by *c.* 1,300 years is the sum of the 300- and 1,000-year basic shifts.

5.12. Statistical parallel between the kingdom of Israel and the Third Roman Empire

Table 14 (Fig. 60)

Kingdom of Israel (biblical) in the 10–8th cc. B.C. 1,300-year shift	Jet from Third Roman Empire in the 4–5th cc. A.D. Sum of 1,000- and 300-year shift
1) Jeroboam I, founder of "heresy", disruption and war with Rehoboam (22). "Heresy" = Arianism (?); see right	1) Constantine I after overthrowing Maxentius 313–337 (24), break and war with Licinius, his co-ruler

2) Nadab (2)	2) Constantine II 337–340 (3)
3) Vaasha (24), Basil the Great (Jesus = Asa = Vaasha?); see right	3) Constantius II after death of Constantine II 340–361 (21)
4) Elah (= Julian?) (2)	4) Julian 361–363 (2)
5) Zimri (1)	5) Jovian 363–364 (1)
6) Omri (12)	6) Valentinian I 364–(375) (11)
7) Ahab "father's brother" the godless (22), fight with great prophet Elijah, was mortally wounded while fleeing battlefield	7) Valens (the godless) 364–378 (14), fight with prophet Basilius the Great, killed while fleeing battlefield
8) Ahaziah (2), Samarian ruler (see overlapping with Rome in right column)	8) Gratian 379–383 (4) (after Valens and confusion)
9) Jehoroam Israelian (12)	9) Valentinian II 379–392 (13) (rule after Valens)
10) Jehu and prophet Elisha (capture of power) (28)	10) Alaric and John Chrisostomus 378–403 (25) or (32)
11) Jehoahaz (17)	11) Theodosius I 379–395 (16)
12) Joash God-praising (16)	12) Arcadius 395–408 (13)
13) Jeroboam II (41)	13) Honorius 395–423 (28)
14) Zachariah (6 months)	14) Constantius III 421 (7 months)
15) Shallum (1 month) (I)	15) John 423 (2 months)
16) Interregnum (24)	16) Interregnum-guardianship 423–444 (21)
17) Menahem (10), and Pul (= Tul?), overlapping of Tul (TL) and Attila	17) Valentinian III 444–455 (11), and Attila's (TTL) invasion
18) Pekahiah (2)	18) Petronius Maximus 455–456 (1)
19) Pekah (20), Tiglath-pileser's invasion	19) Ricimer 456–472 (16); Gaiseric's invasion, beginning of great migration
20) Anarchy (6) or (9) or (12)	20) Anarchy 472–475 (3)
21) Hoshea (until captivity) (1), Shalmaneser and Hoshea's captivity	21) Romulus Augustulus 475–476 (1), Odoacer and Romulus' captivity
22) End of independent existence of kingdom of Judah; Hoshea is last independent king	22) End of independent Western Third Roman Empire as "purely Roman" state

This secondary parallel is due to the sum of two basic shifts by 1,000 and 300 years. See also Fig. 93 in Appendix 1.

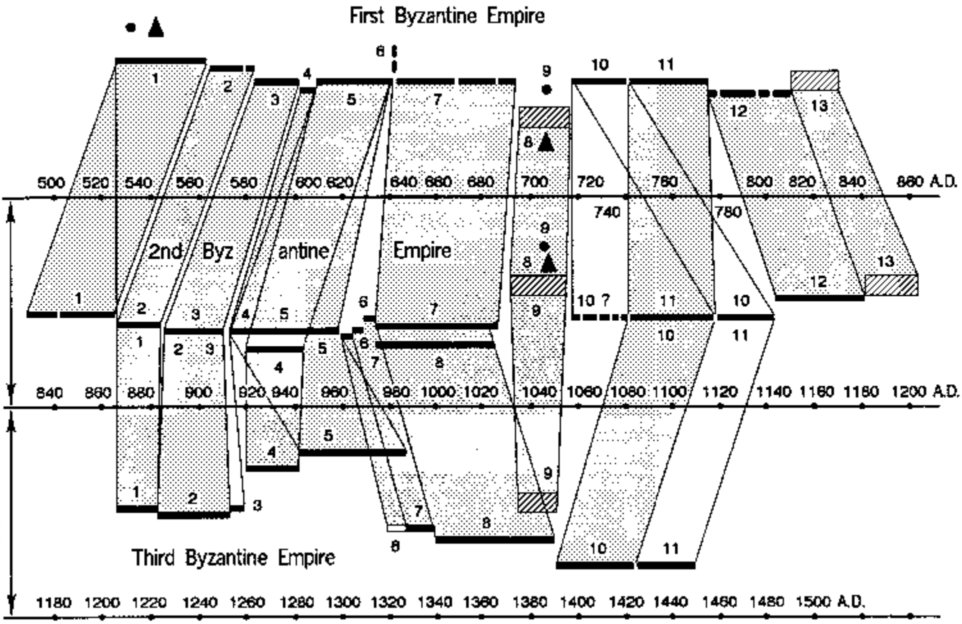

Figure 61. Parallel between the First Byzantine Empire, the Second Byzantine Empire and the Third Byzantine Empire. The 340-year rigid shift and doubled 340-year shift

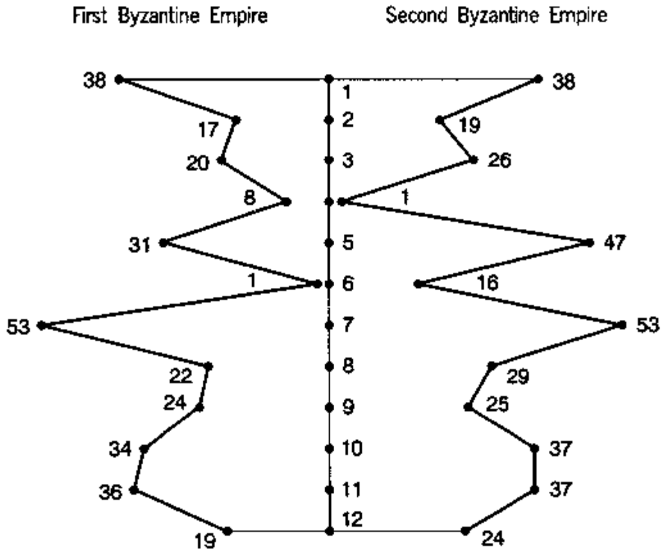

Figure 62. Parallel between the First Byzantine Empire and the Second Byzantine Empire

5.13. Statistical parallel between the First Byzantine Empire and the Second Byzantine Empire

Table 15 (Figs. 61, 62)

First Byzantine Empire in 527–829 A.D. (302 years; see [74], [45])	Second Byzantine Empire in 829–1204 A.D. (375 years; see [74], [45])
1) Basileus Justinian I and Theodora 527–565 (38), start of Eastern Roman Empire; rigid shift by *c.* 340 years	1) Theophilus 829–842, Michael III and Theodora 842–867 (38), start of Macedonian dynasty (cf. Justinian I)
2) Justin II 565–578, Tiberius II 578–582 (17)	2) Basil I (*basileus*) 867–886 (19) (cf. Justinian I Basileus)
3) Maurice 582–602 (20)	3) Leo VI 886–912 (26)
4) Phocas 602–610 (8)	4) Alexander 912–913 (1)
5) Heraclius 610–641 (31), then in No. 6 (left and right) two confusion periods	5) Constantine VII 910 (or 912)–959 (47) or (49), two confusion periods
6) Constantine III, Heracleonas = Heraclius II, 641 (1), overlapping of confusion periods	6) Romanus II 959–963, Nicephorus II Phocas 963–969, John I Tsimisces 963–975 (or 976) (16)
7) Constans II 642–668, Constantine IV 668–685, Justinian II 685–695 (53)	7) Constantine X or Constantine VIII 975–1028 (53)
8) Confusion, Leontius II 695–698 or Leoncius 694–697, Tiberius III 697–704 or 698–705, Justinian II (secondly) 705–711, Philippicus Bardanes 711–713, Anastasius II 713–715 (or 716), Theodosius III 715 (or 716)–717 (22)	8) Confusion, Constantine VIII 1025–1028, Romanus III 1028–1034, Michael IV 1034–1041, Michael V 1041–1042, Constantine IX Monomachus 1042–1054, Theodora 1054–1056, Michael VI 1056–1057 (29), overlapping confusion (left), 340-year shift
9) War under Justinian II (see above), partial duplicate of Gothic–Trojan–Tarquinian war, GTR-war	9) Tornicus' (= Nika + TR?) revolt 1047 (cf. Nika riot under Justinian I); duplicate of GTR war according to [21])
10) Leo III the Isaurian 717–741 (24)	10) John II Comnenus 1118–1143 (25)
11) Constantine V Copronymus 741–775 (34)	11) Alexius I Comnenus 1081–1118 (37), interchanged with John from No. 10
12) Leo IV 775–780, Constantine VI 780–797, Irene 797–802, Nicephorus 802–811 (36)	12) Manuel I Comnenus 1143–1180 (37)

13) Confusion, Stauracius 811, Michael I Rangabe 811–813, Leo V 813–820 (or 821), Michael II 820 (or 821)–829 (19), many confusion periods, which makes situation complicated; Empires are coincident under 340-year shift	13) Confusion, Alexius II Comnenus 1180–1183, Andronicus I 1183–1185, Isaac II Angelus 1185–1195, Alexius III 1195–1203, Alexius IV 1203–1204, Isaac II Angelus again 1203–1204, Alexius V 1204–1205 (24), fall of Constantinople in 1204

The left and right columns of the table are made coincident under the first rigid basic shift by *c.* 340 years. The same shift (!) makes the other two (Second and Third) Byzantine Empires coincident (see next Table 16). This is one of the basic parallels.

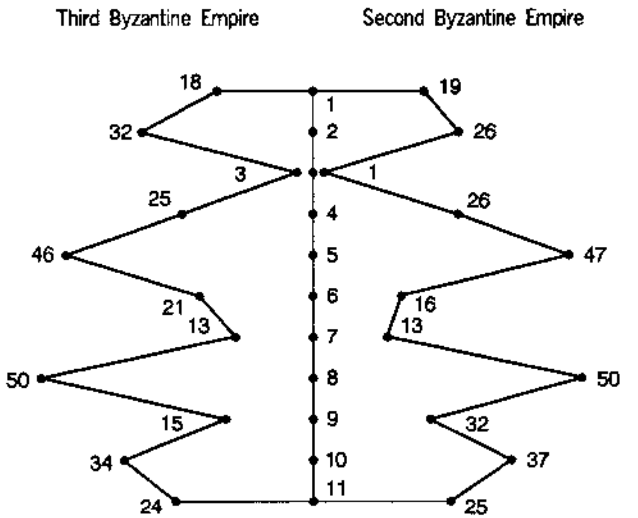

Figure 63. Parallel between the Second Byzantine Empire and the Third Byzantine Empire

5.14. Statistical parallel between the Second Byzantine Empire and the Third Byzantine Empire

Table 16 (Figs. 63, 61)

Third Byzantine Empire 1204–1453 A.D. (249 years, contains many confusion periods). Both Empires are made coincident under the 340-year shift	Second Byzantine Empire, jet from Basil I until John III, 867–1143 A.D. (276; see rule variations in [45], [74])
1) Start of Empire of Nicaea in 1204 (cf. "Nicaea" and Nika in GTR-war in 6th c. A.D.), Theodore I Lascaris 1204–1222 (18)	1) Basil I (*basileus*) 867–886 (19), Nika riot under Justinian I in First Byzantine Empire; Theodora, wife of Justinian I
2) John III Vatatzes or Ducas 1222–1254 (or 1256) (32), GTR-war	2) Leo VI the Philosopher 886–912 (26)

3) Theodore II Lascaris 1254 (or 1256)–1258 (or 1259) (3)	3) Alexander 912–913 (1)
4) Michael VIII 1259 (or 1260)–1282 (or 1283) (25)	4) Romanus I 919–945 (26)
5) Andronicus Palaeologus 1282 (or 1283)–1320 (or 1328) (46)	5) Constantine VII 910 (or 912–959) (47)
6) Andronicus III Palaeologus 1320–1341 (21) or	6) Romanus II, Nicephorus II Phocas, John I Tsimisces 959–975 (or 976) (16) or (17)
7) Second version: Andronicus III 1328–1341 (13)	7) Nicephorus II Phocas, John I Tsimisces 963–976 (13) (second version)
8) John V Palaeologus 1341–1391 (or 1376) (50)	8) Basil II Bulgaroctonus 975 (or 976)–1025 (50)
9) Confusion 1376–1391, Andronicus IV 1376–1379, John V again 1379–1391, John VII 1390–1391 (15)	9) Confusion 1025–1057 (see emperors in Table 15)
10) Manuel II 1391–1424 (or 1425) (34)	10) Alexius I 1081–1118 (37)
11) John VIII [45] or John VI [74] 1424 (or 1425)–1448 (24), fall of Constantinople in 1453, end of Byzantine Empire	11) John II 1118–1143 (25) (Nos. 10 and 11 of Comnenus dynasty), including Manuel I and confusion in 1180–1204, fall of Constantinople in 1204 A.D.

This is one of the basic parallels, and is due to the first basic shift by c. 330 years.

5.15. Statistical parallel between medieval Greece and ancient Greece

Table 17 (Fig. 64(1), 64(2))

Medieval chronology in the 10–16th cc. A.D. 1,810-year backward shift	Ancient chronology in the 10th–3rd cc. B.C. Ancient Greek history [45], [74]
1) Crusades in 10–13th cc. A.D., Colonization of Mediterranean	1) Epoch of Great Greek colonization in 8–6th cc. B.C.
2) Holy Roman–German Empire 911–1305	2) Kingdom of Judah and kingdom of Israel 928–531 B.C.
3) Two wars in Italy in 10th c. A.D. 901–924 and 931–954, Alberic I, Theodora I; Alberic II, Theodora II	3) According to Hellanic and Damast, Trojan war took place in 850–830 B.C., second version of its dating
4) War in Italy 1250–1268, fall of Hohenstaufen and Troy, and Naples. Manfred, Charles of Anjou, Conradin, enthronement of countship of Anjou, fall of Roman pontificate	4) War with Tarquins in Rome 522–509 B.C., Peisistratus tyranny (= TRN) 560–527 B.C., fall of Peisistratus' dynasty in 510–514 B.C., Zedekiah's war with Pharaoh (TRN = Franks; see above)

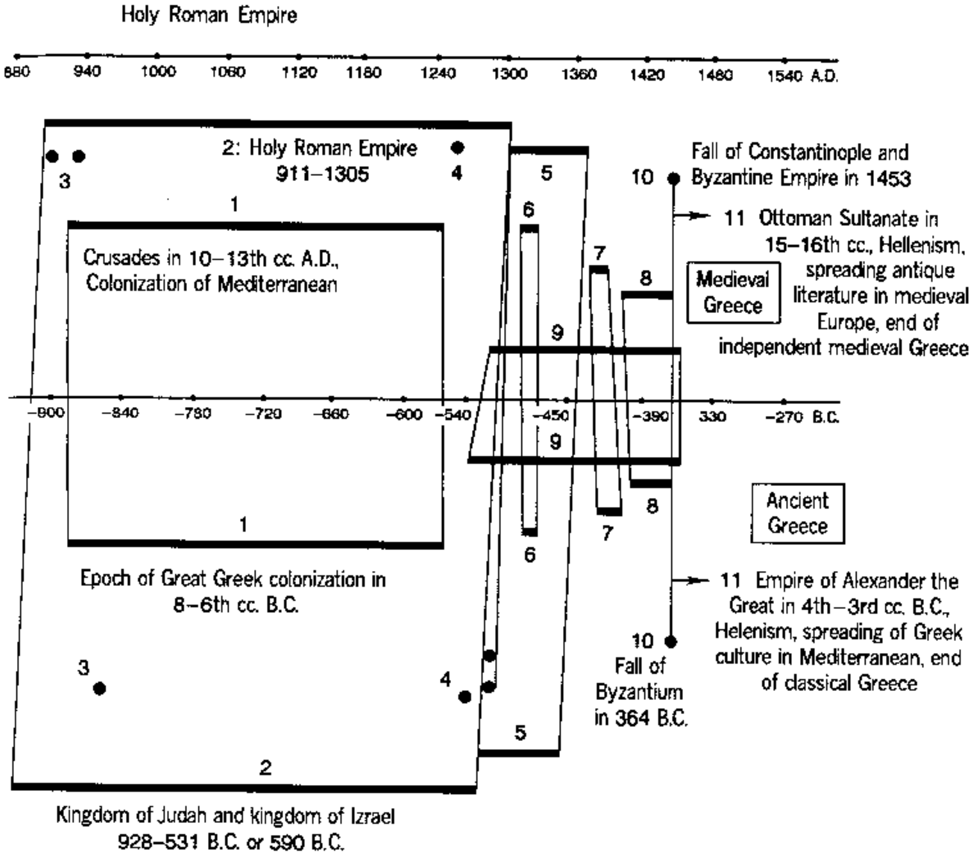

Figure 64(1). Parallel between medieval Greece and ancient Greece. General structure

5) Avignon exile 1305–1376 (70)	5) Babylonian captivity 531–461 B.C. (70 years)
6) Wars in medieval Greece 1314–1332 (18)	6) Persian wars 492–479 B.C. (13)
7) War in Greece 1374–1387 (13), Thucydides' eclipse shifted by *c.* 300 years	7) Peloponnesian war 431–404 B.C. (27)
8) Rise and fall of Navares and Mistra's despotate 1400–1450	8) Rise and fall of Sparta 400–360 B.C.
9) Ottoman Sultanate 1298–1451, Mahometans and expansion	9) Macedonian state 540–359 B.C., Macedonians, expansion
10) Fall of Constantinople and Byzantine Empire in 1453, war with Mahometans, fall of Greece	10) Fall of Byzantium in 364 B.C., and siege by Macedonians in 340 B.C., Philipp II

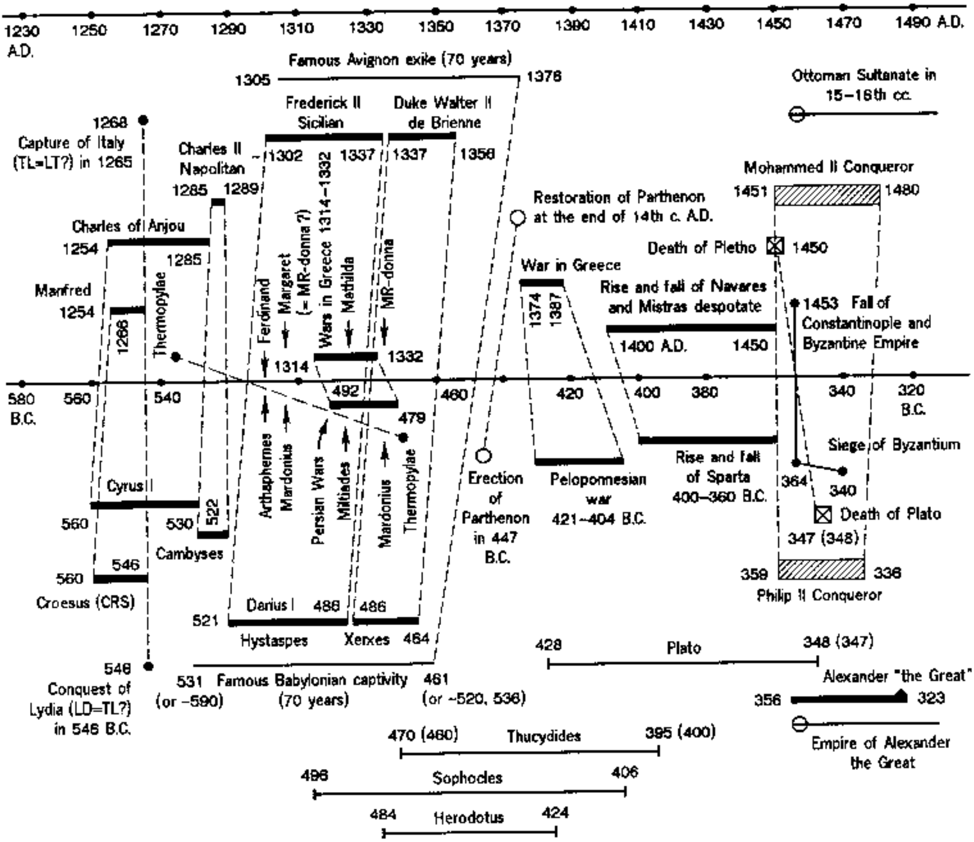

Figure 64(2). Parallel between medieval Greece and ancient Greece. Detailed structure

11) Ottoman Sultanate in 15–16th cc., Hellenism, spreading of Greek and antique literature in medieval Europe, end of independent medieval Greece

12) Charles of Anjou 1254–1285 (31), capture of Italy (TL = LT?) in 1265

13) Manfred (Kaiser = KSR) 1254–1266 (12)

14) Charles II Napolitan 1285–1289 (4), here II = bis = second?

15) Frederick II Sicilian 1302–1337 (appr.) (35), Ferdinand, Margaret (= MR-donna?), Mathilda

11) Empire of Alexander the Great in 4th–3rd cc. B.C., Hellenism, spreading of Greek culture in Mediterranean, end of classical Greece

12) Cyrus I 560–530 B.C. (30), conquest of Lydia (LD = TL?) in 546 B.C.

13) Croesus (CRS) 560–546 B.C. (14)

14) Cambyses (CM-bis, i.e., CM second) 530–522 B.C. (8)

15) Darius I Hystaspes 521–486 B.C. (35), Arthaphernes, Mardonius (= MR-donna?), Miltiades (=Mathilda?)

16) Duke Walter II de Brienne 1337–1356 (19)	16) Xerxes (XRX = duke?) 486–464 B.C. (22)
17) Restoration of Parthenon at end of 14th c. A.D.	17) Erection of Parthenon in 447 B.C.
18) Death of Pletho in 1450 A.D. (1452 A.D.?)	18) Death of Plato in 347 B.C.
19) Mohammed II Conqueror 1451–1480 (29)	19) Philip II Conqueror 359–336 B.C. (23)

This is one of the basic parallels which is a consequence of the third basic shift by 1,800 years.

5.16. Statistical duplicates of the Trojan war

Table 18

1) Trojan war (13th c. B.C.)	Odysseus (Ulysses = Achilles?)	Agamemnon	Achilles	Patroclus
2) War with Tarquins (6th c. B.C.) in Rome	Lartius and Marcius Coriolan	Tarquin the Proud	Valerius	Junius, Marcus Brutus' son
3) Civil war (1st c. B.C.) in Rome	Sulla and Cicero (RCC)	Pompey the Great	Julius Caesar	Marcus Brutus
4) Civil war (3rd c. A.D.) in Rome	Aurelian Lucius	Diocletian the Great	Constantius Chlorus	(?)
5) Gothic war (6th c. A.D) in Rome	Narses (=Narcius)	Justinian and Theodora	Belisarius	John II
6) Civil war (901–924 A.D.) in Rome	Alberic I (?) and Marocius (?)	Theophilactus and Theodora I	Alberic I	John X
7) Civil war (931–954 A.D.) in Rome	(?)	Hugh and Theodora II	Alberic II	John XI
8) Start of Roman Empire (10–13th cc. A.D.)	Otto I, Otto II, Otto III, Alberic II, Octavian Augustus			
9) War in Italy (13th c. A.D.), fall of medieval Troy. Original?	Charles of Anjou (NRCC)	Innocent IV	Charles of Anjou (?)	John XXI

5.17. "Modern textbook of European history" and its decomposition into the sum of four short isomorphic chronicles

Table 19-A (Figs. 65, 66(1), 66(2), 66(3), 67)

Global Chronological Diagram

Traditional chronology. Chronicle **E** on the GCD in [24], years B.C.; schematically represents the "modern textbook". See Part 1	Biblical chronology. Chronicle **B** on the GCD, years B.C. 1,800-year forward shift. The dates of the events listed below are shifted forwards due to the statistical parallels discovered by the author. In addition to the shift, there occurs identification of events with the left column and, therefore, general shortening of the history. See Part 1	Chronicle $\mathbf{C_4}$ on the GCD, years A.D. 1,778- (or $\simeq$ 1,800-) year backward shift
(1) K 1460–1236. Trojan Kingdom of seven kings, Trojans, Greeks	. . . .	(1) K 306–535. Eastern and Western Third Roman Empire in 4–6th cc.
(2) T 1236–1226. Trojan war (in Greece?), driving Trojans out, fall of Troy	. . . .	(2) T 535–552. Gothic war in Italy, driving Goths out, fall of Naples and Rome
(3) H 1226–850. Dynasties of ancient Greek kings	. . .	(3) H 552–901. Medieval papal Rome, Greece
(4) T 850–830. Second version of Trojan war dating according to Hellanic, Damast and Aristotle. Apple of discord of Aphrodite–Venus (Eve?)	(4) E 850–830. Genesis 1–3. Adam and Eve, apple of discord, expulsion from Paradise . .	(4) T 901–924. War in Italy. Alberic I and Theodora I. Legend of "woman of discord" . . .

Table 19-B

(continuation)

Chronicle $\mathbf{C_3}$ on GCD, years A.D. 1,053-year backward shift. The 1,000-year shift is due to writing some dates as follows: For example, 1st c. since Christ = X.I c. Letter X was originally abbreviation of name (which was forgotten afterwards), and 11th c. obtained upon formally decoding "X.1 c." Similarly, "100th year since Jesus = I. 100th year" = 1100 year, because letter I also means one thousand. Eventually, dates were shifted by 1,000 years	Chronicle $\mathbf{C_2}$ on the GCD, years A.D. 333-year shift	Chronicle $\mathbf{C_1}$ on GCD, years A.D. Distorted original. No shift. Chronicle has not yet been shifted backwards, but already contains a few duplicates	Chronicle $\mathbf{C_0}$ on GCD, years A.D. Original. No shift. Column contains part of modern "textbook", and serves as original of chronicles C_2, C_3 and C_4 shifted backwards. Historical data earlier than 10th c. are almost absent
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Table 19-A (continuation)

(5) T 760–753. Foundation of Rome, Romulus and Remus, rape of Sabines	(5) T 760–753. Genesis 4:1–16. Cain and Abel, killing of Cain	(5) T 931–954. War in Italy. Alberic II and Theodora II
(6) K/P 753–522. Regal Rome of seven kings according to Livy. Great Greek colonization in 8–6th cc.	(6) K 753–522. Genesis 4: 17–26, 5:31. Enoch, Irad, Mehujael, Methusael, Lamech, Seth, Enos, Kenan, Mahalaleel	(6) P 962–1250. Holy Roman–German Empire in 0–13th cc. Crusades
(7) T 522–509. War with Tarquins. Kings' exile, beginning of republican Rome	(7) T 522–509. Genesis 5:32, 6, 7, 8. Story of Noah. Flood, destruction of mankind, ark, laws	(7) T 1250–1268. Famous war in Italy. Manfred, Conrad, fall of medieval Troy
(8) H/C 509–82. Ancient Republican Rome. Persian wars. Cyrus, Darius, Xerxes. Peloponnessian wars. Macedonians, Philip II. Fall of ancient Byzantium. Empire of Alexander the Great. Famous period in history of classical Greece. Samnite wars, Punic wars. Hannibal. End of classical Greece. Start of Hellenism	(8) H 509–82. Genesis 9,10:1–32. Noah's descendants, separation of peoples into their own countries. Noah's sons Shem, Ham and Japheth, Japheth's sons (comment to (7): There is a parallel between Noah and Moses, duplication of term "ark of the covenant" and "ark" (Noah), duplication of the laws). Legend of foundation of city near Rome by Noah ([44], [44*] V. 3, p. 437 of Russian edition)	(8) C 1300–1550. Empire of House of Hapsburg. Medieval Greece and battles of 1316 (original battle of Marathon). Duke Walter de Brienne, Wars of Franks with Turks. Mohammed II, Mahometans. Fall of Byzantine Empire in 1453. Ottoman Sultanate. End of medieval independent Greece
(9) T 82–83. Start of imperial Rome. Sulla, Pompey, Caesar, Augustus, Octavian, civil wars of 1st c.	(9) T 82–83. Genesis 11:1–9. Tower of Babel, dispersion of people, confusion	End of chronicle (line) C_4. We described bulk of events lowered upon shifting by 1,778–1,800 years due to use of abbreviations in writing of dates

Table 19-B (continuation)

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(6) K 300–535. Roman Empire in 4–6th cc. Foundation of New Rome in 325. Eastern Roman expeditions	.	.	.
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(7) T 535–552. Gothic war in Italy. Fall of Naples and Rome. Justinian, Belisarius, Narses, Goths, Franks = TRN	.	.	.
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(8) H 552–901. Medieval papal Rome. Wars with Langobards in 705, 711 and further, up to 765 and 769. Wars in Southern Italy. Wars with Saracens. Franks' wars in Italy (comment to (13): in left chronicles B and E: Charlemagne = Joshua, Roland's defeat = defeat of army under Charlemagne; both Charlemagne and Joshua stop sun during battle, unique episodes; treacherous Ganelon = "treacherous" Ahan)	.	.	.
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(9) T 931–954. Wars in Italy. Alberic II and Theodora II. Restoration of many of ancient customs. Start of Holy Roman Empire	.	.	.
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Table 19-A (continuation)

(10) P/K 23 B.C.–235 A.D. Second Roman Empire in 1st–3rd cc. Start of "Christian era", religious reforms, Jesus Christ	(10) K 23 B.C.–217 A.D. Genesis 11:10–32. Arphaxad, Shelah, Eber, Peleg, Reu, Serug, Nahor, Terah, Haran, Abram, Aaron (= Arius?)	.
.	.	.
(11) T 235–261. Julia Maesa, anarchy, Gothic war. T 270–300. War	(11) T 270–300. Abram, Sarai, struggle with Pharaoh = TRN. Genesis 12	.
.	.	.
(12) Π/K/P/C 300–535. Roman Empire in 4–6th cc. Separation into Eastern and Western kingdoms	(12) K 306–535. Genesis 13–38. Abram and Haran. Separation into two kingdoms. Isaac, Esau, Jacob, Joseph	.
.	.	.
(13) T 535–552. Gothic war in Italy. End of Roman Empire. Wars of Charlemagne = wars of Joshua	(13) T 535–552. Genesis 39–50. Exodus (Moses). Leviticus. Numbers. Deuteronomy. Book of Joshua = Song of Roland	.
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(14) Π/H/P 566–901. Medieval papal Rome. Carolingians, Charlemagne's empire	(14) Π/H/P 566 901. Book of Judges 1–18. Story of judges	.
	.	.
(15) T 901–914–924. War in Italy. Alberic I, Theodora I. T 931–954. War, Alberic II, Theodora II	(15) T 901–924. Book of Judges 19–21. War with Benjamites. T 931–954. Ruth. First and Second Book of Samuel and Second Book of Kings. First and Second Book of Chronicles 1–9. Saul, David, Solomon	.
.		.

Table 19-B (continuation)

(10) P 965–1250. Holy Roman Empire. Start of “Christian Era” (=“new era”) under pope Hildebrand. Schism	(10) K 306–535. Roman Empire in 4–6th cc. Basil the Great and his religious reforms in 4th c. Separation of Church. Arius	⋮	⋮
(11) T 1250–1268. War in Italy. Fall of medieval Troy and Naples	(11) T 535–552. Gothic war in Italy. Fall of Naples and Rome	⋮	⋮
(12) C 1273–1619. (Roman) Hapsburg Empire. Eastern Romaic Byzantine Empire	(12) Π 681–887. Carolingians, Charlemagne's empire. Eastern Romaic Empire ⋮	(12) P/K 300–535. Roman Empire in 4–6th cc. Its separation into Eastern and Western empires	(12) K 306–526. Insignificant remains of traditional data for 4–6th cc. ⋮
(13) End of chronicle (line) C_3 ⋮	(13) T 901–924. War in Italy, Alberic I, Theodora I ⋮	(13) P/K 535–552. Gothic war in Italy. Exodus of Goths from Italy ⋮	(13) Negligible remains of traditional data regarding 6th c. ⋮
⋮	(14) P 962–1250. Holy Roman Empire in 10–13th cc. ⋮	(14) Π/H 552–901. Carolingians, Charlemagne's empire ⋮	(14) Π/H 552–901. Negligible remains of data regarding 6–9th cc.
⋮	(15) T 1250–1268. Famous war in Italy. Fall of Hohenstaufen, Troy and Naples. Manfred, Charles of Anjou, Conrad. Medieval legends of Troy in Italy	(15) T 901–924. War in Italy. Alberic I, Theodora I ⋮	(15) Negligible remains of data regarding first half of 10th c. ⋮

Table 19-A
(continuation)

(16) P/C 962–1250. Holy Roman–German Empire. Emperors are crowned twice: in Rome and Germany (two kingdoms) . . .	(16) P 962–1250. First Book of Kings 12–22, Second Book of Kings 1–23, Second Book of Chronicles 10–34. Kingdoms of Israel and Judah (two kingdoms) .	. . . .
(17) T 1250–1268. Medieval war in Italy. Fall of Hohenstaufen. Fall of Troy and Naples. Charles of Anjou, Manfred	(17) T 1250–1268. Second Book of Kings 24–25, Second Book of Chronicles 35–36. War with Pharaoh and Nebuchadnezzar. Fall of kingdom of Judah	. . . .
(18) C 1273–1619. Empire of House of Hapsburg. Avignon exile of papacy in 1305–1376 lasts for 70 years. Return to Rome in Italy	(18) C_a 1273–1400. Book of Ezra, Nehemiah and Esther. Babylonian captivity by Persians lasts for 70 years. Return to Jerusalem	. . . .

Table 19-B
(continuation)

.	(16) C 1273–1619. Hapsburg Empire. Renaissance in Europe, revival of antique themes. End of chronicle C_2	(16) P 962–1250. Holy Roman–German Empire. Much information. German emperors in Roman Empire. "Double Empire"	(16) P 962–1250. Holy Roman–German Empire. Much information. Start of authentic history
.	(17) 333-year shift can possibly be explained by writing dates like "3rd year since Maximilian" as "MCL. III", i.e., "Maximus Caesar Leo". Spelling this out, we obtain 1153 A.D., which differs from actual date 1496 by 343 years. Recall that Maximilian I ruled in 1493–1519	(17) T 1250–1268. War in Italy. Fall of Hohenstaufen. Fall of Troy and Naples. Substantial data	(17) T 1250–1268. War in Italy. Fall of Hohenstaufen. Fall of medieval Troy and Naples. Substantial data
.	.	(18) C 1273–1619. Hapsburg Empire. Chronologists I. Scaliger and D. Petavius in 16–17th cc. Dionysius Petavius is original of Dionysius Exiguus (6th c.). Start of authentic history	(18) C 1273–1619. Hapsburg Empire. Council of Trent at which global chronology and Canon of Bible were created

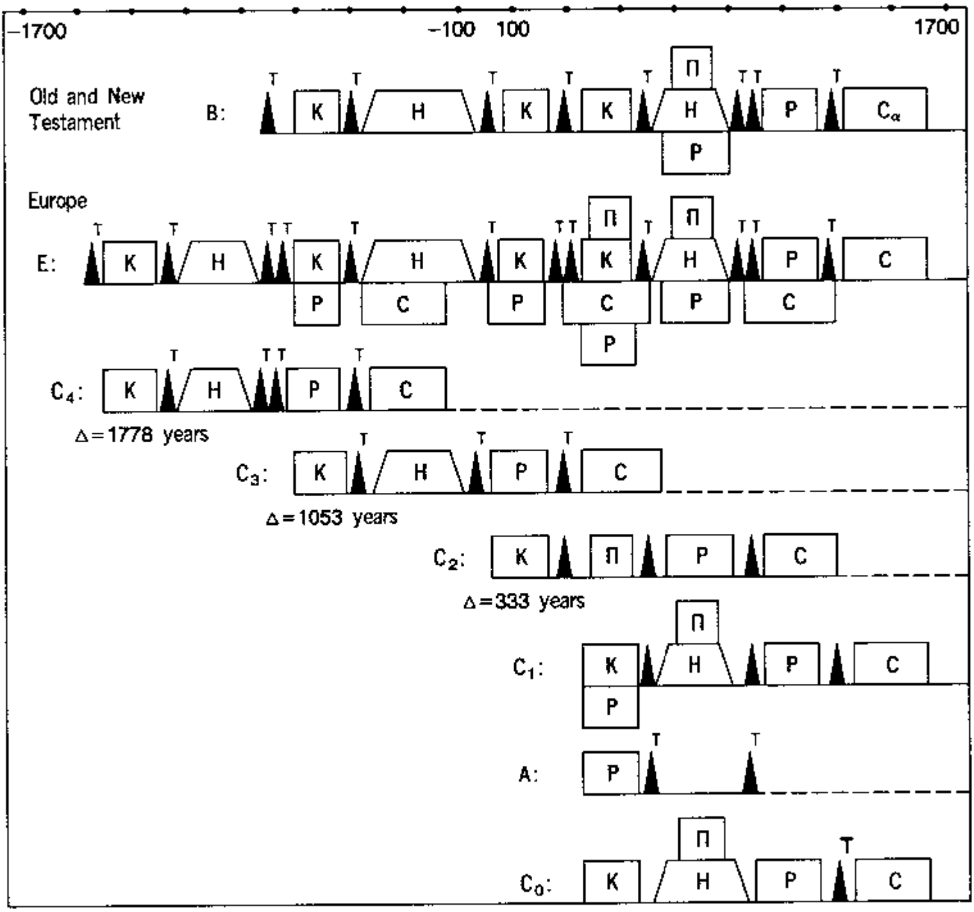

Figure 65. The Global Chronological Diagram and the three main chronological shifts. General structure

The following supplement to the method on numerical dynasties and to the author's paper [18] was made by G. Nosovsky.

The above (Part 1) distinction measure λ admits a simple probabilistic interpretation delineating the assumptions which were adopted in formalizing the problem.

Consider the above (Part 1) parallelepiped Π, check consecutively all elements of the set $V(D)$, and see whether they belong to the set Π. Thus, we have $|V(D)|$ tests. If an element from $V(D)$ belongs to Π, then we regard the corresponding test as a success. The probability of a success in one test is estimated just by the number λ in accordance with the theorem known from mathematical statistics. We now assume that the *probability of a success in one test is unaltered if we only take the elements from the set D* (or, more exactly, the distribution of the random variable

$$\xi(a) = \begin{cases} 1 & \text{if an element } a \text{ belongs to } \Pi, \\ 0 & \text{if an element } a \text{ does not belong to } \Pi \ (a \in V(D)) \end{cases}$$

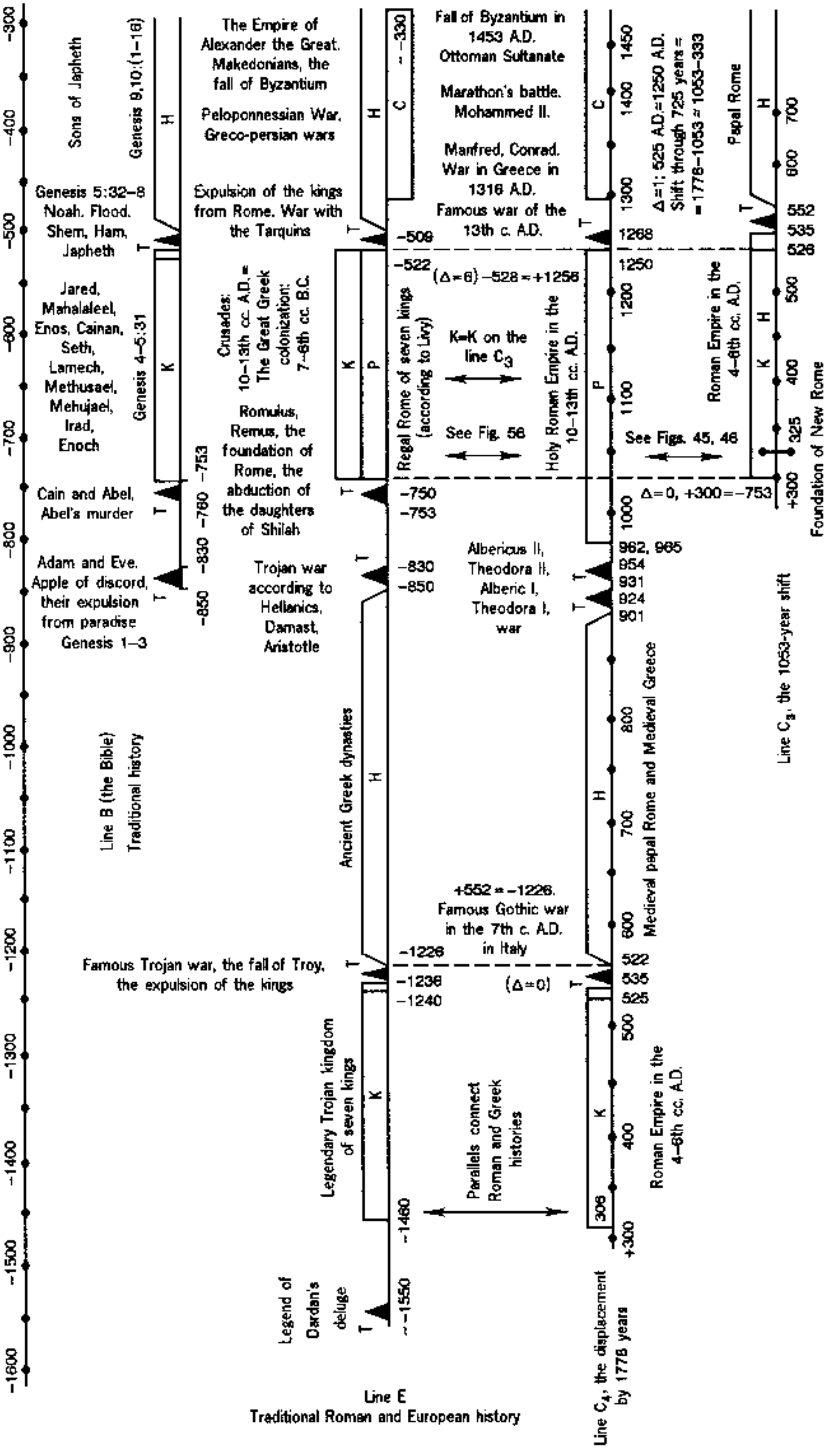

Figure 66(1). The Global Chronological Diagram and its decomposition into the sum of four chronicles. Detailed structure. Part 1

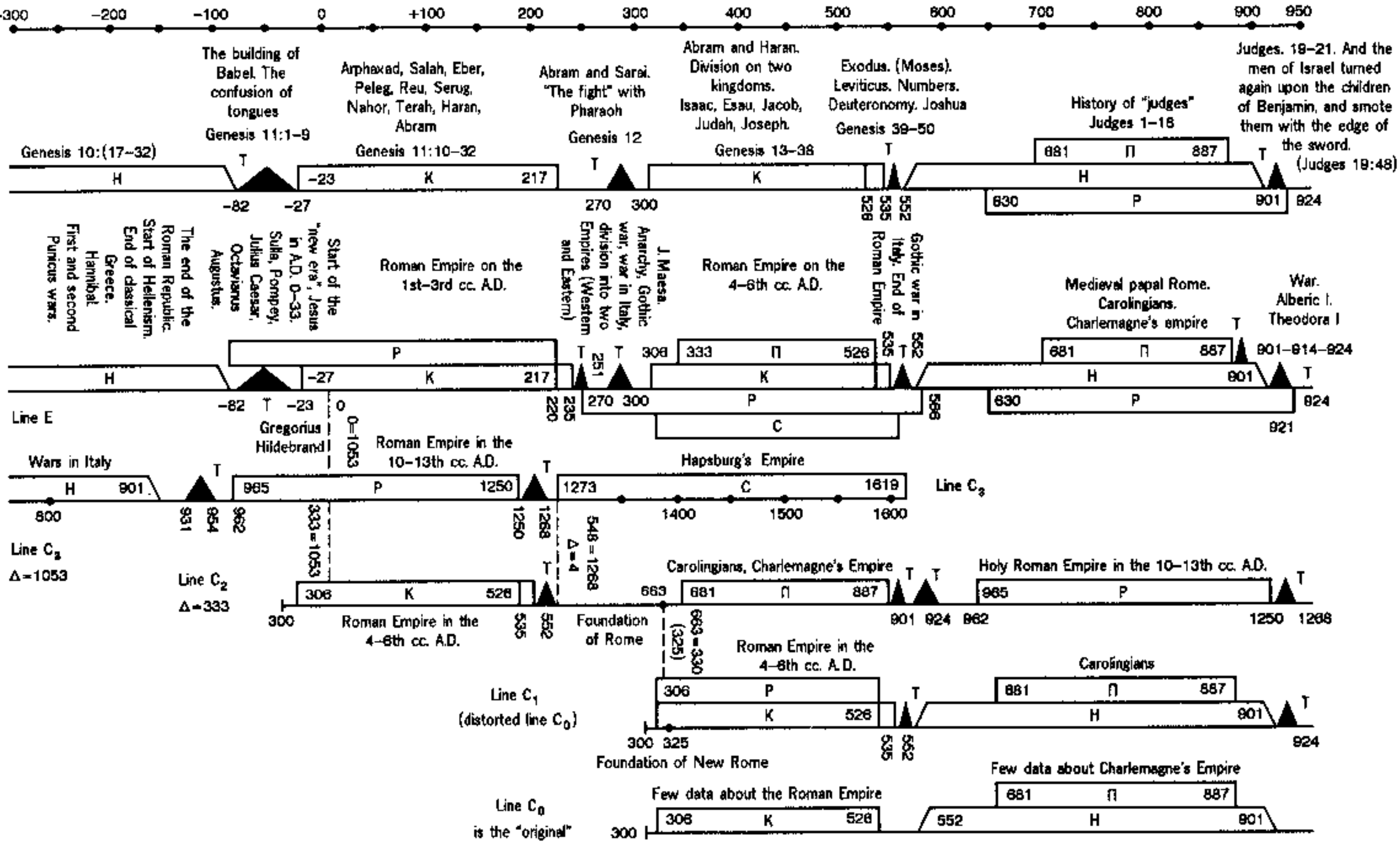

Figure 66(2). The Global Chronological Diagram and its decomposition into the sum of four chronicles. Detailed structure. Part 2

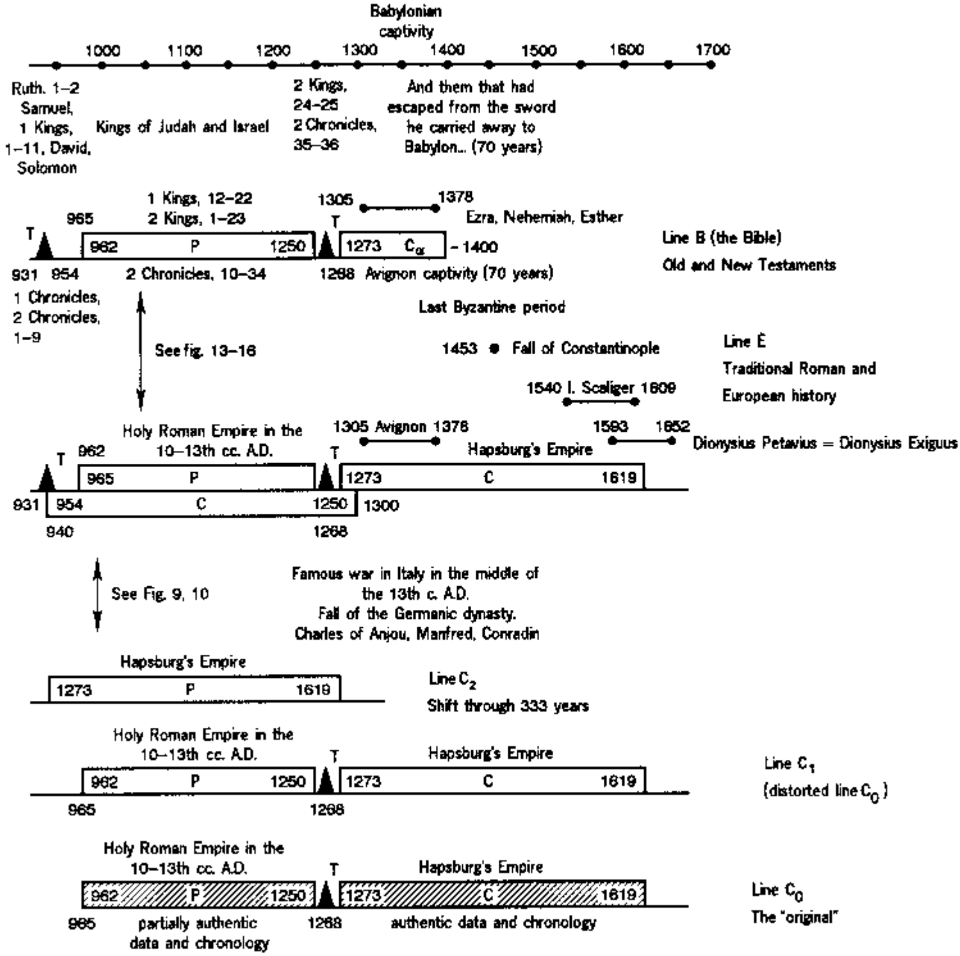

Figure 66(3). The Global Chronological Diagram and its decomposition into the sum of four chronicles. Detailed structure. Part 3

does not depend on the condition $a \in D$). Note that $V(D)$ was especially constructed so as to fulfil the assumption; in other words, so that this set may not be "different" from D in structure.

Thus, the probability that a point from V falls into the parallelepiped Π (by construction, already containing one point a_0; this is an *a priori* condition, and we do not speak of this point any more) equals λ. Note that we assume the point under consideration to be in Π independent of a fixed point a_0 to fall into Π. Therefore, the average number of points in Π from D (*irrespective of* a_0) is $\lambda \cdot |D|$. If $\lambda \cdot |D|$ is small, then the probability that at least one point "independent" of a_0 is in Π equals $1-(1-\lambda)^{|D|} \simeq 1-e^{-\lambda \cdot |D|} \simeq \lambda \cdot |D|$. (For the values of λ and $|D|$ under consideration, the exactness of this formula is very high.) Hence, if $\lambda \cdot |D|$ is a quantity of the

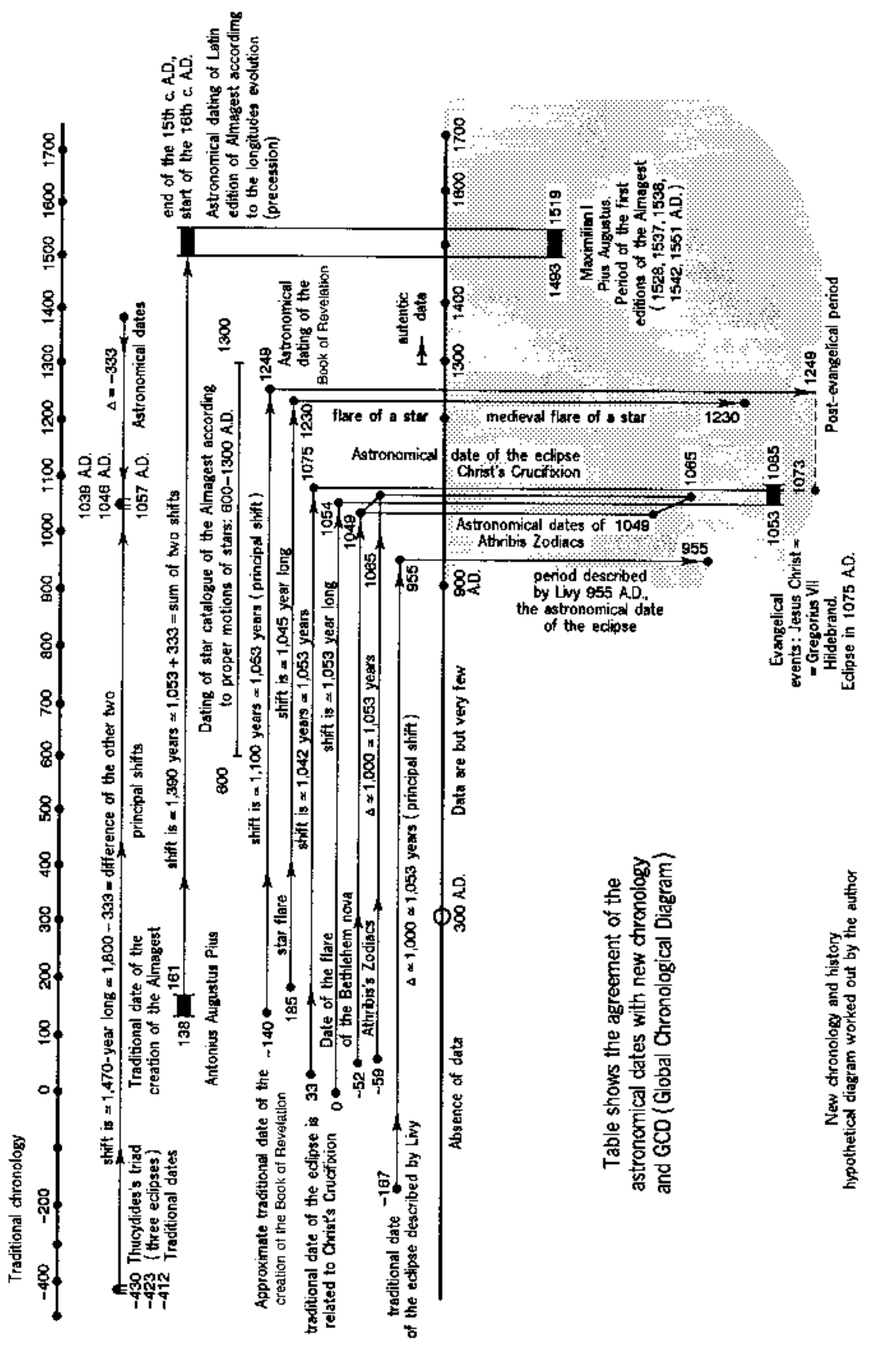

Figure 67. Agreement of the astronomical dates with the new short chronology and with the Global Chronological Diagram

order of unity, then the fact that two points from D fall into Π is unrelated to their "dependence"; however, if $\lambda \cdot |D| \ll 1$, we are forced to acknowledge that it is extremely improbable that two points should fall into Π independently (for $|D|$ tests, the probability is $\lambda \cdot |D|$). Therefore, they must be somehow dependent.

The computation is fully consistent with the obtained results, viz., for independent numerical dynasties, we obtain $\lambda \geqslant 10^{-3} \simeq 1/|D|$ (i.e., the probability that they fall independently into the corresponding parallelepiped Π is of the order of unity); whereas for dependent numerical dynasties, the value of λ does not exceed 10^{-8}, i.e., the probability that they fall into the corresponding parallelepiped Π independently is not greater than 10^{-5}. Thus, the probability of "random" identification of two independent numerical dynasties does not exceed 10^{-5}. The standard counter-argument that "an event of infinitesimally small probability can occur in great many phenomena" can be reciprocated by the computation of probability, proceeding from the complete number of tests. An event of an infinitesimally small probability can, in fact, "occur" in a great number of tests; however, we should not forget that the number of tests multiplied by the probability of the event in question in one test must be of the order of unity.

5.18. Possible explanation of the three chronological shifts discovered in the Global Chronological Diagram

1. The general idea and the 1,000-year shift. We now give one of possible explanations for the chronological shifts discovered in the GCD. For example, the 1,053-year (or *c.* 1,000-year) shift could have arisen from later juxtaposing two different techniques for writing dates, viz., the abbreviated form "IIIrd c. since Christ" could have been written as "X. III century", where X is the first letter of the word Christ (Gr. $X\rho\iota\sigma\tau o\varsigma$), i.e., one of the most widely spread medieval anagrams of the name "Jesus" [44]. This is consistent with the overlapping of Gregory VII Hildebrand (11th c. A.D., born *c.* 1020, pope from 1073 until 1085; *ibid.*) and Jesus Christ in shifting downwards by 1,053 years (see the GCD, Fig. 66).

In particular, the 3rd c. since Christ (or Hildebrand) is the 3rd c. since the beginning of the 11th c. A.D., which just yields the 13th c. A.D., or X.III century. This form of writing is well consistent with the Italian names of centuries, widely spread in the Middle Ages, viz., the 13th c. was called *Trecento* (the third hundred years), and the 14th c. *Quattrocento* (the fourth hundred years). Similarly, the year 1300 could have meant originally I.300, i.e., the 300th year since Jesus (Gr. $I\eta\sigma o\upsilon\varsigma$). This way of writing is consistent with the preceding, since the year 1300 = 300th year since Jesus = 300th year since the beginning of the 11th c. A.D. (from the birth of Hildebrand). In this connection, in our opinion, more attention should be paid to the fact that, in medieval documents, especially, of the 13–14th cc. A.D., the first letters (meaning, as assumed today, "large numbers") were separated by dots from the last letters denoting dates representing less than ten. For example, the year 1527 is written in this fashion in the Latin letters on the well-known map of the world by Diego Ribeiro. See "Dürer Kunst und Geometrie", E. Schröder, Berlin, 1980, p. 14.

Finally, another way, viz., a date in expanded form when the formula "since the birth of Christ" was written verbally and completely, and not replaced by one letter; say, the "IIIrd century since the birth of Christ" instead of "X.III century". With time, the information that the letters "X" and "I" at the beginning of the above formulas mean the first letters of the names Christ and Jesus was lost. The letters were ascribed their numerical values instead (figures having been earlier denoted by letters), viz., X = ten, I = unity, i.e., "X.III" and "I.300" started to be naturally read as the "13th century" and "one thousand and three hundred years", which led to shifting "backwards" by 1,000 years the part of documents that made use of the spelled form of writing dates, e.g., "IIIrd c. since the birth of Christ" instead of the abbreviated (X.III c.). In other words, the 1,000-year shift is the difference between the spelled form of writing dates and the abbreviated form. A similar mechanism could, in the author's opinion, have led to the appearance of various dates "since the creation of the world", e.g., the Byzantine date of 5508 B.C.

Since earlier each letter of the alphabet was associated with a figure (A=1, etc.), numbers were denoted by letters in ancient documents. We now formulate a hypothesis, viz., that the original basic dates with which the count from a particular year started might have been written in literal abbreviations making up a meaningful short verbal formula such as in the above example. This "word-date" was an abbreviation of the expanded verbal formula describing an event which was a basis for one or another calendar. Denoting figures verbally, and counting years subsequently from the first "word-date", the figures were replaced by letters (1 by A, 2 by B, etc.), which led to a rapid distortion of the first "word-date", and all the subsequent ones became senseless from the standpoint of the language in which they were written. It is clear that the original meaning of the first "word-date" was soon forgotten. Thus, in a long range of the meaning of the word-dates, e.g., consecutive years from the creation of the world, we can attempt to find those rare original word-dates which not only possess a meaningful reading as an abbreviation of expanded verbal formulas, but also correspond to authentic events which form a basis for the given calendar. We illustrate this by the example of the above date 5508 B.C. We have already seen that the events related to Hildebrand in the 11th c. A.D. could serve as a reference point for counting years since the birth of the Christ, i.e., for the period "A.D." We distinguish two basic dates relating to Hildebrand, viz., 1073, his election as a pope [74], [44], and 1075, the year of Cencius' conspiracy against Gregory Hildebrand ([44], [44*] V.4, pp.155–156) and, at the same time, the year of a lunar eclipse related by the early Christian authors to the Crucifixion, which was traditionally believed to have occurred in the first half of the 1st c. A.D.

Re-calculating these two dates in terms of those since the creation of the world according to Byzantine and Russian tradition, we obtain ($6581 = 1073 + 5508$), and ($6583 = 1075 + 5508$). Now, writing the figures as letters in accordance with the traditional rules (see [275], p.150), we obtain the word-dates $6581 = \neq$ SΦΠA, $6583 = \neq$ SΦΠΓ. The sign "$\neq$" distinguishing word-dates from other words is regarded today only as the formal notation of "one thousand". However, we cannot exclude the possibility of its being a distorted form of writing the letter I (Jesus) in the original, (see also the above identification of the letter "I" with "1,000" in writing, e.g., the year I.300). Further, the letter Φ was also written as Θ (see the old Russian texts). Taking into account these two remarks, we obtain the following word-dates, viz., 6581 = ISΘΠA, 6583 = ISΘΠΓ. It is obvious that they can be considered as abbreviations of the following expanded formulas, viz., "Jesus God Pope Augustus" (here IS = Jesus, $\Theta\varepsilon o\upsilon$ = God, Π = pope, A = augustus) and "Jesus God Pope Gregory (or Hildebrand)", "Γ" meaning Gregory in the latter case.

Thus, both word-dates are perfectly meaningful and are related to the activity of Hildebrand and two central events in his "biography". We can now suggest the following hypothetical re-construction of how the date of 5508 B.C. might have arisen. The two above events could serve as basic reference points for counting years "since Pope Gregory" in certain documents, i.e., A.D. (see above). Writing the exhibited formulas expanded above in abbreviated form (or only the first of them), the chronicler meant their original meaning, and started counting years. Since the letter A means 1 (unity), the year count began with the natural figure, e.g., "since Jesus the God Pope's year One" = ISΘΠA [275]. Subsequently, the letter B = 2 appared instead of A = 1, etc., and the word-date started varying, whereas the original word got distorted, and the sense of the initial abbreviation was soon forgotten. Subsequent word-dates were understood only as a set of letter-figures for writing dates.

The later chronologists substituted the corresponding figures for letters and obtained, e.g., the number 6581 for the word ISΘΠA. Along with the documents making use of this way of writing dates, there existed others in which the same date, the year 1073, was written as I.073, i.e., the "73rd year since Jesus". For the later chronologists, the letter I already possessed the meaning of "1,000", and the whole date was read as "the year 1073". The question then arose regarding the comparison of these two calendars. Juxtaposing two different ways of writing the same date, i.e., ISΘΠA = 6581 and I.073=1073, and substracting the second number from the first, the chronologist just obtained the value 5508 = 6581 − 1073. He thereby "recognized", or "computed", the date of the creation of the world in terms of the calendar "since the birth of Christ". It is obvious that the same result, 5508 B.C., could have been obtained by making use of the second date ISΘΠΓ = 6583, and subtracting I.075, or 1075, from it. Moreover, the same result could have been derived by comparing the two dates ISΘΠA + T and I.073 + T, where T is any number of years that have passed since Gregory's election in 1073. In other words, to carry out the described computation, it is not at all necessary to base it upon the "original word-dates" from which counting the years had started.

It is probable that the other dates of the creation of the world were "computed" in the same way, viz., 5872 (Septuagint), 5551 (Augustine), 5515 (Theophilus), 5493 (Alexandrian date), and 3761 (Jewish date), etc. These are quite different from each other, namely by an oscillation amplitude of *c.* 2,100 years. The reason for the discrepancies might be the use of different abbreviations, or "word-dates" by different chronologists.

Empirico-Statistical Analysis of Narrative Material and its Applications to Historical Dating

Volume II: The Analysis of Ancient and Medieval Records

by

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the creation of the word, according to Jerome), EП (iēsūs pope, 1076 A.D. during the rule of Gregory Hildebrand, written since the creation of the world in 4004 B.C.)

We have already given examples illustrating that certain chronicles were lowered downwards by the sums or differences of the basic three shifts. For covenience, we also give the matrix of pairwise differences between different dates for the creation of the world.

5967	5872	5551	5515	5508	5493	4700	4004	3941	3761	
0	95	416	452	459	474	1267	1963	2026	2206	5967
	0	321	357	364	379	1172	1868	1931	2111	5872 (Septuagint)
		0	336	43	58	851	1547	1610	1790	5551 (Augustine)
			0	7	22	815	1511	1574	1754	5515 (Theophilus)
				0	15	808	1504	1567	1747	5508 (Byzantine date)
					0	793	1489	1552	1732	5493 (Alexandrian date)
						0	696	759	939	4700 (Samaritan date)
							0	63	243	4004 (Hebrew date)
								0	180	3941 (Jerome)
									0	3761 (Jewish)

The number in the intersection of the ith row and jth column equals the difference of the ith and jth dates of the creation. It can immediately be seen that the 333-year and 720-year shifts are represented in the table (viz., 321, 357, 364 and 696, 759), and equal the differences between the corresponding dates of the creation of the world. These numbers are underlined in the table. The 1,778-year shift ($\simeq$ 1,800 years) is also represented, viz., 1,790 years. We can also see that for 2,111 years, which is precisely the sum of the two basic shifts by 333 and 1,776 years. According to the GCD, the Babylonian (= Avignon) captivity probably started in 1305 A.D. Another important event occured in May 1305 in Corinth, where, in a sacred pine grove, the Poseidon games were staged in ancient times [45], the famous jousts, the first great "parliament" in the history of medieval Greece, took place. The latter lasted for about 20 days, and some ten thousand men took part. The tournament played an important role in the political history of contemporary (medieval) Greece [45]. Under the total shift by 2,111 years (which is the sum of the two basic shifts), it can be made coincident with another well-known event in Greek history, viz., the first Olympic games in 776 B.C., from which the reckoning with respect to Olympiads started ([74], Table 5, A, VIII). In fact, 1305 + 776 = 2111. The first winner of the Olympic games was Horeb (= Corinth?) [74]. The difference in the month is insignificant (May and July).

It is probable that this event in 1305 A.D. was the starting point for a year count based on Olympiads. Note that the shift by 2,111 years can be also explained by the writing mechanism demonstrated above. Indeed, the year 1305 is the 65th year after the death of that very Gregory IX (1227–1241), whom we already know from the 1,800-year shift. Having written the verbal formula "65th year since Gregory" in abbreviated form, we obtain $\neq$ ΓP.SE (recall that the sign "$\neq$" admits the meaning "Jesus", i.e., the "Jesus era" is meant). A later chronologist, having forgotten the original meaning of the abbreviation, could understand all letters as figures, and obtain 3165. If he took this date as written with respect to the Jerome era (i.e., the 3165th year since the creation of the world in 3941 B.C.), then he could obtain 776 B.C., since $3941 - 3165 = 776$. Thus, he obtained just that date for the start of the reckoning of years with respect to Olympiads, which is known to us from I. Scaliger's traditional chronology. It should be mentioned that the year count since Gregory IX in both examples generates the Greco-biblical shift of 1,778 years (or $2{,}111 = 1{,}778 + 333$).

5.19. Dionysius the Little

In conclusion, we exhibit a triple duplicate which is important for understanding the mechanism of the creation of the traditional chronology. It follows from the GCD (Fig. 65) that the parallel pairs of epochs were discovered earlier than those of I. Scaliger and D. Petavius, but not later. I. Scaliger and D. Petavius were the ones who had fixed traditional chronology. In other words, the events of medieval history were "lowered" by them if they had occured earlier than I. Scaliger's and D. Petavius' epoch; however, if they are dated by a later period, then they should not be lowered, and generate no duplicates, which indicates the special role played by these chronologists in creating traditional chronology.

The following three well-known Dionysii related to the Roman Church are known in European history, viz.,

Famous chronologist Dionysius, died in 265 A.D. (according to Eusebius). He paid especially much attention to calculation of Easter date	Famous chronologist Dionysius the Little (Exiguus), died in 6th c. A.D. In 563 A.D. – the so-called "Dionysius' pearl of Easter"	Famous chronologist Dionysius Petavius (1583–1652). He also was engaged in Easter calculations. One of creators of chronology
Under total shift by $1053 + 333 = 1386$ years, Dionysius Petavius overlaps with Dionysius from 3rd c. A.D. Dionysius Petavius' death coincides exactly with that of Dionysius, viz., $1652 - 1386 = 266$	Under 1,053-year shift, Dionysius Petavius overlaps with Dionysius the Little from 6th c. A.D., viz., $1652 - 1053 = 599$. *Exiguus* in Latin means "Little".	French authors called Dionysius Petavius = Petit, or "Little". I. Scaliger and his disciples lived in France. Thus, terms "Petavius" and "Exiguus" are identical
Dionysius the Little (from 6th c. A.D.) is considered to be first author who calculated "Jesus' birth", which was 550 years before Dionysius	Dionysius Petavius, I. Scaliger's disciple, created traditional chronology, and thereby indicated that "Hildebrand's birth" took place c. 600 years earlier. He died in 1652	

There are several versions regarding the date of Dionysius the Little's death in the 6th c. A.D., viz., *c.* 540, *c.* 556, etc. I. Scaliger's and D. Petavius' chronology was born from the controversy surrounding these problems in the 16–17th cc. A.D. Their version was not unique (see above De Arcilla, J. Hardouin, I. Newton). The question arises: why do the rulers coincident under parallels have, mostly, different names? The answer is that ancient names are nicknames rather than names in the modern sense of the word; therefore, they all possess a meaningful translation, e.g., "enlightened", "powerful", etc.

It can also be asked why the medieval texts of, say, the 12th c. A.D. contain the names of personages whose originals turn out to have lived, e.g., in the 15th c. A.D. according to the GCD. The answer is that either they should be applied as nicknames to another historical character, or the 12th-c. document with the name is, actually, of later origin, because, e.g., the 330-year shift could as well "lower" the documents from the 15th c. to the 12th c. A.D.

The preserved ancient medieval chronicles are of multilayer character. They were obtained as compositions of individual fragments in the dating which the above errors could be made. The events from different epochs and occurring at different times could thereby be "frozen" into a unified narrative jet.

6. Some Other Independent Proofs of the Existence of Three Basic GCD Chronological Shifts

6.1. The list of Roman popes as the spinal column of medieval Roman history

In 1981, I applied the above method to the set of popes (pontifices) ordered in time. This list embraces (if dated traditionally) the period from the 1st c. A.D. until the present time [74], [119]. However, according to the results I gathered and ordered on the GCD, it contains duplicates and repetitions (as well as the whole of ancient and medieval history up to the 13th c. A.D.). In other words, it is, probably, the result of repeated overlappings and gluing of several copies of the shorter list of popes, who allegedly lived later. Recall that the basic shifts generating the "lowering" of medieval documents from the 10–17th cc. A.D. are those by *c.* 333, 1,053 and 1,778 ($\simeq$ 1,800) years. Since the list of popes embraces the period from the 1st c. A.D. until the present day, i.e., is substantially shorter than, say, that of the whole of Roman history until the 17th c. A.D., the greatest shift by *c.* 1,800 years does not show itself inside the list. Therefore, the basic shifts involved in forming the list of popes are those by 333 and 1,053 years, and also, possibly, their difference, the 720-year shift (see the GCD in Fig. 65). It is important that applying the above method to the list of popes yields consequences fully consistent with the conclusions made on the basis of the other methods discussed above.

The well-known list of popes is the spinal column of medieval Roman history (along with the list of emperors). Today's list is based on the *Liber Pontificalis*, whose origin can be reliably traced into antiquity to not earlier than the 13th c. A.D. [44]. We have also used the data of [74], [44], [119], [13]. The history of the first pope St. Peter and his seven successors, until Hyginus in 137–141 A.D., is regarded today as extremely uncertain according to J. Blair [74] or, e.g., S. G. Lozinsky:

"Actually, reliable information about Roman bishops is available only starting with the 3rd c. A.D., but also with gaps ..." ([119], p. 312).

Our method of dynastic parallels led to the discovery that the period of the Roman episcopate, from 140–314 A.D., overlaps 314–532 A.D. with the proximity coefficient 8.66×10^{-8}. Recall that such a small value indicates the dependence of the two dynastic streams. Forty-three parallels of the total number of 47 were discovered in 141–532 A.D. (see the first and second periods above), and only four popes ruling for a short time were not taken into account [74]. Both streams are exceptionally representative. This patching together of church chronicles is fully consistent with the above independent gluing of the emperors' lists, i.e., with overlapping of the Second and Third Roman Empires. It is a consequence of the rigid shift by *c.* 333 years.

The dating method based on the frequency-damping principle was applied to the popes' list in the interval from the 1st c. to the 17th c. A.D., then broken into 10-year intervals. A complete list was made of all popes beginning their rule in the 1st–17th cc. A.D., and all 89 names were entered in the order of their appearance. The frequency matrix was constructed by A. Makarov (see below). Note that certain popes were called by substantially different names in the different tables. A rectangular matrix of order 89×170 was constructed. The values placed in each row represent the evolution of the frequencies of the mentioning of the names. There are altogether 89 rows (as well as names) and 170 columns (as well as decades). More precisely, for each name from the above list, those decades were marked in which at least one pope with the given name ruled for at least one year. For example, row 53 indicates all the decades in which pope John ruled for at least one year, viz.,

523–526, 532–535, 560–573, 640–642, 635–636, 704–707, 872–882, 898–900, 914–928, 931–936, 956–963, 965–972, 983–984, 985–996, 997–998, 1003, 1003–1009, 1024–1033, 1258–1287, 1316–1334, 1410–1415 (Fig. 68).

The square matrix of order 170×170 was then constructed (Fig. 68). $K(t_0, t_0)$, the numbers of popes ruling in a decade t_0, and whose names were not encountered before, were placed in the row t_0. $K(t_0, t)$ indicates how many times the names first appearing in a decade t_0 were mentioned in the popes' list in the decade t. Thus, the principle for matrix construction coincides with the general rule discussed above for the matrix $K\{t\}$. The obtained matrix was investigated on a computer by G. Nosovsky at my request and by the above algorithm, thus leading to the discovery of duplicates in the popes' list. In particular, a whole group of popes ruling in the 1st A.D. (e.g., Clement) according to traditional version, was unexpectedly born again in the 11th c. A.D. (!), which precisely corresponds to the shift by 1,000–1,050 years, i.e., the second basic shift on the GCD. The general picture of this effect can be seen in the matrix $K\{t\}$ (Fig. 68). All of the names first appearing in 50–260 A.D. then almost completely vanish for several hundred years, and the whole strip consisting of the first twenty rows is composed of zeroes only up to the year 1050, when they unexpectedly come back to life again; this powerful splash embraces 1050–1190 A.D., after which the frequency of use descreases again, though not identically to zero (see Fig. 68). The same result is obtained also by constructing

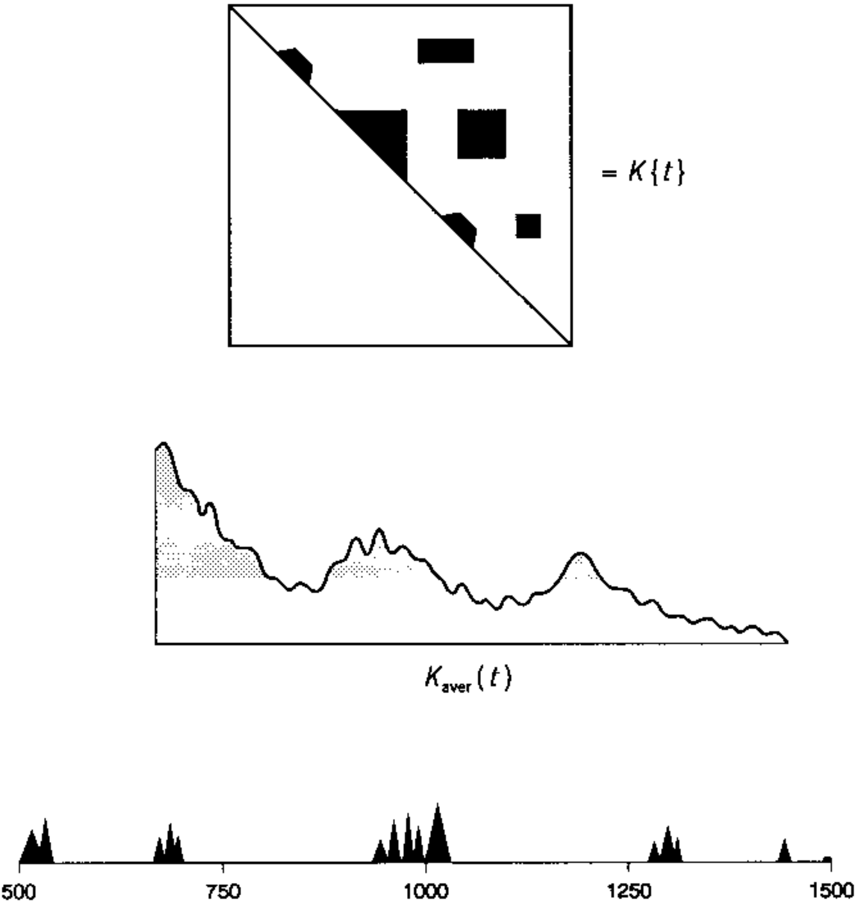

Figure 68. Square frequency matrix for the names of the Roman popes. Averaged graph. Frequency of the name "John" in the dynastic stream of popes

the graphs of $K^{ij}_{\text{aver}}(t)$. The other duplicates generated by the 333- and 720-year shifts were discovered similarly. Moreover, they are so explicit that they can be seen even on the averaged graph of $K_{\text{aver}}(t)$, i.e., to discover tem, we can make use of a substantially rougher method than the construction of the $K^{ij}_{\text{aver}}(t)$ graphs. The graph of $K_{\text{aver}}(t)$ is 170 units long and is shown in Fig. 68. Two principal maxima, certainly, without the first being associated with the principal diagonal, and shown in black in the figure, are seen clearly. Their distances from the first splash (i.e. from the principal diagonal) are just *c.* 360 and 730 years. Thus, both shifts by 333 and 720 years are automatically seen when averaging the matrix $K\{t\}$ with respect to the diagonals parallel to the principal. The 1,053-year shift on the graph of $K_{\text{aver}}(t)$ is not explicit, since the considerable frequency amplitudes due to those by 333 and 720 years "eclipse" the zero strip of the first twenty rows, which makes the shift manifest. It is important that after the discovery and identification of all these duplicates, the newly calculated matrix $K\{t\}$ ideally satisfies the frequency-damping principle both with respect to the rows and the columns.

The agreement of these results with the duplicates of the system marked on the GCD is manifest (Fig. 65), e.g., for the name "John". The investigation of the enquête-codes of the principal heroes of the Trojan and Gothic (6th c. A.D.) wars, wars with the Tarquins (exile in the 6th c. B.C.) and in Italy in the 13th c. A.D., duplicates of the T series in Fig. 65, shows that they have the 13th-c. war as their "original". In Italy, John is one of the principal characters in the history of the T-series wars. We construct the graph by marking years from the 1st A.D. to the 17th c. A.D. off on the horizontal, and the frequency of the name "John" in the dynastic stream of popes on the vertical axis (see Fig. 68). It is explicitly seen that they concentrate around the mid-6th c. A.D., the end of the 7th c. A.D., 10th c. A.D. and the end of the 13th c. A.D. In other words, the concentration of "Johns" on the time axis is at the duplicates of the series T, denoted on the GCD and Figs. 65, 66 by black triangles. A duplicate of T, placed at the end of the 7th c. A.D., is localized in the Byzantine Empire, whose history is also subjected to "convolution". This is the time of the well-known crisis and war in Byzantine history, Justinian II (duplicate of Justinian I from the 6th c. A.D.). The duplicates of series T in Byzantine history are sometimes different from their corresponding ones in the history of Rome by *c.* 100 years. In our case, Justinian I from the 6th c. and Justinian II from the end of the 7th c. A.D. are unique Justinians in the history of the Byzantine Empire.

A similar method was applied to the same list of popes, but with their nationalities taken as "names" (the data taken from the traditional tables [74], [119]). As in the case of the name investigation, a rectangular matrix of 51 rows (according to the number of nationalities) and 170 columns (according to the number of decades) was made by A. Makarov. The nationalities were ordered as they appeared in the popes' list. We also include antipopes and gaps as two "names" in order to see the evolution of these two periods in the history of the papacy, too. We then constructed a square matrix of order 170×170 from the latter rectangular. Though satisfying the frequency-damping principle "to the first approximation" (i.e., the graph of $K_{\text{aver}}(t)$ possesses one absolute and explicit maximum, and then more or less vanishes), the calculation of the graphs of $K^{ij}_{\text{aver}}(t)$ and $K^{pq}_{\text{aver}}(t)$ (see their definition above) showed that the list under investigation did contain duplicates. It is remarkable that the duplicates are associated with the same two basic shifts by c. 333 and 1,053 years and their difference of 720 years. Thus, the nationalities first appearing in 620–630 A.D. completely vanish as soon as in two decades, and then again appear in 1380–1420 A.D. The difference between these two splashes is c. 750–760 years, which is quite close to the 720-year shift. The nationalities which first appear in 280–290 A.D. then vanish after 320 A.D., and are again "reborn" in 640–650 A.D. as the only local splash in 320–340 years. These two splashes are unique in the whole of the matrix row. Thus, we have here an explicit expression of the shift by *c.* 333 years. Finally, the nationalities first appearing in 50–150 A.D. again reappear (after *c.* 1,050 years) in 1080–1210 A.D., which is, obviously, due to the 1,053-year shift. No other shifts were discovered in investigating the nationality matrix. The method for analyzing the graphs of $K^{ij}_{\text{aver}}(t)$ was also applied to the name matrix constructed by A. Makarov for the list of Byzantine patriarchs (pontifices), beginning with 317 A.D.

until 1690 A.D. However, the research has not been completed, because the frequency of the name use in the stream of Byzantine pontifices turned out to be considerably less than that of the popes, which makes the elements of the square matrix $K\{t\}$ small, and the investigation of the graph more difficult.

We now describe the results of statistically processing the rectangular and square name frequency matrices constructed by V. P. Fomenko, T. G. Fomenko and the author for the Old and New Testament, broken into 218 chapters generations. The total number of different names mentioned there is 1,977, whereas that of multiple mentions reaches several tens of thousands. Thus, the rectangular matrix describing the evolution of biblical name frequences has 1,977 rows and 218 columns. The square matrix $K\{t\}$ has 218 rows and the same number of columns (Fig. 30 (a), 30 (b)). For the square matrix of the parallel biblical passages, see Fig. 69. We have already described the results of the statistical investigation which led to the discovery of a series of new and earlier unknown Old and New Testament duplicates in our earlier publications. All of them are made manifest by the powerful repeated splashes in the averaged graphs of $K^{ij}_{\text{aver}}(t)$, i.e., the names first appearing in the chapter t_0 are then again found in certain subsequent chapter generations. We now concentrate our attention on one of the principal duplicate series of form T (see the GCD in Figs. 65 and 66, upper line), which are the chapter generations listed below. We also indicate in parentheses their corresponding fragments from the Old and New Testament, and their spelling in terms of the standard division into books, usual chapters and verses. Thus, T: Chapter generation 1 (Genesis 1–3), T:15 (Genesis 6–8), T:49 (Genesis 11:1–9), T:60 (Genesis 12), T:73 (Genesis 39–50), T:74 (Exodus), T:97 (Book of Judges 19–21), T:98–102 (Ruth, First and second Books of Samuel, First Book of Kings 1–11), T:137 (Second Book of Kings 24), T:138–140 (First Book of the Chronicles and Second Book of the Chronicles 1–9), T:165–167 (Second Book of the Chronicles 34–36). Finally, the duplicates of the T series are the following chapter generations: 1, 15, 49, 60, 73, 74, 97, 98–102, 137, 138–140, 165–167. All of them are so explicit that they show themselves also upon applying other duplicate recognition methods.

6.2. The mean age of all old historical names and the frequency-damping principle for the matrix columns

We now give the results obtained on repeatedly investigating the same name frequency matrix, but from a somewhat different point of view. We mean the same repeated splashes of the graphs of $K(t_0, t)$, but which are manifest if we apply a somewhat different method for the matrix investigation, realized by G. Nosovsky on a computer. Consider the sequence of chapter generations $X(t)$, where t ranges from 1 to $n = 218$ in the case of the Old and New Testament. Fix t, and consider its corresponding chapter $X(t)$. Consider the rectangular name matrix and its companion square matrix $K\{t\}$. Then all the names mentioned in $X(t)$ are distributed in the column t in the rectangular and square matrices. We call the number of chapter generations separating the name from the moment it appeared in the chapter $X(t)$ for the first time its age. The age of the name placed in the intersection of the row t_0 and column t, i.e., in block $K(t_0, t)$, equals $t - t_0$, or the distance from $K(t_0,\ t)$

along the horizontal to the principal diagonal axis. We denote a name by e, and its age by $c(e)$. Count the age of each name from $X(t)$, and the average age of all names in it. We distinguish the following two cases.

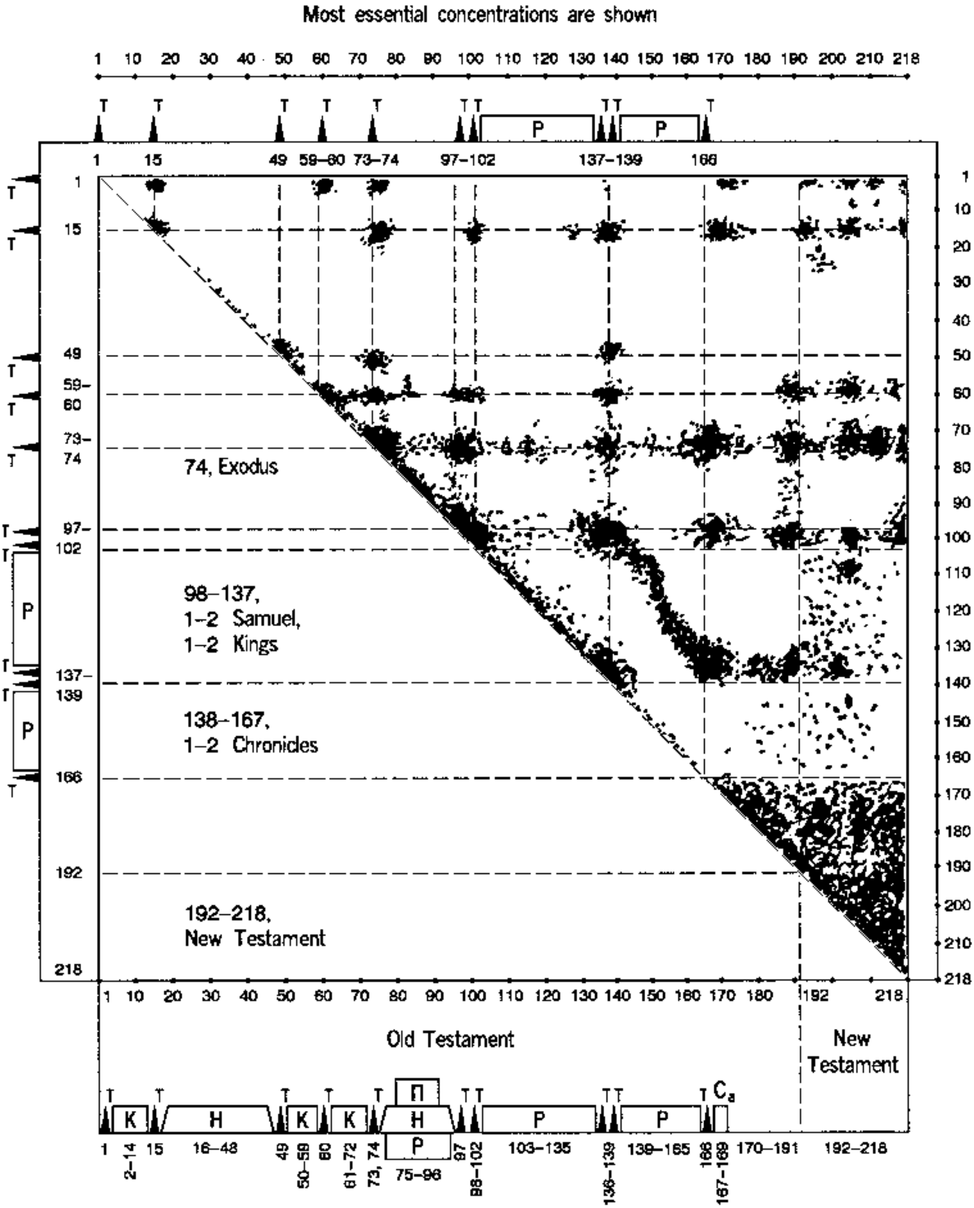

Figure 69. Square matrix for biblical parallel passages. Duplicate system in the Old and New Testament

(1) Single out in $X(t)$ all the names whose age $c(e)$ is greater than zero. In other words, we do not take into account the new ones, appearing in this chapter for the first time. It is clear that all new names are of age zero, since $c(e) = t - t = 0$; here $t = t_0$. Calculate now the mean age of all old names, i.e., of positive age, mentioned in $X(t)$. Denote the obtained value by $c(t)$. It is clear that

$$c(t) = \frac{\sum_{t_0=1}^{t-1} (t - t_0) K(t_0, t)}{\sum_{t_0=1}^{t-1} K(t_0, t)}.$$

(2) Consider all the names mentioned in $X(t)$, i.e., both old and new names of non-negative age. In other words, we consider now the names of non-negative age, $c(e) \geqslant 0$. Let us find the mean age $a(t)$ of all names in $X(t)$. It is obvious that

$$a(t) = \frac{\sum_{t_0=1}^{t} (t - t_0) K(t_0, t)}{\sum_{t_0=1}^{t} K(t_0, t)},$$

where $\sum_{t_0=1}^{t} K(t_0, t)$ is the total number of all repeated names in $X(t)$. It is evident that $a(t) \leqslant c(t)$. The greater the mean age, the earlier the names mentioned in $X(t)$ appeared in the text X, and the more ancient they are. We formulate the following model, viz., for chapter generations ordered chronologically correctly, and with the absence of duplicates among them, the graph of $a(t)$ as well as of $c(t)$, where $1 \leqslant t \leqslant n$ must be of the approximate form shown in Fig. 70, where the mean age increases at the beginning of the text X, then the curve becomes stable, and, finally, an almost horizontal straight line.

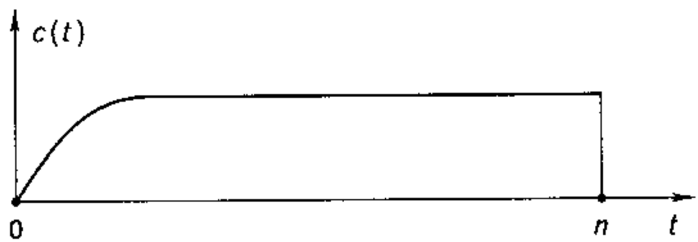

Figure 70. Mean age of all old names of positive age, mentioned in $X(t)$

In other words, the mean age $a(t)$ (and $c(t)$) must oscillate about some constant which is the same for all chapter generations, and, at any rate, bounded above by c. 100 years. It means that the bulk of names, with the exception of, possibly, certain rare ones whose number is extremely small, vanish after approximately the same number of generations. This model is, actually, a re-statement of the frequency-damping principle for the matrix columns; however, it can be advantageous in this form. That it is natural becomes clear if we recall that, for historical texts embracing a large time interval, the identity "complete name = personage" is valid in the overwhelming majority of cases. Hence, calculating for $X(t)$ the mean name age, we thereby compute that of the personages described. Since this is bounded above by, say, one hundred years, most of the names cannot be older than a century, too. Therefore, the number of anomalously old names in $X(t)$ should be negligibly small, compared with the bulk of the old ones. Generally, all the formulated laws are valid only for large totalities like collections of names, etc. Certainly, there will always be names of some famous historical figures who will be constantly mentioned, and form the anomalously old name set. However, as shown by computation, their percentage, or that of the historical figures, is negligibly small relative to the bulk of all used in the text; hence, we shall see that the appearance of a large number of anomalously old names is a weighty argument that we have discovered to be a duplicate.

6.3. Square matrix of biblical names and statistical duplicates in the Old and New Testament

The validity of the model was confirmed by processing the texts of ancient Russian chronicles written in the 15–16 cc. A.D., and those parts of the Old and New Testament, which do not contain any duplicates. Consider Case (1) above and analyze the old names. Indeed, counting the names of zero age allows us to construct the graph of $a(t)$, and makes the general experimental picture somewhat more blurred, because the variance is increased. The graph of $c(t)$ for the whole of the Old and New Testament is shown in Fig. 71. To get rid of small and random oscillations of the graph, we marked off the values $2[c(t)/2]$ ([ ] meaning the integer part of a real number) along the vertical. It can be clearly seen, e.g., that the graph of $2[c(t)/2]$ in a continuous line does oscillate around a certain constant value, the mean age for the fragment being made up of Chapters 70–86 without duplicates. The same is also valid for the one composed of Chapters 100–116. However, as soon as the experiment was extended to the entire sequence of chapters for the Old and New Testament, the repeated splashes indicating duplicates surfaced immediately. The graph of $c(t)$ for Chapters 1–218 is represented in a continuous black line whereas the dashed line indicates the variance (Fig. 71). The anomaly of the graph shows that the mean age does not at all oscillate about a constant value, but is subject to sharp "aging" anomalies in certain chapter groups. For now, we confine ourselves to the Old Testament. The series T chapter duplicates are denoted by black triangles. The maxima of the $2[c(t)/2]$ graph are associated just with them, i.e., the chapters are characterized by aging the names sharply, and by employing the anomalously old ones; those in which the graph forms splashes are especially interesting. Consider Chapters 15, 35 and 48 in which it exhibits well-expressed splashes. We observe not only the use of anomalously old names, but also the variance minimum, i.e., practically all the names mentioned there are anomalously old. Most probably, the chapters are duplicates repeatedly describing the events already discussed in the previous duplicates. For simplicity, we restricted ourselves only to the investigation of the series T duplicates. However, many other duplicates are contained in the Old and New Testament. Their distribution (and structure) is represented in the upper line of the GCD (Fig. 65). The graph of $2[c(t)/2]$ reveals these duplicates with its own sufficiently powerful splashes. The greatest of them, which are different from those of the T series, correspond to the other Old and New Testament duplicates (Fig. 71). Similar results are obtained also by investigating the graph of $a(t)$, which represents the mean age of all the names mentioned in $X(t)$. The qualitative behaviour of the graph of $a(t)$ is almost verbatim that of $c(t)$, though with a somewhat more blurred picture, because the inclusion of new names of zero age turns out to increase the variance. We now come back to the analysis of the principal graph of $c(t)$. No less interesting results are obtained if we analyze the second part of the graph which is related to the New Testament. On the one hand, we see here the sharp name aging and variance increase: Both graphs are on the increase. On the other hand, the aging of names of middle age makes explicit the following important law for whose description we distinguish a group A consisting of Chapters 1–137 (the historical part of the Old Testament), B of Chapters 138–191 (the last part of the Old Testament, made up of literary texts and books describing certain events from the end of period A), and C of Chapters 192–218 (the whole of the New Testament) (Fig. 71). The question arises: If the graph of $c(t)$ is known, then how shall we learn from which one most of the names used in a generation t originate? The answer is that we have to consider the value $c(t)$ at the point t, and mark it off toward the left, since $c(t)$ equals the mean age of the name from $X(t)$. In other words, we have to draw a line through $c(t)$ (on the vertical axis passing through t) at an angle of 45° until it meets the horizontal axis, i.e., construct an isosceles triangle (Fig. 72).

Let us apply this simple argument to the authentic graph of $c(t)$, constructed for the group B chapters (see above). It is seen to intersect the horizontal axis approximately between Chapters 99 and 137, i.e., the bulk of names used in Chapters 138–191 originates from Chapters 99–137. This result confirms the earlier-known availability of duplicates at the end of the group A. In fact, Chapters 138–191 consist of texts mainly depicting the events from the period already described in Chapters 99–137 in the First and Second Books of Samuel and the First and Second Books of Kings. This fact is generally known in traditional chronology. Thus, Chapters 138–167, i.e., the First and Second Books of the Chronicles, simply duplicate Chapters 99–137. Therefore, our duplicate-recognition method is effective, and indicates the earlier-known repeated descriptions in the sequence of chapter generations. However, we also obtain new statements. It can be clearly seen in Fig. 71 that all chapters of group C (Nos. 192–218) from the New Testament also mostly contain the old names approximately originating from Chapters 110–120. To see this, one has to construct the above isosceles 45° triangle again. This, probably, indicates that the events described in the New Testament duplicate certain of those described earlier in Chapters 110–120. What are they? On the one hand, they were described in the First Book of Samuel 19–22 and the Second Book of Samuel 1–7 as the period of kings: in particular, the overlapping makes Jesus coincident with the king Asa, which we discovered earlier by the method of dynastic parallels. On the other hand, the dynastic parallel discovered shows that earlier the same events were described

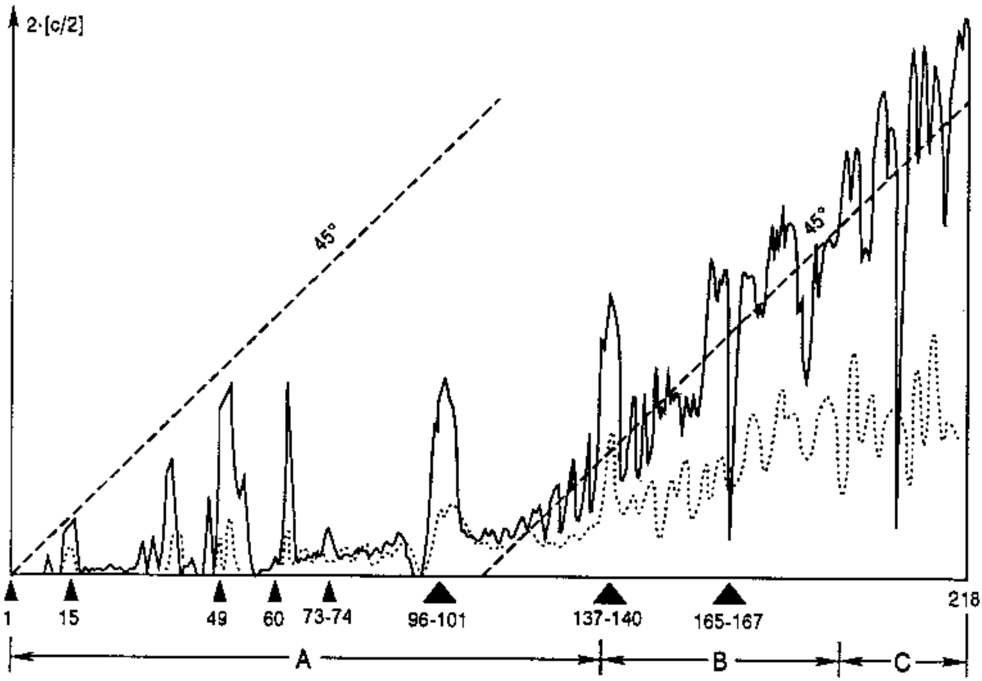

Figure 71. Average age graph of old biblical names (Old and New Testaments)

in medieval Roman chronicles and occurred c. 1010–1100 A.D. in the Holy Roman–German Empire in Italy.

In particular, it was exactly the time of Gregory VII Hildebrand (c. 1020–1085 A.D., pope in 1073–1085) overlapping with Jesus according to the enquête-codes. We indicate below the overlapping of the well-known lunar eclipse of A.D. 33 during the Crucifixion with that of 1075 A.D.

Recall also that it was, probably, with 1053 A.D. that the reckoning of years of the Christian era started, being directly related to the chronology and dating of the New Testament. Thus, we unexpectedly obtain a well-expressed agreement of several independent dating methods. Therefore, it is possible that the New Testament describes the events of the 11th c. A.D., and its principal character is Gregory VII Hildebrand. Meanwhile, John the Baptist overlaps with John Crescentius (985–998 A.D.), whereas Herod overlaps with emperor Otto III (983–1002 A.D.). All these datings obtained by the author differ by 700 years from those suggested in [13], and by 1,000 years from the traditional dates.

6.4. Matrix of parallel passages in the Old and New Testament

The matrix of parallel passages in the Old and New Testament developed by the author and V. P. Fomenko, T. G. Fomenko was subjected to a similar investigation

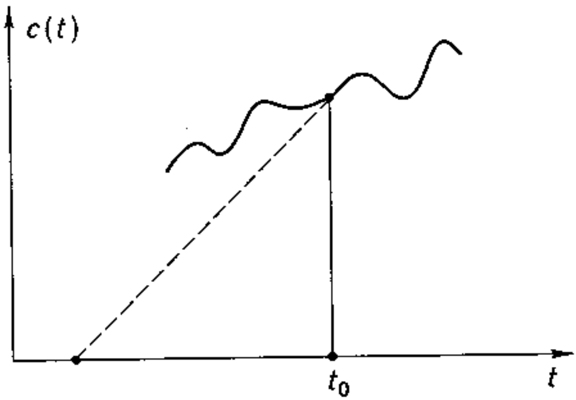

Figure 72. How shall we learn the generation from which most of the names used in a generation t_0 originate?

(Fig. 69). The total number of parallel passages amounts to several tens of thousands. We retained the partition of the whole text into 218 chapter generations, denoting the number of verses first appearing in the Bible in the chapter $X(t_0)$ by $\Pi(t_0, t_0)$. A verse is regarded as appearing for the first time if it is not parallel to any one of earlier origin. Suppose that the number of mentions of these verses in $X(t)$ is $\Pi(t_0, t)$, which, in other words, indicates the number of verses parallel to those in $X(t)$, first appearing in $X(t_0)$. As we have already stressed in earlier publications, the square matrix $\Pi\{t\}$ admits processing by the same method as $K\{t\}$, since, as was verified by the author, with the absence of duplicates and with chronologically correct ordering of the chapters, the matrix $\Pi\{t\}$ satisfied the frequency-damping principle both with respect to the rows and columns. As well as in the case of names, we introduce the concept of verse age and mean age in $X(t)$. Let $p(t)$ be the mean age of the old verses in $X(t)$, of positive age. Following the procedure described above, G. Nosovsky constructed the graph of $p(t)$ (see Figs. 73, 74).

Similarly to the case of names with the absence of duplicates and with correct ordering of chapter generations, the graph should have been oscillating around a certain mean value. However, this does not take place. The first half of the graph from Chapter 1 to Chapter 100 is of particularly great interest. The splashes of anomalously old verses are explicit. Moreover, they are characterized by zero variance for Chapters 1, 8 and 49. The duplicates of the series T are denoted by black triangles in Figs. 73, 74 (the remaining duplicates are not being considered in order to make the picture less complicated). The splashes near duplicates 15, 49, 73 and 74 are particularly well expressed. The picture gets more complicated afterwards, though duplicates 97–102, 137–140 and 165–167 (of the T series) also generate considerable splashes, whereas the remaining ones are associated with the other duplicates whose number is large (see the GCD in Figs. 65, 66).

Summarizing, we see that the analysis of the graphs for the mean ages of names and verses confirms that the Bible contains duplicates distributed as in the GCD,

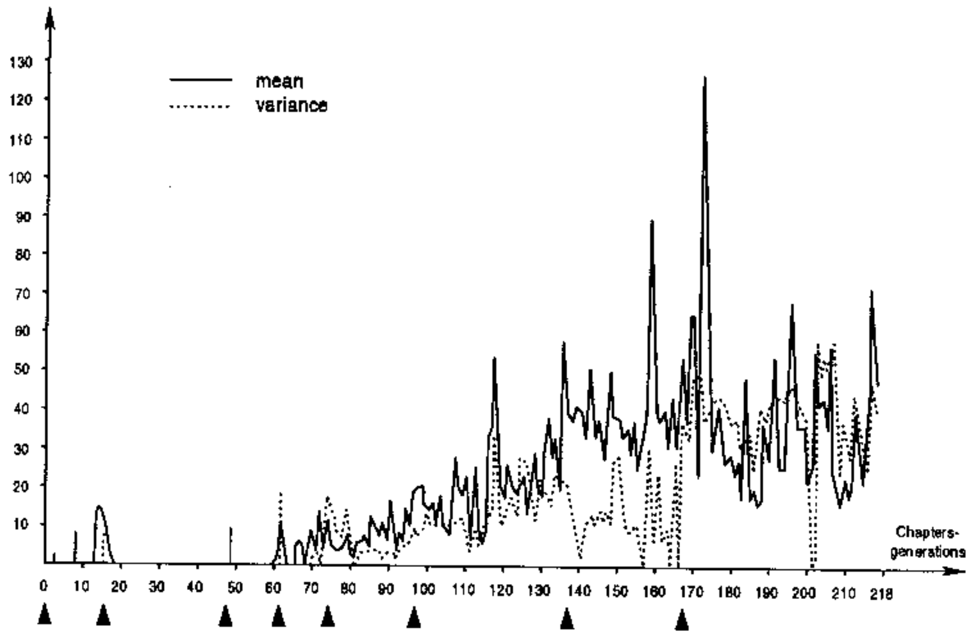

Figure 73. Mean and variance for parallel passages in biblical chapter generations

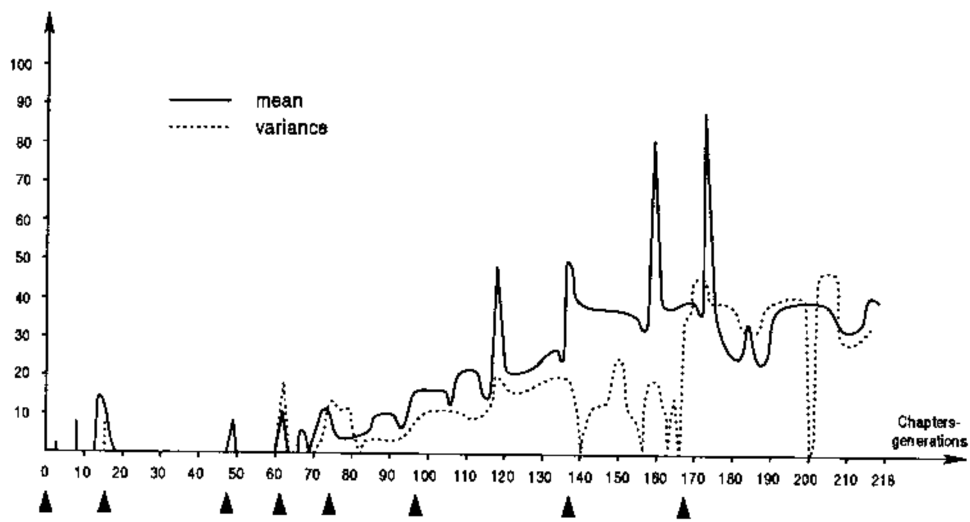

Figure 74. Smoothed graphs for mean and variance for parallel passages in biblical chapter generations

and texts, probably speaking of "the same events", but placed differently in the canon. It also indicates that, to restore the chronologically correct order of chapter generations, the chapters the Old and New Testament should be reshuffled by shifting them towards each other, i.e., both of these groups were, probably, created at the same, and not at different epochs as stated traditionally. The events described in the New Testament overlap with the epoch described in the First and Second Books of the Chronicles, and are, probably, those from the 11–13th cc. A.D. occurring in Italy during the epoch of the Holy Roman–German Empire. These corollaries are consistent with the results obtained by other dating methods, including astronomical methods [16], [19]–[22] (see Part 1).

In conclusion, we give an interesting modification of the described methods for duplicate recognition, worked out and computerized by G. Nosovsky. This argument is actually based on the above-mentioned frequency-damping principle.

6.5. Scatterings of related names in chronological lists. The relation matrix

1. Introduction. Here, we consider certain methods for verifying the conjecture that a particular chronology contains duplicates [21]. All of them are based on the study of personal names mentioned in historical sources. Certain ideas regarding the organization and use of the data of this type with the purpose of dating are due to the author ([21], [24]). We introduce the concepts of a narrative source divided into chapter generations, chronological list of rulers' names also divided into chapters, and square and rectangular name frequency matrices corresponding to a partition into chapters. Note that, eventually, the frequency-damping principle formulated by the author in [24] is the basis of the methods under consideration.

All the probabilistic models considered below are finite; thus, we use only classical probability theory.

The whole procedure was computerized by G. Nosovsky in the language PL/1. A certain standard technique for coding square and rectangular name matrices was chosen, so that the same programmes could be used for computations involving various data such as name or nationality lists, narrative sources, etc. We omit the particulars related to the computational side of the matter.

Items 2–9 regard the construction and study of the frequency histograms for related name scattering, and Items 10–16 deal with the construction and use of the name relation matrix in the chronological list of rulers. All the items consist of:

1. Introduction.

2. Name list. The structure of a list, the related probabilistic technique, definition of random variables ξ_1, ξ_2, ξ_3.

3. Basic assumptions about the list with correct and incorrect chronology, use of frequency histograms for related name scattering in order to determine the chronological shifts.

4. Form of histograms of the frequences of ξ_1; computation of the histograms of the frequencies of ξ_2 and ξ_3.

5. Results related to the lists Π of the names and H of nationalities of Roman popes.

6. Narrative source, its particulars and normalization.

7. Results related to the sets of biblical names and repetitions.

8. Other local conditions, random variables ξ_2^c, ξ_3^c. Distinguishing the system of shifts typical for the subset of the list duplicates.

9. The card deck problem.

10. Relation matrix: preliminaries.

11. Principal definitions. Assumptions about the structure of the correct chronological list.

12. Relation measure. Problem of separation of strong and weak relations (threshold choice). Matrix local maxima.

13. Frequency histograms for showing relations. Two additional relation measures leading to the same picture. Choice of thresholds.

14. Results related to the popes' list.

15. Results related to the Roman emperors' list.

16. Comparison with the decomposition of the GCD. Some remarks.

2. Name list of secular or church rulers. Consider first the chronological list of secular or church rulers. Normally, each ruler has several names. We will assume that all the names of a ruler are listed consecutively in the appropriate place on the list, and that there are no separation signs between the names of neighbouring personages (in time). Order the list with respect to the middle year of the rule interval, and denote it by $X = \{a_1, a_2, \ldots, a_N\}$. We assume a decomposition of the list X into chapters $X_1, X_2, , \ldots, X_n$ given. Denote by $I = \{u_1, u_2, \ldots, u_m\}$, $m \leqslant N$, the set of different names in X, and the name of the ith entry for X by $u(a_i)$, $u(a_i) \in I$.

Definition 1. We call the integer $\varrho(a_i, a_j) = |r - s|$ the *scattering of two list entries* $a_i, a_j \in X$, $a_i \in X_s$, $a_j \in X_r$.

Definition 2. We will say that two names $u_l, u_k \in I$ *are of the same age*, and denote the fact by $u_l \approx u_k$, if their first occurrences are in one chapter of X.

Definition 3. We will say that two names $u_l, u_k \in I$ are *conjugate*, and denote the fact by $u_l \sim u_k$, if there exists a chapter X_p in X, containing both.

If two entries a_i and a_j from a list X are conjugate (or of the same age) as two names from I, then we will also call them conjugate (resp. of the same age), and employ the corresponding notation.

Consider a finite stochastic model (Ω, Σ, P) of sampling with equal probability with replacement of two elements from X. Thus, $\Omega = X \times X$, $\Sigma = 2^\Omega$, $P(w) = 1/N^2$ for any $w \in \Omega$. We will denote the first selected element by $a_{(1)}$, and the second by $a_{(2)}$. Consider the scattering of the pair $a_{(1)}$, $a_{(2)}$,

$$\xi_1(w) = \varrho(a_{(1)}, a_{(2)}). \tag{1}$$

It is a random variable defined on Ω.

We will assume that the events $A = \{w: \ a_{(1)} \approx a_{(2)}\}$ and $B = \{w: \ a_{(1)} \sim a_{(2)}\}$ are non-zero, and $P(A) \neq 0$, $P(B) \neq 0$. Consider the conditional probabilities P_A and P_B on Ω, viz.,

$$P_A(C) = \frac{P(AC)}{P(A)}, \qquad P_B(C) = \frac{P(BC)}{P(B)}, \qquad \forall C \in \Sigma.$$

Denote by f_1, f_2 and f_3, respectively, the distributions of the random variable ξ_1 relative to the probabilities P, P_A and P_B, viz.,

$$f_1(k) = P(\xi_1 = k), \qquad f_2(k) = P_A(\xi_1 = k), \qquad f_3(k) = P_B(\xi_1 = k).$$

Let us consider the three random variables

$$\xi_1,\ \xi_2,\ \xi_3, \quad \xi_1(w) = \xi_2(w) = \xi_3(w),$$

which are defined on the three different probability spaces (Ω, Σ, P), (Ω, Σ, P_A) and (Ω, Σ, P_B) and have distributions f_1, f_2, and f_3, respectively.

In the sequel, we will also use the term "frequency histogram" for the distributions of random variables defined on a finite probability space.

In general, we will call the frequency histograms of random variables of type ξ_2 and ξ_3, i.e., the conditional distributions of the random variable ξ_1 on a certain "locally" determinated condition, the *related name scattering frequency histograms*, meaning the "relation" in the sense of this condition. We will call the histogram $f_1(k) = P(\xi_1 = k)$ simply a *name scattering frequency histogram.*

3. Correct and incorrect chronology in the name list. Frequency histograms. We now come to the investigation of the structure of the list X by comparing the distribution of the random variable ξ_1 with ξ_2 and ξ_3. In particular, the natural ideas of how the ruler's names should be arranged chronologically "correctly" lead us to the following statement.

(A) If the chronology of the name list is correct, then the condition $u_i \sim u_j$ (or $u_i \approx u_j$) imposed on the names u_i, u_j from I does not influence the details of the mutual disposition of u_i, u_j with respect to the whole of X.

It is clear that Statement (A) is closely related to the frequency-damping principle (see [24]): As a matter of fact, we assume that the "local" relations in the chronologically correct list must not lead to any global relations.

By means of ξ_1, ξ_2, ξ_3, (A) can be made more precise as follows:

(B) The random variables ξ_1, ξ_2, ξ_3 constructed from the chronologically correct list should be distributed similarly. In other words, the distribution of ξ_1 should not depend either on the event A or B.

Remark. It is clear that a certain divergence of the distribution of ξ_1 from ξ_2 (or ξ_3) will arise even in the case where (A) is valid, just because of the finiteness of the scheme. However, we consider here sufficiently long lists containing about 300 to 600 entries, and will neglect their finiteness.

Assume now that the chronological list X under investigation contains some duplicates, with the system $S_1, S_2, \ldots, S_m$ of the most frequent (typical) shifts among them. We do not suppose that X is divided into disjoint duplicate systems, for those from different groups may overlap (cf. the concept of "fibered chronicle" from [21]).

With this assumption, the distribution of the random variable ξ_1 is naturally dependent on the condition (event) A (and B). In fact, if two names u_i and u_j fell into a chapter X_l (or were "born" there), then we should also expect them to be found among the duplicates of X_l. Thus, the value of the scattering of any two entries in the list X containing them will more often be close to zero, and the shifts typical of the given duplicate system, than that of an arbitrary pair of names from I. Therefore, the histograms f_2 and f_3 will contain (in contrast with f_1) splashes near to the origin and the values of the shifts $S_1, S_2, \ldots, S_m$.

Consider the problem of the verification of (B). We shall see that the distribution of ξ_1 has the same form in all the cases. Consequently, the problem is given rise as to how to verify the hypothesis that the distribution of ξ_2 (ξ_3) is close to a certain given one. It is natural to make the problem more precise as follows.

Consider the histogram f_2 (or f_3) as the empirical distribution on the set $\{0, 1, 2, \ldots, n-1\}$, constructed from a finite sample from the parent population, and verify the hypothesis H_0 that the general distribution coincides with the given one on the set $\{0, 1, \ldots, n-1\}$. By the universe, we understand a probability space constructed from a certain unknown extension of the list in question. We take the number of chapters as invariable, and the chapter volume as increasing rapidly. Thus, we can include into the extended list the names of the relatives, courtiers, etc.; in the case of a narrative source, we enter all personages active in the country at that time. Hence, the parent population is constructed from all sorts of data both in preserved and lost sources. What was constructed from a known list can then be regarded as a finite sample from a very large, practically "infinite" population. This statement is rather general in the considered problems (see [18], where a similar situation arises). We assume that the available sample contains information just about the general distribution of the random variables considered in the above sense. In other words, any feasible way of selecting personages from a sufficiently long composite chronicle does not affect the distribution of the related name scatterings. In fact, this choice is always of "local" character, whereas the scattering distribution is a global characteristic, and stable under local perturbations.

4. *Computation of histograms for real historical texts.* It is easy to calculate that, in the case of a uniformly dense list $X = (a_1, a_2, \ldots, a_N)$ such that all the chapters X_i, $i = 1, 2, \ldots, n$, contain the same number p of entries, the histogram $f_1(j) = P(\xi_1 = j)$ linearly decreases on the set $j \in \{1, 2, \ldots, n-1\}$, $f_1(0) = 1/n$ and $f_1(j) = 0$ for $j < 0$ and $j \geqslant n$.

In fact, ξ_1 takes the value j in $2(n-j)p^2$ cases out of N^2 possible ($|\Omega| = N^2$), since there exist $n - j$ ways of fixing the chapter with the minor number; the chapter with the major number is fixed uniquely in accordance with the first one and number j, whereas the set of their name pairs with scattering j is of power p^2. The chapter with the minor number may appear at the first or at the second step of the sampling, that is why the coefficient 2 appears in the formulae. If $j = 0$, then both chapters coincide and so the coefficient 2 is absent. Thus,

$$f_1(j) = P(\xi_1 = j) = \frac{2(n-j)}{2N^2}\, p^2 = \frac{2(n-j)}{n^2}, \qquad 0 \leqslant j \leqslant n-1; \qquad f_1(0) = \frac{1}{n}.$$

In the sequel, we will always suppose that the list under consideration is dense sufficiently uniformly, i.e., the histogram $f_1(j)$ is linear with respect to j on the set $\{1, \ldots, n-1\}$. For example, computations show that this condition is mostly fulfilled to a very high accuracy for the lists of popes' names. In some cases, especially when we work with the name lists, extracted from historical texts, it is necessary to norm the inhomogeneous list in order to satisfy the mentioned condition.

We can determine the histogram $f_2(j) = P_A(\xi_2 = j)$ by means of the square name matrix $K_{n\times n}$ associated with the given list [24]. Therefore, the formula is valid:

$$f_2(j) = \begin{cases} \dfrac{2}{N^2}\displaystyle\sum_{i=1}^{n}\sum_{s=i}^{n-j} K(i,s+j)K(i,s), & 0 \leqslant j \leqslant n-1, \\ \dfrac{1}{N^2}\displaystyle\sum_{i=1}^{n}\sum_{s=1}^{n} K(i,s)^2, & j=0, \\ 0 & \text{otherwise,} \end{cases} \tag{2}$$

where $K(\cdot,\cdot)$ are the elements of $K_{n\times n}$.

Formula (2) follows directly from the definition of the random variable ξ_2 and $K(i,s)$ being the total of the multiple names from the set of those "born" in X_i, which get into the chapter X_s.

The square matrix is insufficient for the construction of f_3. Therefore, we have to resort to a rectangular name matrix supplying complete information regarding chapters of the list (see [21]).

5. *Histograms related to the name and nationality lists of Roman popes.* We now discuss the construction of the histograms f_1 and f_2, related to the lists Π and H of well-known popes and their nationalities from A.D. 50 (Peter) until the present day (see, e.g., [119]). Characteristically, the names or nationalities have no explicit succession in these lists. Accordingly, there are good grounds to believe that Statement (B) should be fulfilled if the above lists are chronologically correct. Note that if we do assume the existence of a succession, then a hypothetically correct chronology can only explain the splash near the origin on the histograms f_2 and f_3 (see Item 6).

We divided Π and H into 10-year long chapters, the lists' length being $N = 293$, the number of chapters $n = 190$, and that of the different names $k = 87$. We made use of the rectangular and square matrices constructed from Π and H by A. A. Makarov.

We found by direct computation that the histogram $f_1(j)$ for Π and H is, to a very high accuracy, a linear decreasing function for $j = 1, \ldots, n-1$. See the form of f_2 in Figs. 75, 76. On the abscissa, the values of the scatterings were recalculated into years.

It can be seen that f_2 for Π possesses a series of sharp splashes. According to the above argument, we can single out the following groups of shifts for f_2 and Π, viz.,

(i) by 40–50 and (doubling it) 80–100 years,

(ii) by 300 and 330–350 years,

(iii) the group of 11 consecutive shifts separated by *c.* 100 years by: 400, 480, 580, 670, 760, 850, 940, 1,050, 1,140, 1,230 years,

and

(iv) by 1,400 years.

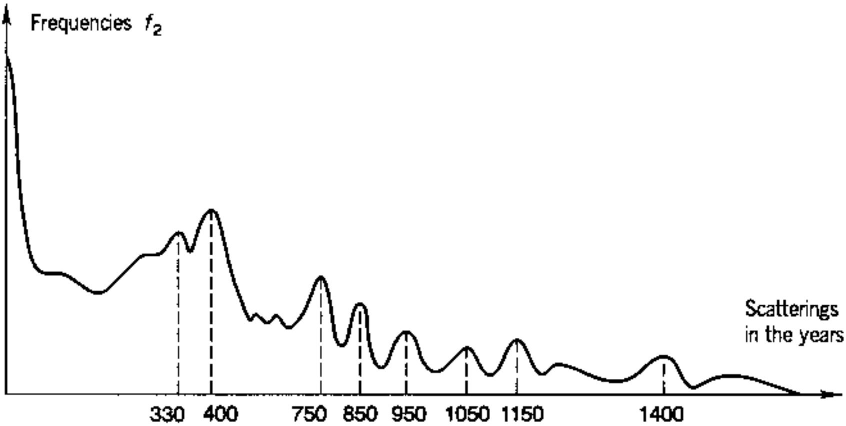

Figure 75. Frequency histogram for the list of names of Roman popes

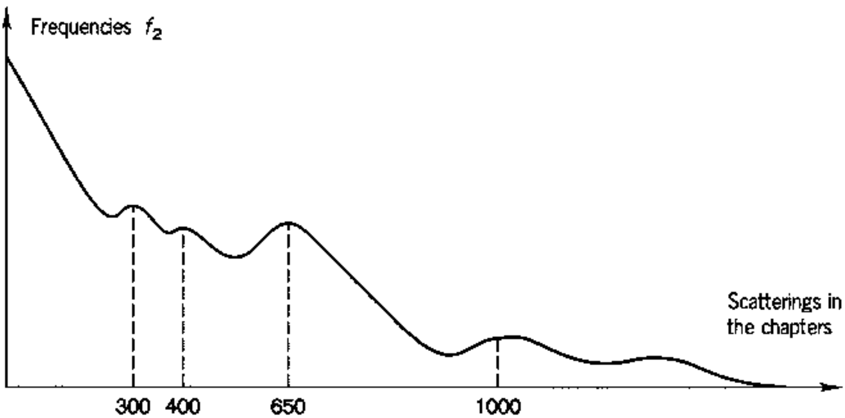

Figure 76. Frequency histogram for the list of nationalities of Roman popes

Besides, we observe an exceptionally sharp, four-fold splash near the origin. The shifts by 330, 400, 760, 850, 960, 1,050, 1,150 and 1,400 years are also explicit.

The histogram f_2 for H supplies much less information, and contains two sharp splashes about the origin and 600–640 years as well as two weaker ones around 330 and 450 years, which can probably be explained by the popes' nationalities having been determined in a doubtful manner. (See also Figs. 77, 78 and Item 8.)

6. Damping succession in a historical chronicle. Consider now a historical source separated into chapter generations $X_1, X_2, \ldots, X_n$. Select from each chapter all personal names with their multiplicities, and indicate their numbers. Note that we mean here personal and incomplete names, i.e., break each complete composite name into separate ones. We then obtain the same name collection divided into chapters as the one considered in Item 2. The related names and those of the same age, as well

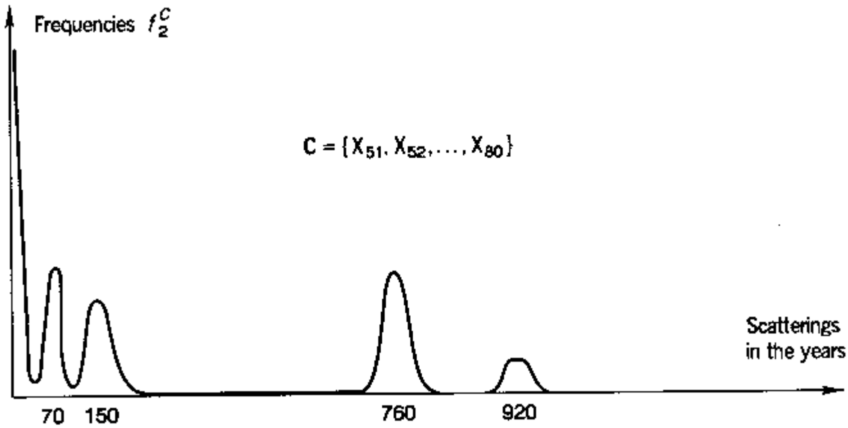

Figure 77. Special frequency histogram for the list of nationalities of Roman popes

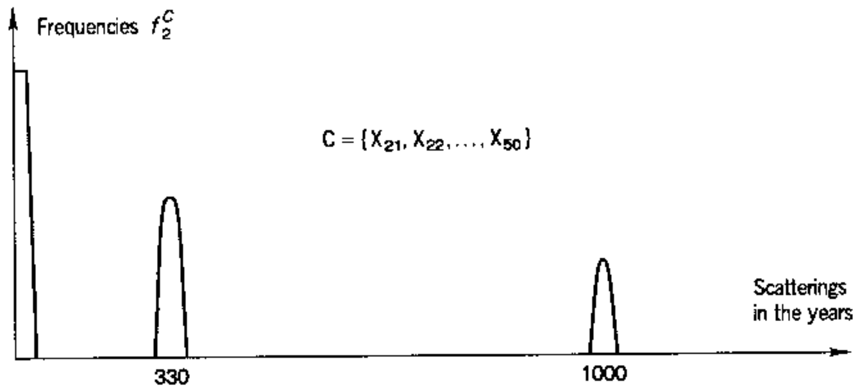

Figure 78. Special frequency histogram for the list of nationalities of Roman popes

as the random variables ξ_1, ξ_2, ξ_3 and their frequency histograms f_1, f_2, f_3, will be defined similarly. However, there exists in a historical source a natural dependence of the name set in X_i on that in $X_{i\pm l}$ (for small l). We call this dependence a *damping succession*.

The existence of a damping succession in a narrative source leads to the necessity of making Statement (A) precise, and altering (B). In fact, if two names u_i and u_j are in some chapter X_m, then even a local relation leads to a statistically strong relation, with u_i and u_j being repeatedly encountered in X_m and neighbouring chapters, which implies splashes near the origin on the frequency histograms f_2 and f_3. Therefore, for a narrative source, Statement (B) is replaced by the following.

(C) If the chronology of a source with damping succession is correct, and histogram $f_1(j) = P(\xi_1 = j)$ is linearly decreasing, then f_2 and f_3 should monotonically decrease at $0, 1, \ldots, n-1$.

To apply (C) to the problem of verification of the chronology of narrative sources, it is necessary that $f_1(j) = P(\xi_1 = j)$ be linearly decreasing, which is, however, incorrect in the general case. As a matter of fact, narrative sources often are composite, and their chapter volume is sharply non-uniform, of which the Bible is a good example. It is easy to see that the name scattering histogram f_1 will then have splashes at the values of the distances between detailed chapters with large numbers of names.

The study of scatterings between detailed source chapters may also be useful in determining the duplicate shifts. The biblical name histogram f_1 consists of a series of strong splashes, viz., 0, 420, 650, 1,050, 1,300 and 1,600–1,800 years. The recalculation into years was performed, assuming 17 years for one chapter generation.

To apply Statement (C) to a narrative source, we assume that the number of mentions of a person involved in a historical event is directly proportional to the length of a chronicle describing it. With this assumption in mind, we can norm the source by dividing the multiplicity of the name occurring in a chapter by the total number of the mentioned names. For simplicity, all fractions will be reduced to the least common denominator. We will speak of a normed source or a normed source matrix in the following, implying the above norming procedure.

It is clear that a normed source is uniformly dense relative to the chapters; consequently, the histogram f_1 is a linearly decreasing function (see Item 4).

7. *Results related to the lists of biblical names and parallel passages.* We now describe the results related to the normed lists B and M (see Item 6) of the biblical names and parallel passages, or repetitions [24] (for their separation into chapter generations, see [21]). Containing tens of thousands of elements and several thousand different names, they were divided into $n = 218$ chapters (see the form of the frequency histograms f_2 in Figs. 79, 80).

Both graphs possess sharp splashes in the interval $0 \leqslant j \leqslant n-1$. We indicate the

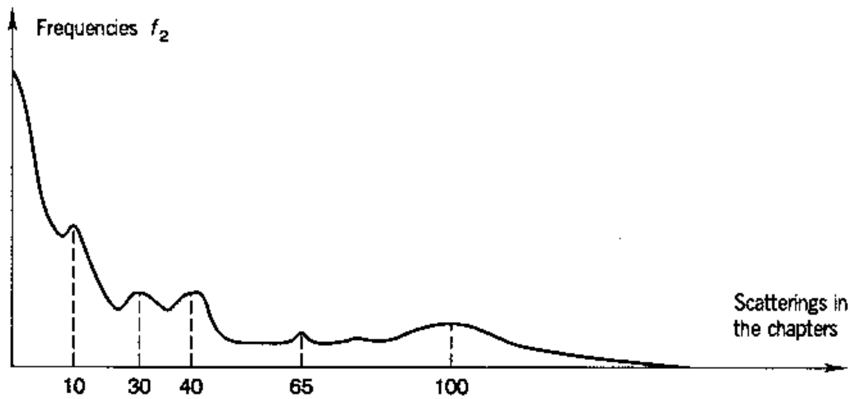

Figure 79. Frequency histogram for the list of biblical names

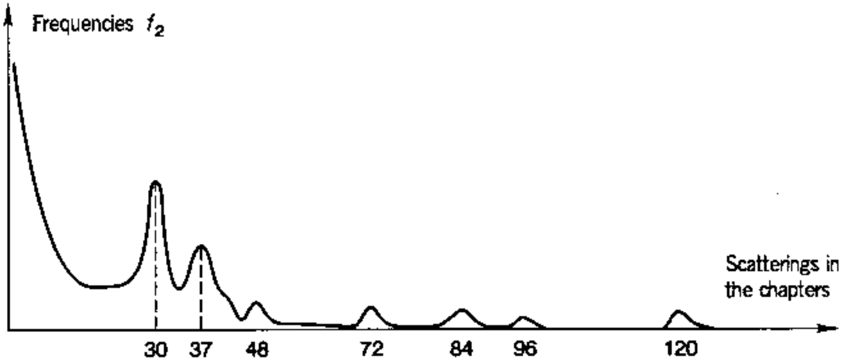

Figure 80. Frequency histogram for the list of parallel biblical passages

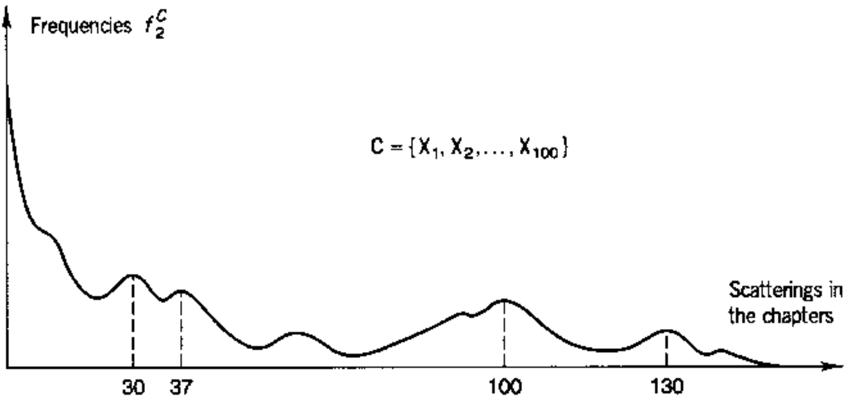

Figure 81. Special frequency histogram for the list of biblical names

values of scatterings in years and chapters–generations (in parentheses), assuming each is 17 years long.

We distinguish the following shifts, viz., 170(10), 330(19), 410(24), 500(29–32), 650–700(36–41), 1100(65), 1,250(73), 1,500–1,700(92–102) in B and 500(30), 650(37), 1,250(72), 1,550(96), 2,000(120) in M, the first two being the strongest.

Their values in years were found indirectly by recomputing the generations, and are, therefore, less exact than for the lists, e.g., of the popes, with a natural annual scale (see also Figs. 81, 82, 83 and Item 8). See also Figs. 91, 92 in Appendix 1.

8. Chronological shifts between the duplicates in chronologically incorrect chronicles. We have already stressed in Item 3 that the basic Statement (A) means that local relations must not lead to global ones in a chronologically correct list. There, we considered two local conditions for name pairs. Now we present additional examples of local conditions.

Take the probabilistic scheme from Item 2. Let C be a certain subset of the list

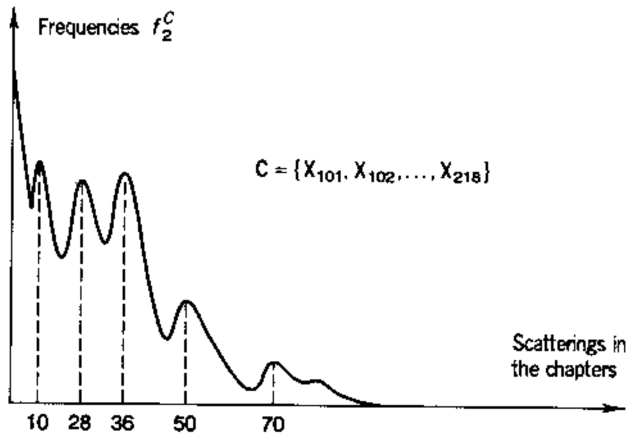

Figure 82. Special frequency histogram for the list of biblical names

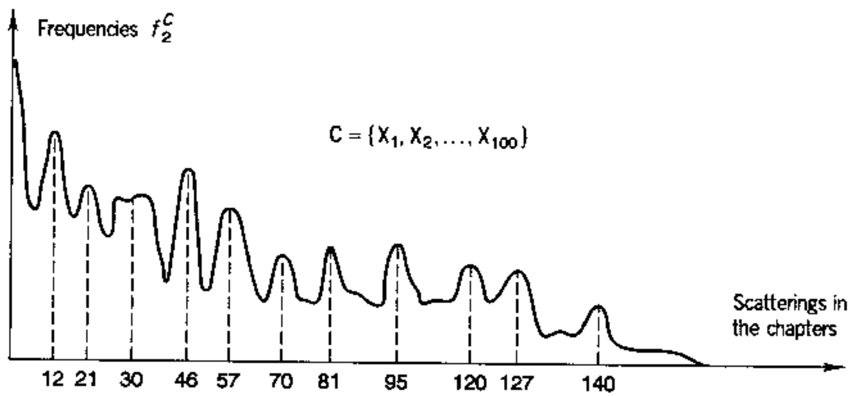

Figure 83. Special frequency histogram for the list of biblical passages

of chapters, viz., $C = \{X_{i_1}, \ldots, X_{i_l}\}$. We will say that two names u_i, u_j from C are *of the same age* ($u_i \overset{C}{\approx} u_j$) if they were "born" in one of its chapters. We will call u_i and u_j *conjugate* in C ($u_i \overset{C}{\sim} u_j$) if they were mentioned in one of its chapters, and write $a_i \overset{C}{\approx} a_j$, or $a_i \overset{C}{\sim} a_j$, if the corresponding relation is valid for the two entries in X as name from I.

Defining the events $A_C = \{\omega : a_{(1)} \overset{C}{\approx} a_{(2)}\}$, $B_C = \{\omega : a_{(1)} \overset{C}{\sim} a_{(2)}\}$, $\omega = (a_{(1)}, a_{(2)})$, we consider the frequency histograms for the names related in C as in Item 2, viz.,

$$f_2^C(j) = P_{A_C}(\xi_1 = j) = P(\xi_2^C = j),$$
$$f_3^C(j) = P_{B_C}(\xi_1 = j) = P(\xi_3^C = j),$$

where the random variables ξ_2 and ξ_3 are defined on the probability spaces $(\Omega, \Sigma, P_{A_C})$ and $(\Omega, \Sigma, P_{B_C})$, respectively,

$$\xi_1(\omega) = \xi_2^C(\omega) = \xi_3^C(\omega), \qquad \omega \in \Omega.$$

By means of f_2^C, f_3^C, f_2 and f_3, we can also determine the shifts between the duplicates in chronologically incorrect lists. However, those determined by the system of chapter duplicates in C can be found from f_2^C and f_3^C with the help of the machinery described in Item 3, whereas the duplicates themselves may not belong to C. Investigating f_2^C or f_3^C for different C, we can study the shift structure in more detail (certain examples of f_2^C for list II of the popes, list H of their nationalities, list B of biblical names and list M of parallel biblical passages are shown in Figs. 77–78, 81–83).

9. The card-deck problem and chronology. Here, we discuss the problem modelling the mechanism of how incorrect chronology is formed by giving the example of card shuffling. Nothing prevents us from assuming that a deck is shuffled in the same manner as the duplicates in chronologically incorrect lists. Note that the problem is not well posed but only restates the initial one in simpler terms, and is the principal basis for working out the methods under consideration.

Suppose there were originally several decks of cards, identical in composition and (unknown) order P_0. Assume that the cards were then put in one large deck F and shuffled, obtaining a new order P_1. Suppose that the "traces" of the initial order P_0 are retained in F, i.e., the shuffling is "incomplete", and that the number of the original decks (and their volumes) is unknown, only assuming it to be considerably less than the volumes. How can we learn for a certain P_0 whether or not the deck F with order P_1 was obtained by the same method, and what the initial order P_0 was?

The natural approach is the search of similar pieces in F. The more similar pieces are found, the more assuredly we can assert that a particular piece preserves the influence of P_0. Thus, we can attempt to restore P_0 piecewise. Besides, by investigating in F the mutual disposition of similar pieces, we can determine whether or not the order P_1 is obtained, on the basis of inserting several decks with order P_0 that are somehow shifted relative to each other, as is always done in shuffling, and also find the shift values. We should, therefore, construct the frequency histogram for the "distances" between the similar pieces and see if there are *typical* ones. If such values are there, and the histogram does possess sharp splashes, then they can be naturally regarded as the shifts between the portions influenced by P_0.

The simplest piece is two consecutive cards. If F was, in fact, obtained by means of the described mechanism, then we can expect a considerable number of nearby cards in the final deck to be neighbouring also in the original ones. Therefore, the frequency histogram for scatterings between the cards which were placed side by side in F should at least once make splashes around the values of the typical shifts between the "duplicates".

An argument of this sort leads to the study of the frequency histograms for names related in chronological lists. Similarly, we can also model the methods considered below.

10. Relation matrix: preliminaries. We now turn to the relation matrix constructed from a given chronological list. We will employ the notation from Item 2.

By means of the frequency histograms of related names in Items 2–9, we verified the hypothesis about the existence of duplicates in a chronological list, and determined the values of typical shifts among them, but did not find exactly which parts of the list were duplicates. Recall that, in accordance with the concept of a fibered chronicle, two parts of a list are regarded as duplicates if they contain fibers repeating each other [11], [12], [21].

We now turn to the card-deck problem. We call two parts of the final deck F *duplicates* if they contain cards numbered identically or similarly before shuffling the original deck. Thus, parts Δ_1 and Δ_2 of F are regarded to be duplicates if they contain the subsets $A \subset \Delta_1$ and $B \subset \Delta_2$ such that the cards from A and B were originally among the copies of the same sufficiently small, connected piece Δ of the original deck. Note that Δ_1 and Δ_2 may contain no identical cards at all, since it is possible that $A \cap B = \varnothing$. However, in shuffling incompletely, there must be copies of Δ, distributed in F with certain cards from A and B not far from each other, which means, in the case where Δ_1 and Δ_2 contain fragments resulting from the common inverse image of Δ, that the probability increases of two cards from Δ_1 and Δ_2, respectively, being close somewhere in F. This fact can be used for making the concept of "similarity" of pieces in F more precise, and for introducing a relation measure for them on the basis of the quantity of such card interaction.

We now carry out a detailed investigation into long chronological lists. Let there be a list X which may contain errors, omissions and/or duplicates. We denote by Y an unknown original list on which X is based. Thus, Y is an imaginary list containing complete data of a certain sort (say, about the names of rulers) for a long historical time interval T_Y. Let T_Y be described by a number of chroniclers, each making his own short list Z for the contemporary events. Denote by $\{Z_i\}$ the set of these, forming a certain covering of Y, assumed to be sufficiently dense (with large multiplicity), and containing somehow dispersed and, possibly, erroneous pieces, with each of the Z_i mentioning neither all the ruler's names nor all of the personages; besides, errors and gaps could occur in rewriting and compiling, which we will assume, for simplicity, to be intrinsic to Z_i from the beginning.

In creating chronology in its contemporary form, the result was a certain new gluing of Z_i, and the known list X obtained. Consider two intervals Δ_1 and Δ_2 in X. Let us try to determine whether or not there is a pair Z_i, Z_j in X, which would be related to one period in Y, and glued to Δ_1 and Δ_2, respectively. As in the example with the cards, we conclude that if there is such a pair, then the probability increases that the names from Δ_1 and Δ_2 will be close somewhere in X, on account of a third, "gluing" chronicle Z_s (see the detailed mathematical treatment in [316]).

11. Principal definitions. Assumptions about the structure of a correct chronological text. For now, we neglect the partition of a list into chapters. In contrast to the problem of determining the shift values, to construct the relation matrix, the time scale was not used in the list. After constructing the matrix, we again make use of it in the analysis of the results.

To define the concepts of *piece* of a list and *proximity* in a list, we introduce the following definitions.

Definition 4. We call the set

$$\Delta_i(k) = \{a_{i-k}, \ldots, a_{i+k}\}, \qquad k < i < N - k,$$

the *determining neighbourhood* of radius k for the ith entry a_i of the list $X = \{a_1, \ldots, a_N\}$. We also call $2k+1$ the *length of the determining neighbourhood* and do not introduce the concept for the extreme terms. We denote $\Delta_i(k)$ or simply Δ_i, and sometimes omit the term "determining".

Definition 5. We call the number $l_0(u_i, u_j)$ of pairs (a_s, a_r), $u(a_s) = u_i$, $u(a_r) = u_j$ of non-coincident entries of the list X, such that $|s - r| < p$, the *non-normed relation* of two names u_i and u_j. We also call the natural number p the *length of the relating neighbourhood*.

Parameters k and p were chosen in accordance with the list. Note that the general form of the relation matrix was invariable for all the considered values of k and p, $1 \leqslant k \leqslant 7$, $3 \leqslant p \leqslant 17$, in all the above examples, so that this choice did not influence the result itself (decomposition of the list into a duplicate system), but only its precision.

The non-normed relation $l_0(u_i, u_j)$ is inconvenient, because it does not take into account sharp differences in the multiplicities of the names from I, which are characteristic in the examples in question. Meanwhile, a pair of frequent names should naturally be at a close distance in X more often than a pair of rarer ones. To eliminate the influence of the multiplicity of names on their relation, we introduce the following definition.

Definition 6. Let two names $u_i, u_j \in I$ be in a list X with multiplicities k_i and k_j, respectively. We call the number

$$l(u_i, u_j) = \begin{cases} l_0(u_i, u_j)/(2k_i \times k_j) & \text{for} \quad i \neq j, \\ l_0(u_i, u_j)/(k_i(k_i - 1)) & \text{for} \quad i = j, \ k_i > 1 \end{cases}$$

the (*normed*) *relation* of a pair of the names u_i and u_j.

By definition, we put $l(a_r, a_s) = l(u(a_r), u(a_s))$ for $a_r, a_s \in X$. We chose the norming procedure in Definition 6, so that, assuming that for the given name set $I = \{u_1, \ldots, u_m\}$ with multiplicities $k_1, k_2, \ldots, k_m$, all permutations in the correct list X may be equally probable, (in other words the names in the chronologically correct list may be distributed at random, and the knowledge of only the name set with multiplicities does not supply any information regarding the particulars of their position in the list), and the relation of two names in X may be a random variable with mean not depending on the choice of a name pair. This (general) mean will be called mean with respect to the permutations in contrast with the empirical mean with respect to the matrix. This assumption is confirmed indirectly by the coincidence (in the correct lists) of the theoretically general mean α calculated by formula (3), with the empirical mean with respect to the matrix, whereas for the lists with duplicates, as had to be expected, the mean relation with the matrix is slightly greater than α. Note that the said assumption does not influence the qualitative form of the results. In particular, the basic features of the essential relation matrix are also preserved in using the non-normed values of the relation.

Denote the relation name mean with respect to the permutations by

$$\alpha = Ml(u_i, u_j) = Ml_0(u_i, u_j)/c(k_i, k_j) \tag{3}$$

for any pair (i, j), except for the case where $i = j$ and u_i is a unique name in the list (we do not consider such pairs). We also assume with respect to X that the multiplicity of any name in it is much less than its length $|X| = N$.

Fix the length p, $p \ll N$, of the relating neighbourhood. We may then calculate that, with the said assumptions, the mean non-normed relation $l_0(u_i, u_j)$ of the pair of names u_i and u_j with multiplicities k_i and k_j, respectively, is proportional to

$$c(k_i, k_j) = \begin{cases} 2k_i \times k_j, & i \neq j, \\ k_i(k_i - 1), & i = j. \end{cases} \tag{4}$$

By definition, we put $c(a_r, a_s) = c(k_i, k_j)$, $u(a_r) = u_i$, $u(a_s) = u_j$, for $a_r, a_s \in X$. Here, we discuss the calculation of the mean $Ml_0(u_i, u_j)$ for the case $i \neq j$.

We can represent the scheme of equally likely permutations of names in X as the result of the consecutive placing of N names in N positions in the list, each name occupying one of the remaining vacant places with the same probability. Meanwhile, their turn to be placed can be chosen arbitrarily but must be fixed a'priori. We will assume that,before placing k_j of copies of a name u_j, all k_i of the copies of u_i have already been placed. By assumption, $k_i, k_j,\ p \ll N$; therefore, we will neglect the number of cases where two copies of u_i turned out to be nearby at a distance of less than p in the list X, compared with the total number of methods of placing k_i. We now represent the placing of k_j of the copies of u_j as a Bernoulli test sequence, and regard the trial as a success if it gets into a relating neighbourhood along with one of the copies of u_i already placed. Then $l_0(u_i, u_j)$ equals the number of successes, and the probability of a success in one trial is proportional to k_i, whereas the number of trials equals k_j; therefore the mean number of successes is proportional to $k_i \times k_j$. The case $i = j$ is considered similarly. Thus, the mean $Ml(u_i, u_j)$ does not depend on the pair (u_i, u_j) except if $u_i = u_j$ is a unique name in the list.

12. Relation measure. The problem of separation of strong and weak relations in a chronicle. In accordance with the assumptions of Item 10 regarding the duplicate appearance mechanism, we introduce a relation measure for two determining neighbourhoods $\Delta_r(k)$ and $\Delta_s(k)$, $k < r \leqslant s < N - k$, in the list X, viz.,

$$L_0(\Delta_r(k), \Delta_s(k)) = \frac{c}{(2k+1)^2} \sum_{i=r-k}^{r+k} \sum_{j=s-k}^{s+k} l(a_i, a_j), \tag{5}$$

where c is a certain convenient constant.

Definition 7. The number $L_0(\Delta_r(k), \Delta_s(k))$ is called the *relation of two neighbourhoods* $\Delta_r(k)$ and $\Delta_s(k)$ in the list X.

If X contains no duplicates, and the assumptions of Item 11 are valid, then as seen from (5), the mean value of the relation $L_0(\Delta_r, \Delta_s)$ does not depend on Δ_r and Δ_s, and equals $c \cdot \alpha$, where c and α were defined in (3) and (4). Here, we imply the mean with respect to the permutations where r and s are fixed.

Let us see how the value of the relation of the neighbourhoods Δ_r and Δ_s alters on account of their common duplicates. The following definition is introduced to make precise how much the relation increases because of one of their common "complete" duplicates in X, i.e., such a connected piece in X which is not longer than the relating neighbourhood, containing one copy of each name from Δ_r and Δ_s (taking the multiplicities into account). If we represent Δ_r and Δ_s as two chronicles having a common inverse image from Y, then the complete duplicate is the complete chronicle combining the names of these two.

Definition 8. We call the number

$$E_0\big(\Delta_r(k), \Delta_s(k)\big) = \frac{c}{(2k+1)^2} \sum_{i=r-k}^{r+k} \sum_{j=s-k}^{s+k} \frac{1-\delta_{ij}}{c(a_i, a_j)},$$

where $\delta_{ij} = 1$ if $i = j$, and $= 0$ otherwise, and $c(a_i, a_j)$ was defined in (4), c is the multiplier from (5), *the proper relations unit for two defining neighbourhoods.*

Let X contain duplicates. We call two determining neighbourhoods *independent* if they have no common duplicates and are non-intersecting in X. We call the remaining neighbourhood pairs *dependent*. We assume for simplicity that there are few duplicates, so that the relation between two independent neighbourhoods is similar to the correct list.

Consider the three followings cases, viz.:

(1) The neighbourhoods Δ_r and Δ_s are independent. Then the mean value of their relation equals $c \cdot \alpha$.

(2) The neighbourhoods Δ_r and Δ_s coincide, with Δ_r having no duplicates. The mean value of the relation in this case equals $c\alpha + E_0(\Delta_r, \Delta_s)$, and the neighbourhood is its complete duplicate.

(3) Two non-intersecting neighbourhoods Δ_r and Δ_s in X possess j common complete duplicates. The mean value of their relation is then equal to $c\alpha + j \cdot E_0(\Delta_r, \Delta_s)$.

We have to separate cases (1) and (3), for which we shall try to find the optimal radius of the determining neighbourhood (radius k). Note that, by increasing k we decrease the scattering with respect to α (the variance of the relation L_0), which increases the precision of the separation. However, for too large k, the duplicate completion degree lessens, thus leading to actually decreasing the factor j in (3). The value of k must not exceed the typical length of the elementary chronicle Z_i (see Item 10). The optimal value is chosen from experience.

Remark. Since the system $\{\Delta_{k+1}, \Delta_{k+2}, \dots, \Delta_{N-k-1}\}$ is that of "current" neighbourhoods in the list X, less pure neighbourhood duplicates than the "precise" one are neighbouring to it. To distinguish the most complete duplicates, we will only retain local maxima in the relation matrix $a_{rs} = L_0(\Delta_r, \Delta_s)$ and consider the relation $L_0(\Delta_r, \Delta_s)$ only in the case when $L_0(\Delta_r, \Delta_s) \geqslant L_0(\Delta_r, \Delta_{s-1}) - \varepsilon$, and $L_0(\Delta_r, \Delta_s) \geqslant L_0(\Delta_r, \Delta_{s+1}) - \varepsilon$, or else it is replaced by zero. This remark does not concern the construction of the frequency histograms (see below). The value of ε was chosen to be equal to the length of the interval to be divided in constructing the frequency histogram (see Item 13).

Before turning our attention to the results, we describe certain statistical particularities discovered in the above example, and consider a qualitative method for determining the thresholds for separating cases (1) and (3). Note that all the qualitative arguments and the subsequent items are confirmed a posteriori, because they lead to a more precise picture of the distribution of the essential relations with respect to the matrix. However, general characteristics of relation matrix are stable under the threshold value oscillations, parameters k and p (i.e., lengths of the determining and connecting neighbourhoods), and also certain changes in the definition of the relation (see Item 13).

13. Frequency histograms for the appearance of relations. The choice of thresholds. Below, in constructing certain frequency histograms for the appearance of relations in a matrix, we shall have to break the interval where the relation is measured into equal disjoint segments. We will simply assume that the value of the relation is replaced by its integral parts (on account of the choice of the factor c in (5), we can reduce the general case to the above).

We now study how the relation between two neighbourhoods in X and the number of common names are connected. By definition, the number of common names (taken with multiplicities) of neighbourhoods Δ_r and Δ_s is the number of pairs from $\Delta_r \times \Delta_s$ such that they contain indentical names, viz.,

$$O(\Delta_r(k), \Delta_s(k)) = \sum_{i=r-k}^{r+k} \sum_{j=s-k}^{s+k} \delta_{a_i,a_j}; \qquad \delta_{a_i,a_j} = \begin{cases} 1, & u(a_i) = u(a_j), \\ 0 & \text{otherwise.} \end{cases}$$

We denote by Π the list of the names of Roman popes, and by N the list of the names of Roman emperors.

It turns out that, provided that $O(\Delta_r, \Delta_s)$ is fixed, the frequency histograms $L_0(\Delta_r, \Delta_s)$ with respect to the matrix for Π and N indicate that the dependence of $L_0(\Delta_r, \Delta_s)$ and $O(\Delta_r, \Delta_s)$ is expressed in explicit terms, viz., as the number of common names increases, the relation increases, too (in the statistical sense). It may seem that the relation L_0 increases directly on account of the common names, since the mechanisms leading to such an increase do exist. However, this is not so. For a demonstration, we introduce two additional relation measures. Consider a neighbourhood pair $\Delta_r(k)$ and $\Delta_s(k)$, then

$\Delta_r \supset \Delta'_r = \{$ set of entries of Δ_r with different names$\}$,

$\Delta_s \supset \Delta'_s = \{$ set of entries of Δ_s with different names$\}$,

$\Delta'_r \supset \Delta''_{r,s} = \{$ set of entries of Δ'_r whose names do not coincide with those from $\Delta'_s\}$.

Thus, the neighbourhoods Δ'_r and Δ'_s contain one representative of each name; besides, Δ'_s and $\Delta''_{r,s}$ contain no common names. Denote the length (number of terms) of a neighbourhood by $|\cdot|$. By definition, we put

$$L_1(\Delta_r, \Delta_s) = \frac{c}{|\Delta'_r| \times |\Delta'_s|} \sum_{a\in\Delta'_r,\ b\in\Delta'_s} l(a, b), \tag{6}$$

$$L_2(\Delta_r, \Delta_s) = \frac{c}{|\Delta''_{r,s}| \times |\Delta'_s|} \sum_{a\in\Delta''_{r,s};\ b\in\Delta'_s} l(a, b) \tag{7}$$

(it is easy to verify that $L_2(\Delta_r, \Delta_s) = L_2(\Delta_s, \Delta_r)$).

The quantity $L_2(\Delta_r, \Delta_s)$ is in no way related to the common names in Δ_r and Δ_s; they are not involved in its definition. However, the conditional frequency histograms for $L_2(\Delta_r, \Delta_s)$ for the lists Π and N calculated with the fixed value of $O(\Delta_r, \Delta_s)$ show that the dependence of L_2 on $O(\Delta_r, \Delta_s)$ is the same as that of L_0 on $O(\Delta_r, \Delta_s)$. The same is valid for $L_1(\Delta_r, \Delta_s)$, which signifies that a certain common factor leading to their statistical dependence is at the foundation of two outwardly unrelated quantities $L_2(\Delta_r, \Delta_s)$ and $O(\Delta_r, \Delta_s)$. It is clear that the availability of common duplicates is a factor of this kind. Hence, the discovered dependence speaks for the hypothesis regarding the existence of duplicates in Π and N.

The relation matrices for Π and N constructed by means of L_0, L_1 or L_2, respectively, turned out to lead to the same conclusion, i.e., to distinguish the same duplicate systems. Therefore, we shall sometimes simply write $L(\Delta_r, \Delta_s)$, meaning one of their three relations L_0, L_1 or L_2.

Note the difference between the relation matrices constructed by means of $L(\Delta_r, \Delta_s)$ and that derived from the common names for Π and N, viz., that the former yield a more complete and "purer" picture. In particular, if the value of $O(\Delta_r, \Delta_s)$ is large, then, as a rule, $L(\Delta_r, \Delta_s)$ is large; however, the converse is not valid.

The thresholds separating strong relations (which should lead to the conclusion regarding the dependence of neighbourhoods) from the weak ones (the conclusion being that the neighbourhoods are independent) were chosen in accordance with the magnitude of $O(\Delta_r, \Delta_s)$ as follows: the relation conditional frequency histograms were constructed from the matrix $a_{rs} = L(\Delta_r, \Delta_s)$ with the number of common names $O(\Delta_r, \Delta_s)$ being fixed. For the lists Π and N, all these histograms were of the form as in Fig. 84. The smallest values taken as the thresholds were to the right of which the histogram was vanishing. The relations exceeding the threshold value are called below essential. Note that all the intersecting neighbourhoods for the Π and N, as expected, turned out to be dependent according to the constructed test (i.e., their relations were essential).

14. Results related to the name list of Roman popes. Chronological shifts. Here and in the next items, we consider the consequences of the study of the relation matrix for the popes' lists, from Peter until 1950, and the Roman kings' and emperors' list from the 8th c. B.C. (starting from the 4th c. A.D., we mean here the Western Roman Empire) until the Holy Roman Empire in 962–1254 and the Hapsburg Empire in 1273–1619 A.D., the emperors' list extended up to 1700 A.D. (up to Leopold). To make the discussion of the results independent of the above argument, we recall the basic ideas of the method.

The so-called *relation matrix* is constructed from a large chronological list of rulers' names, for which each pair of connected fixed-length pieces (neighbourhoods) is associated with a number (relation), so that the following conditions are fulfilled, viz., in the case where the given list contains no duplicates and consists of a random (in a sense) name sequence, the mean value of the relation does not depend on the choice of the numbers of the neighbourhood pairs, and, in the case where the list does contain duplicates, the relation of the pairs possessing duplicating fibers is, in general, greater than for those without such fibers.

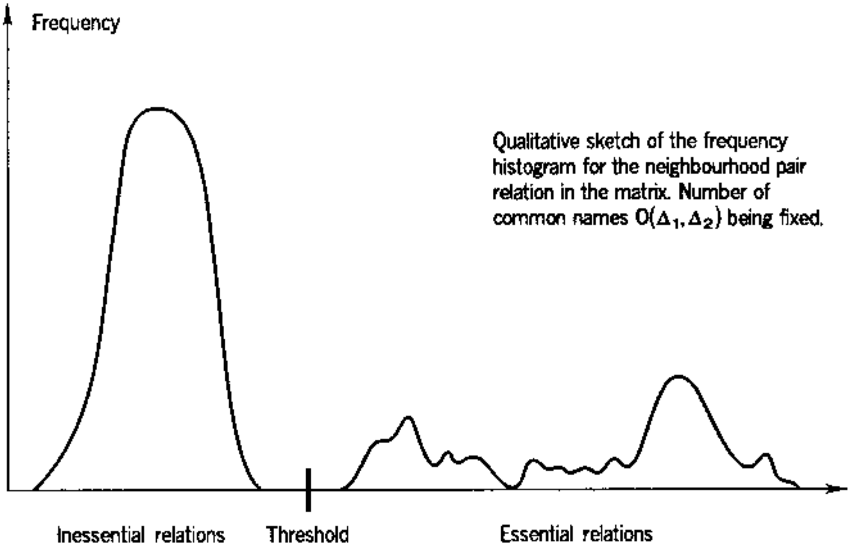

Figure 84. Frequency histogram for the pair relation in the matrix

By means of the study of the relation conditional distribution frequency histograms in the matrix in condition of a fixed number of common names in the neighbourhoods, thresholds were then defined, separating the essential relations (the conclusion being that the neighbourhoods do contain duplicating fibers) and inessential relations (with the conclusion that the neighbourhoods are independent) (Fig. 84).

The essential relation matrix (or, simply, relation matrix) thus obtained provides for a decomposition of the list into duplicate systems (meanwhile, different systems can intersect, i.e., certain parts of the list can possibly "fiber").

We note briefly certain overlappings determined by the constructed matrices. All of them are *completely consistent with the GCD decomposition obtained by the author.*

(1) Three sharp splashes of heresies in church history, viz., during the 4th c., the "heresy age"; in the 12–13th cc. A.D., the Albigenses heresy, war with the heretics, establishment of the Inquisition; and the heresies of the 13–16th cc., strengthening of the Inquisition, religious wars (see Fig. 85).

(2) The church schism in 1054 A.D.; irrevocable separation of the church in 1204 A.D. (see Fig. 85).

(3) Three papal elections under Henry III around 1050 A.D.; the three popes in 1378–1417 A.D. during the Great Schism (see Fig. 85).

(4) The Roman Empire in 753–523 B.C.; the Roman Empire in 82 B.C.–217 A.D. (see Fig. 86).

(5) The Roman Empire in 82 B.C.–217 A.D.; the Roman Empire in 270–526 A.D.; the Holy Roman Empire in 926–1254 A.D. (see Fig. 86).

(6) The Carolingians in 681–887 A.D., the Holy Roman-German Empire in 962–1254 A.D. and the Hapsburg Empire in 1273–1619 A.D. (see Fig. 86).

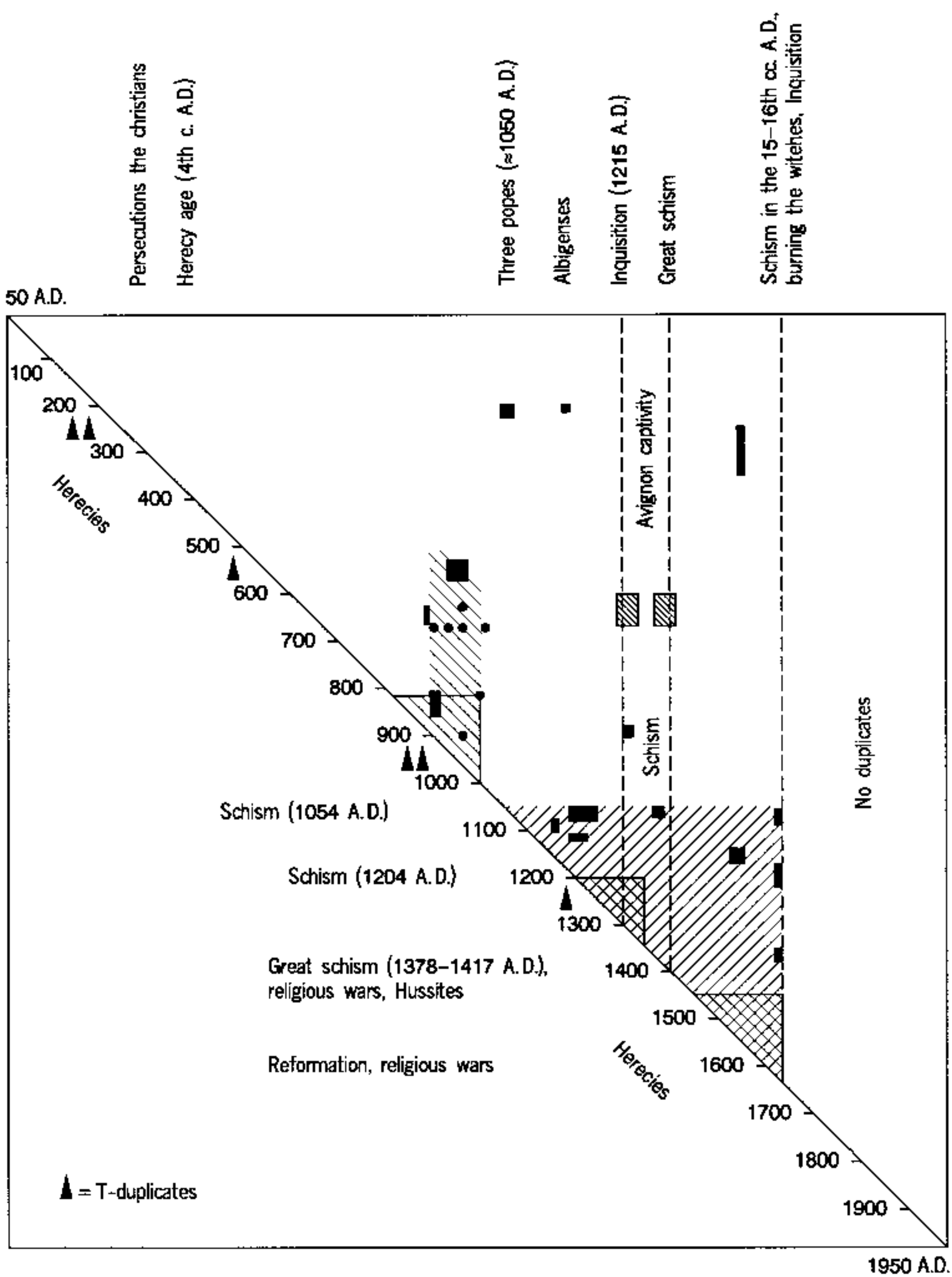

Figure 85. The relation matrix for the name lists of Roman popes. System of duplicates

(7) Overlapping of the limits of the two Roman republics (see Fig. 86).

(8) The principal originals from the Hapsburg Empire in the 14th c., 1500–1530

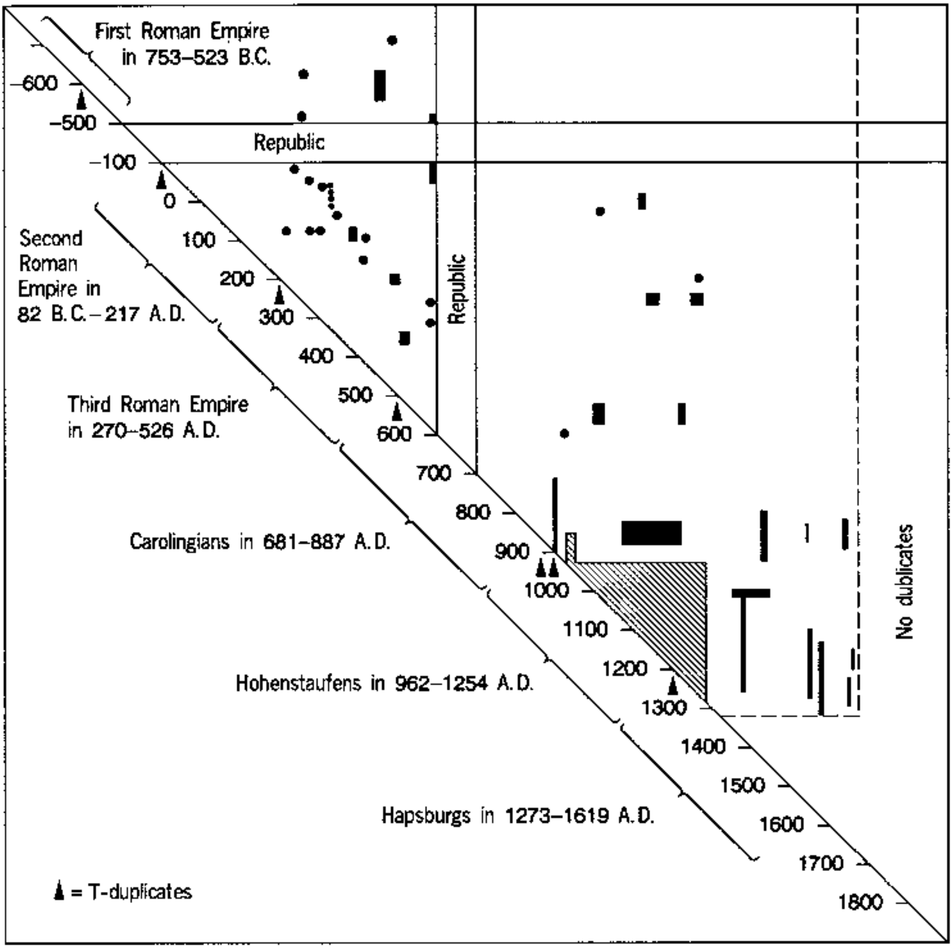

Figure 86. The relation matrix for Roman emperors from Romulus to Leopold

and *c.* 1600 A.D. (see Fig. 86).

Besides, the author's conclusion regarding the *existence of authentic consecutive chronology only after 900 A.D. and reliable chronology from the end of the 13th c. A.D. is confirmed fully* (see Figs. 85, 86).

The popes' list for 50–1950 A.D. contains 87 different names of the total number of 293, their maximum multiplicity being 21. The essential relation matrix is shown in Fig. 85. Note immediately that the interval 1700–1950 A.D. contains no duplicates, whereas 1600–1700 A.D. is comparatively weakly related only to certain epochs after 1100 A.D., with the only stronger relation being to the interval 1180–1260 A.D.

The list of duplicate systems is given below in accordance with Fig. 85. The arrows denote relations with the (key) time interval which appears first in each line, whereas the dashed arrows denote comparactively weak relations. The interval time limits are accurate up to a century (see the details in Fig. 85). The right-hand column contains the generated shifts (cf. those distinguished from the lists considered in Item 5).

No	Duplicate System (cc.)	shifts (years)
1	II $\leftarrow - - -$ XV–XVI	1,300–1,400
2	II, III $\longleftarrow$ XII	1,000
3	III, IV $\leftarrow - - -$ XI; $\longleftarrow$ XVI	700, 1,200
4	VI, VII $\longleftarrow$ X	280–330
5	VI_2, VII $\longleftarrow$ XIII_2; $\leftarrow - - -$ XIV, XV_1	660, 760
6	XI $\leftarrow - - -$ XIII; $\leftarrow - - -$ XVII_1	300, 600
7	XII, XIII $\longleftarrow$ XVII_1	500
8	XIII $\leftarrow - - -$ XIV	170
9	XIV $\leftarrow - - -$ XVII_1	330

A Roman numeral indicates a century, and a subscript half a century. See also Figs. 98, 99, 100 in Appendix 1.

15. The list of names of Roman emperors and the related chronological shifts. The list is constructed from the names of Roman emperors from Romulus (753 B.C.) to Leopold I (*c.* 1700 A.D.). If several names of one emperor are known, then they are all written out one by one. The ordering is made relative to the rules' middle years, the list contains no separation signs between the names of consecutive emperors, its length is 555, the number of different names 193, and the maximal name multiplicity 40 (see the essential relation matrix in Fig. 86). Similarly to the previous item, we also list the distinguished duplicate systems and generated shifts. The Roman numerals denote centuries, whereas the subscripts 1 or 2 designate the first or second half of the century, respectively.

No	Duplicate System (cc.)	shifts (years)
1	VII B.C. $\leftarrow - - -$ III A.D.; $\longleftarrow$ V A.D.	150, 1,050, 1,200
2	VI B.C., I A.D. $\longleftarrow$ III A.D.; $\longleftarrow$ VI A.D.	750, 1,050
3	I–III A.D. $\longleftarrow$ III–VI A.D	250–300, 950–1,050
4	I, III $\longleftarrow$ XI, XIII	1,000–1,050
5	IV, V $\longleftarrow$ VI	100–200
6	VI $\longleftarrow$ X; $\longleftarrow$ XIII	500, 700
7	VIII, IX $\longleftarrow$ *c.* 900 A.D	100
8	IX $\longleftarrow$ XI_2, XII; $\longleftarrow$ *c.* 1400 A.D. $\longleftarrow$ *c.* 1500 A.D. $\longleftarrow$ *c.* 1600 A.D.	200–400
9	X–XIII $\longleftarrow$ XIII	300
10	XI $\longleftarrow$ *c.* 1350 A.D.	300
11	XII, XIII $\longleftarrow$ *c.* 1350 A.D.; $\longleftarrow$ (1500–1550 A.D) $\longleftarrow$ (1600–1625 A.D.)	200–400

This matrix determines the decomposition of the emperors' list into duplicate series coincident with those found by the author in the investigation of dynastic parallels. For example, the overlapping of the two Roman Empires in 82 B.C.–217 A.D. and 270–526 A.D. is reflected in the area of dots which form the diagonal parallel to the principal diagonal (see Fig. 86). It means that these duplicates overlap with nearly no distorsions. The duplicate series T of the GTR-war is also explicit.

16. The comparison of the results obtained with the decomposition in the Global Chronological Diagram. The present study was carried out by the author and G. Nosovsky in 1983–1984 with the purpose of independent verification of the GCD (e.g., see [24] or a more detailed treatment in [21]). Finally, two circumstances were made clear.

(1) Ancient and medieval historical data possess explicit statistical duplicates only for documents appearing earlier than the 13th c. A.D., which cannot be explained on the basis of the natural ideas of "correct chronology", but which can be explained by the hypothetical existence of chronological duplicates in the form given by the author.

(2) If the hypothesis regarding the existence of chronological duplicates is accepted, then the interpretation of the obtained results leads to the same results as those derived by the author earlier (viz., the GCD decomposition). It is essential that the GCD decomposition was originally constructed from the dynastic rule durations. Derived by proceeding from the dynastic name set, the same conclusions supply an independent confirmation of the author's hypothesis.

Chapter 2

ENQUÊTE-CODES OF CHRONOLOGICAL DUPLICATES AND BIOGRAPHICAL PARALLELS. THREE CHRONOLOGICAL SHIFTS: THE BYZANTINE–ROMAN 333-YEAR SHIFT, THE ROMAN 1,053-YEAR SHIFT AND THE GRECO-BIBLICAL 1,800-YEAR SHIFT

1. Frequency Characteristics and Enquête-Codes of the Historical Periods from 82 B.C. to 217 A.D. (Second Roman Empire) and from 300 to 550 A.D. (Third Roman Empire). The 330-year First Basic Rigid Shift in Roman History

1.1. Ancient sources and their origin. Tacitus and Bracciolini

The skeleton of historical chronology was constructed by analyzing the chronological data of ancient sources, based on which we have to study the problem of their origin. No complete detailed survey of the circumstances in which ancient manuscripts were discovered has been made by modern historiography, and only the general fact is noted that the overwhelming majority of the documents did not become known until the Renaissance after the "Dark Ages". We studied this process in more detail and saw that the appearance of all of the manuscripts occurred in an environment which did not help analyze the finds critically. We illustrate this by a representative example, viz., the story of Tacitus' *Histories*, which is now one of the most important sources in the history of the emperors of Rome from Tiberius to Vespassianus [245]. The lifetime of Tacitus is regarded traditionally to fall into the period 55–120 A.D. In 1882–1885 and 1878, respectively, two historians, P. Hochart in France and J. Ross in England, published their studies in which they asserted and substantiated that Tacitus' *Histories* allegedly had been written by the famous Renaissance humanist Poggio Bracciolini (1380–1459) [292]. Without discussing here the problem of the authenticity of Tacitus' *History* (*in our opinion, it is an original, has not been falsified, and describes authentic events*), we give the survey of this criticism, following [247], and illustrate the atmosphere in which many an antique document was unearthed.

Poggio Bracciolini is one of the most remarkable writers of the 15th-c. Renaissance. He was the author of historical and moralistic books.

"On theological problems ... he can speak in a language which *everyone could have taken to belong to one of the church fathers*, had it been freed of Poggio Bracciolini's signature" (everywhere in the sequel, the italics are due to us—A. F.) ([247], pp. 358–363).

He was the author of an archaeological manual for the study of Roman monuments and the well-known *History of Florence*, a work of the type of Tacitus' *Annals* ([247], p. 359).

"This brilliant imitator was, in the full sense of the word, the master of minds in his century. The critical circles placed him on the level with the outstanding Renaissance authors ... Many found it possible to call the first half of 15th-c. Italian history the 'Poggio age' ...". Florence erected in his lifetime a statute sculptored by Donatello ([247], pp. 358–363).

"The prolific way of life cost Poggio Bracciolini much ... and made him always be in need of money. The source of extra aid was his searching, preparing and editing copies of ancient author's manuscripts. It was a very profitable source ... for the 15th c. With the help of the Florentine scientist and publisher ... Niccolo de' Niccoli (1363–1437), ... Poggio Bracciolini organized something like a workshop to deal with ancient literature, and gathered a number of collaborators and counteragents, very educated, but all with a shadowy past ... Their first finds were discovered by Poggio Bracciolini and Bartolomeo di Monte Pulciano in the time of the Council of Constance ... In the lost, humid tower at St. Gall monastery in which a prisoner would not live through three days, they were lucky to find a heap of ancient manuscripts, viz., the works by Quintilian, Valerius Flaccus, Asconius Pedianus, Nonius Marcellus, Probus and others. This discovery was not only sensational, but also made a literary epoch" ([247], pp. 363–366).

Bracciolini "found" fragments "of Petronius" and Calpurnius' *Bucolica* some time afterwards (*ibid.*).

The circumstances in which all these finds were made were clarified by no one and nowhere. In addition to the originals, Bracciolini also traded in copies which he sold for enormous sums of money. For example, having sold a copy of Livy to Alfonso of Aragon, he bought a villa in Florence (*ibid.*).

"He asked one hundred ducats from the duke D'Estais (1,200 francs) for Jerome's letters, Poggio's clients were Medici, Sforza, D'Estais, aristocratic families of England, the duchy of Burgundy, cardinals Orsini and Colonna, such rich people as Bartolomeo di Bardis, universities which at the time ... either started to found libraries or fervidly extended their old book depositories. The principal copies of Tacitus' "first" and "second " Medicean mss. are kept in Florentine book depositories, among whose directors was Poggio. According to traditional history, these copies are the prototypes of Tacitus' all other ancient manuscripts. The first printed edition was made in 1470 from the "second" Medicean ms. or another manuscript kept in the Venetian Libreria Vecchia at St. Mark's.

"It vanished from there, and, possibly, had never been there" ([247], pp. 366–368).

"*Two Medicean mss. ... supply a complete list of everything preserved from*

Tacitus' historical works" (*ibid.*).

However, Tacitus' name, as well as the names of other ancient authors, disappeared for many centuries up to the Renaissance (see [245*]—the Russian edition of Tacitus' works, V. 2, p. 203).

P. Hochart and J. Ross supply the complete survey of all instances of mentioning "Tacitus" before his work was found by Poggio in the 15th c. It turns out (we omit the details) that all of them, though there are very few, are of general character, and may refer to people having nothing to do with "the historian Tacitus" [247]. Moreover, no information about the existence of the manuscripts of "the historian Tacitus' " was available during the Middle Ages until the 15th c; therefore, whoever the author of Tacitus' works may be, we have to agree with P. Hochart and J. Ross that no one had the slightest idea of Tacitus the historian (until the 15th c.) [247].

"In November 1425, Poggio in Rome informed Niccolo de' Niccoli in Florence that a 'certain monk' ... offered him a number of ancient manuscripts ..., in particular, 'several of Tacitus' works unknown to them' ..." ([247], p. 382).

Niccolo de' Niccoli immediately agreed to the deal, but it was to last for many months.

"Poggio procrastinated the affair under various pretexts ... Asked by Niccolo de' Niccoli, he gave a rather confused reply from which it was only clear that Tacitus' book was not in his hands at the time ... Poggio was mercilessly lying and inventing excuses, saying that the monk was a friend of his, but, being in Rome, failed to visit Poggio ..., that the books were in Hersfeld, and they had to be received in Nuremberg, etc." (*ibid.*).

"Vexed, Niccoli asked Poggio to give him the catalogue of books 'discovered' by Poggio, and found that it contained no Tacitus" (*ibid.*).

"In this strange train of misunderstandings, which had the appearance of artificality, 1427 and 1428 A.D. passed" (*ibid.*).

Finally, Poggio informed Niccolo de' Niccoli in 1428 that the mysterious monk had again arrived in Rome, but without the book!

"For almost five years, Poggio's discovery had been made public before it was made, and strange rumours circulated, which made Niccolo de' Niccoli very agitated, whereas Poggio replied that he did know all the songs sung on his account ... And when Cornelius Tacitus arrived, he would purposely take it and hide it from the stranger's eyes. As P. Hochart notes justly, the most natural guard against ill rumours would seem to show the manuscript to the whole scientific community, explaining all the ways, means and secrets of its origin. On the contrary, Poggio again started his evasive tactics ..." ([247], pp. 374–382).

P. Hochart and J. Ross found that "... in a much later edition of his letters to Niccolo de' Niccoli, and omitting the date of his correspondence about Tacitus in 1425–1429, Poggio falsified, for some secret purpose, the dates of December 28, 1427, and June 5, 1428, in two newly publicized letters" (*ibid.*).

Poggio asked Niccolo de' Niccoli to send (!?) him another copy of Tacitus, which allegedly was already in the latters possession. Comparing the dates of correspondence and texts of the letters, P. Hochart stated that this mysterious "second copy" was nothing less than the "*first*" *Medicean ms.* (allegedly discovered only many years afterwards). He believed that "... the dates of the letters were falsified post factum after the appearance of Tacitus, assumingly from Niccoli, in order to confirm the reputation of the "first" ... *Medicean ms.*, which went in use in many nobles' libraries, and pave the way for the second ..." (*ibid.*).

However, it is assumed that both copies were discovered in reverse order. A. Amfiteatrov wrote:

"Studying the story of the *Codex Mediceus I's* origin (discovered later—A. F.) ... we cannot help stressing the fact that the legend surrounding Niccolo de' Niccoli's list 80 years ago repeated again ... Again a Northern monastery is on stage, again some mysterious, unnamed monks. Some German friar brings pope Leo X the first five chapters of the *Annals.* The pope was delighted, and allegedly detailed the friar to publish the works. The man refuses, saying that he was illiterate. In a word, the legend about the supplier of the *"second" Medicean ms.* (found first—A.F.), a Hersfeld monk, is revived from the dead ... Legend names ... Arcimboldi ... the intermediary in the deal ... However, Arcimboldi did not mention a word about this circumstance, though Leo X, allegedly through him, paid 500 sequins for the manuscript, i.e., 6,000 francs, a whole fortune for that time. These eternal mysterious monks, incognito, without known origin or place of living, were for P. Hochart the successors of the falsification system launched by Poggio Bracciolini. Nobody has ever seen or known them, but today one of them will carry from Sweden or Denmark a lost decade of Livy, tomorrow another, from ... Fulda, will fetch a copy of Tacitus, etc., always for some reason from the faraway, unattainable North, and always with the same merchandise lusted for by the market of books of the century" ([247], pp. 375–382).

The study of the correspondence of Poggio's friends does not make all of these problems clear. Their authors either keep mum regarding the "find" or supply mutually exclusive versions (*ibid.*).

"Beyle said (in the 18th c.—A. F.) that pope Leo X wanted to find the missing chapters of Tacitus so much that he had not only promised money and fame, but also absolution. Is it surprising that they were speedily found? Thus, both of Tacitus' Medicean mss. are equally enigmatic as far as their origin goes. P. Hochart believes, proceeding from the similarity of the obscurity and the legends surrounding, them that they both are of the same origin and belong to the same family: They originated from the Roman workshop of the Florentine Poggio Bracciolini ([247], pp. 374–382).

P. Hochart and J. Ross supply numerous data demonstrating Poggio's capability of playing different roles (according to his own books) (*ibid.*). For Poggio, the Latin language is his mother tongue.

"He writes in Latin, and how well he writes! Judging by the suppleness of imitation, it was the Prosper Mérimée of the 15th c. ... Playing up to the reader's taste, Poggio is Seneca, Petronius or Livy; a chameleon of word and spirit, he can write after anyone's manner ..." ([247], p. 385).

The analysis of Tacitus' text shows that this allegedly "ancient Roman" knows the history and geography of the ancient Roman state badly (*ibid.*).

"Gaston Boissier also lists a very large number of contradictions ... Specifying a great many of errors which no Roman belonging to the first century could have made, P. Hochart notes those which reveal in the author a man with 15th-c. outlook and traditions ([247], pp. 387–390). We omit the list of these "faux pas".

Moreover, P. Hochart and J. Ross succeeded in finding rather explicit indications which, in their opinion, speak of forgery.

"In London, he (Poggio—A. F.) lived, very much deceived in his expectations of Beaufort's generosity ... In 1422 ... Piero Lamberteschi offers him a project of some historical work which has to be done from Greek sources, and kept strictly secret, in a three-year term, during which Poggio will be provided with 500 golden ducats. 'Let him give me six hundred, and it's done!' writes Poggio, entrusting Niccolo de' Niccoli with concluding this little deal. 'The way to pass the time offered by him is very much to my taste, and I hope that we'll create a trick worth of being read'. A month later, he writes: 'If I see that Piero's promises turn from words to business, then I shall be glad to get not only to the Sarmatians, but also to the Scythians for the sake of this job ... Keep secret all the projects I am telling you about. If I go to Hungary, this must be kept in the dark for everyone except several friends', and in June, ... 'be sure that if I am given time ... I will compose a thing with which you will be satisfied ... When I compare myself with the ancients, I again believe in myself. With a good approach, I will not disgrace myself before anyone ...' Where he was afterwards is unknown. According to Corniani, he did, in fact, live for some purpose in Hungary. According to Tonnelli, he came straight to Florence. We do not know whether his enigmatic deal with Lamberteschi was concluded. Lamberteschi's name vanishes from Poggio's correspondence, which P. Hochart explains by Poggio's being the editor ot his own letters ... But even if the deal had not occurred, then what after-taste would this episode leave? Here it is: Lamberteschi offered Poggio to create some secret historical work. It was assumed to be so secret that Poggio had to work in Hungary; meanwhile, he should have been thought of as still being in England. For this job, he had to study the Greek authors ... He had to compete with the ancient historians, which was what he wanted, and which he was afraid of. And, finally, the whole secret required of him, and accepted by him, shows that the suggested little deal was, though both literary and scientific, not at all a nice one" ([247], p. 393 and further).

Lamberteschi was morally right to approach Poggio with such an offer, since the latter had already been caught red-handed once while making a falsification. Several years earlier, Poggio published, with Niccolo de' Niccoli, Asconius Pedianus' *Commentarii*.

"No one has ever seen the original from which the *Commentarii* were made, and Niccolo de' Niccoli has also copied from the manuscript sent to him by Poggio from Constanz. The success was enormous, though ... the scientific community immediately understood that something was wrong here. It seemed that Poggio did not pay much attention to covering his fabrication ... The success of the forged Asconius Pedianus made possible a whole series of other fabrications on behalf of the same fantastic author, but they all were too rough, and immediately discovered. Poggio ... was only more cunning than the others. Before starting his Tacitus swindle, he attempted to sell some magnificent copy of Livy to Cosimo de Medici and Leonello D'Estais, and again in a mysterious environment, viz., again a faraway monastery on an island in the North Sea, Swedish monks, etc. The matter hardly concerned the fabrication of the work, but could be, possibly, related to forgery of the manuscript. It is known that Poggio had mastered the Lombardy hand-writing perfectly; and it was with this handwriting that he enticed ... princes. But the deal failed here, and the precious copy vanished somewhere without a trace ... It is remarkable that, in this period of his life, Poggio, generally being very prolific, does not write anything signed by his own hand ... But then he learns very much, systematically, in concentrated fashion, possibly training himself for some responsible work related to the Roman history of the emperors' period. Niccolo de' Niccoli hardly has time to send him now Ammianus Marcellinus, then Plutarch or Ptolemy's *Geography*, etc."([247], p. 394 et seq.).

P. Hochart reckons that Poggio started his fabrications alone, but was then forced to involve also Niccolo de' Niccoli (*ibid.*). They probably first launched into circulation *the "second" Medicean ms.*, and kept *the "first" Medicean ms.* with the purpose of "flaying the same ox twice"; however, "the market was soon spoiled" by the appearance of a considerable number of discovered falsifications. Poggio did not expose himself to risk for a second time. The *"first" Medicean ms.* was, probably, issued by his son after he had squandered the whole of his father's fortune (*ibid.*). Besides the above works, "Poggio–Niccoli, Inc.", circulated the classics such as the complete Quintilian, certain ones of Cicero's philosophical writings and his seven speeches, Lucretius, Petronius, Plautus, Tertullian, certain texts of Marcellinus, Calpurnius Siculus, etc. After "finding" Tacitus, the market got agitated:

"In 1455, ... Enoch d'Ascoli found in some Danish monastery (again a monastery, and again in the North—A. F.) Tacitus' *Dialogue on Orators, Life of Agricola and Germany*, whose language and character are generally known to be considerably different from the *Histories* and *Annals* ... The *Facetiae* ascribed to Tacitus also appeared on the market, and the forgery was not immediately discovered" ([247], pp. 350–351).

P. Hochart pointed out the extreme similarity between Poggio's own works and Tacitus' ([247], p. 407).

P. Hochart's and J. Ross' works were encountered by the historians with animosity, and caused a scandal. By the way, P. Hochart first became suspicious of Tacitus' text only after he had discovered that the well-known fragment XV, 44, of the *Annals* (about the Christians) was either a forgery or an insertion (*ibid.*). P. Hochart's conclusions found the support of certain specialists. For example, A. Drews, while not sharing this assertion about the forgery of the whole work, fully supported P. Hochart in the problem of fragment XV, 44. No concrete objections were given by traditional historians to P. Hochart and J.Ross (as far as it is known to the author). New arguments in favour of P. Hochart's and J. Ross' opinion were supplied by W. Smith ([252], pp. 27, item b, 258).

We give the example of Poggio's Tacitus not at all in order to make the reader believe that the ancient documents are all forgeries. Moreover, in the following, we give another and rather unexpected explanation of the whole of the Poggio story, which will assume only a redating of the described events, and not forgery. Certainly, P. Hochart and J. Ross, loyal to the traditional point of view, and relying on traditional chronology, could not conjure up another explanation for the inconsistences discovered by them like the Tacitus forgery.

We believe that to charge one or another document with forgery should not at all be regarded as a means for investigation. Otherwise, an "inconvenient" document could always be charged with falsification, and thereby "eliminate" all related contradictions. In our opinion, there were serious historical reasons for creating each document, among which a purposeful falsification certainly occupies an important, but not at all the first place.

Many strange things also happened with respect to the activity of Petrarch, who discovered many an ancient document, e.g., of Cicero [246], [253]; Petrarch was one of the first propagandists of ancient Rome's magnificence. In many cases, he did not exhibit the originals of the ancient texts discovered. He introduced the fashionable style of epistles, in which the contemporary events were brightly framed in antique fashion, using the names now regarded as ancient, etc. Petrarch is the author of many letters addressed by him personally to the heroes of antiquity like Cicero, Livy and others.

1.2. The complete list of Roman emperors of the Second and Third Roman Empires

We now give certain basic, but certainly not each of the "meaningful" parallels arising from the overlapping of the medieval and ancient historical periods indicated on the GCD. For want of space, we illustrate the 300-year rigid shift by the example of Roman history, and exhibit a possible overlapping of the so-called Second and Third Empires; see Fig. 97 in Appendix 1.

We call the *First Roman Empire* the kingdom founded by Romulus and Remus *c.* 753 B.C., and ending under Tarquinius the Proud *c.* 509 B.C., whereas we call the *Second Empire* the kingdom actually founded by Lucius Sulla in 83–82 B.C. and ending under Caracalla in 217 A.D., and the *Third Empire* the kingdom founded by Lucius Aurelian in 270 A.D. and ending under Theodoric of the Ostrogoths in 526 A.D.

The pair of jets with small $\lambda(M,H)$ is arranged as follows: the jet from the *Second Empire* almost completely exhausts the whole stream (see below); the *Third Empire* jet coinciding with the *Second Empire* jet consists of the most famous emperors of the *Third Empire* and also possesses a number of unique properties. We give the list of both jets. N. A. Morozov was the first to indicate the possibility of parallelism between the Second and Third Empires. However, he did not investigate the problem of distinguishing these jets from the complete streams, i.e., their representability, and did not arrive at the concept of $\lambda(M,H)$; therefore, he could not estimate the jet proximity quantitatively.

I discovered the optimal jets that differ (in particulars) from those suggested in [13], on the basis of calculating $\lambda(M,H)$ (Fig. 87), where M and H are some dynasties.

An emperor of the Second Empire is placed first, and then that of the Third, associated with the former in the overlapping jets. All the variations of the duration of the rules are given in parentheses, whereas the version involved in the parallel is shown in italics.

In addition to the rule durations, other interesting figures are included, certainly not taken into account in calculating $\lambda(M,H)$ (if we do take them into account, then $\lambda(M,H)$ decreases still more).

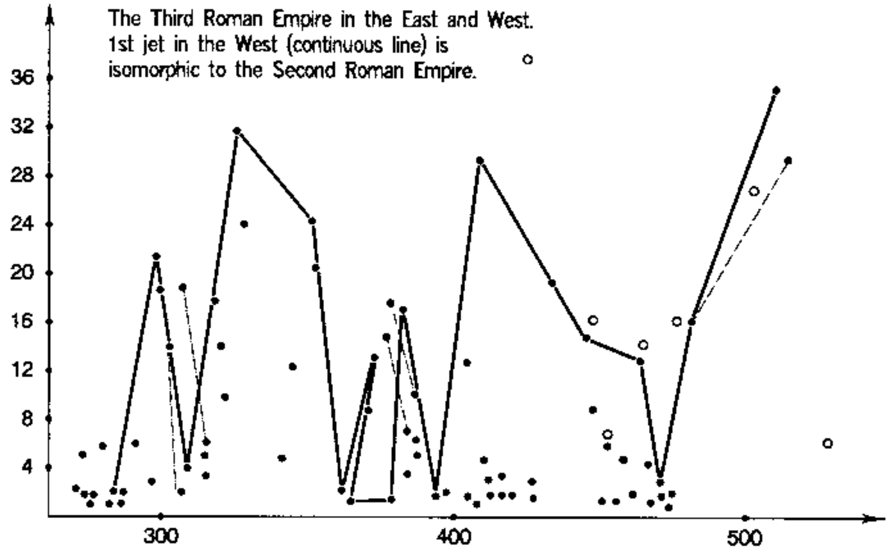

Figure 87. The Second Roman Empire and the Third Roman Empire

Remark. The first three emperors in the *Second Empire*, viz., Sulla, Pompey and Caesar, are regarded in traditional history as "fictitious", i.e., "formally" bearing the title. This opinion is contradictory with ancient sources calling them "emperors" without any reservation (see below).

1) Lucius Sulla 82–78 B.C. (4) and = Lucius Aurelian 270–275 A.D. (5)

2) Confusion 78–77 B.C. (less than 1 year) and = confusion 275–276 A.D. (less than 1 year)

3) Marius Quintus Sertorius 78–72 B.C. (6) and = Probus 276–282 A.D. (6)

4) Confusion 72–71 B.C. (2) and = confusion 282–284 A.D. (2)

5) Gneeus Pompey the Great 70–49 B.C. (21) and = Diocletian 284–305 A.D. (21)

6) Co-rule of Pompey and Julius Caesar, First Triumvirate 60– 49 B.C. (11) and = co-rule of Diocletian and Constantius I Chlorus, First Tetrarchy 293–305 (12)

7) Confusion 49–45 B.C. (4) and = confusion 305–309 A.D. (4)

8) Julius Caesar, winner of First Triumvirate 45–44 B.C. (1) and = Constantius I Chlorus, winner of First Tetrarchy 305–306 (or 293–306) (1 or 13)

9) Triumvirate 44–27 B.C. (17) and = Tetrarchy 306–324 (18)

10) Gaius Julius Caesar Octavianus Augustus, winner of Second Triumvirate 27 B.C.–A.D. 14 (41), or 23 B.C.–A.D. 14 (37) and = Gaius Flavius Valerius Constantius Augustus, winner of Second Tetrarchy 306–337 A.D. (31) or 313 A.D. (the year of Licinius' defeat)–337 A.D. (24), or 324 (Licinius' death)–337 A.D. (13)

10*) Birth of Jesus Christ in the year 27 since Augustus, and = birth of Basil the

Great in the year 27 since Constantine I

11) Tiberius Claudius Nero (= Tiberius) 14–37 A.D. (23) and = Constantius II 337–361 A.D. (24) or 340–361 A.D. (21)

12) Struggle between Tiberius and Germanicus 6–19 A.D. (murder of Germanicus) (13) and = struggle between Constantius II and Constans 337–350 A.D. (murder of Constans) (13)

13) Gaius Caesar Caligula 37–41 A.D. (4) and = Caesar Julian 361–363 A.D. (2)

14) Confusion after Caligula's death 41 A.D. (less than 1 year) and = confusion after Julian's death 363 A.D. (less than 1 year)

15) Claudius 41–54 A.D. (13) and = Valentinian I 364–375 A.D. (11)

16) "Co-rule" of Claudius and Pallas within the "Triumvirate" of Claudius, Pallas and Narcissus 41–54 A.D. (no more than 13) and = co-rule of Valentinian I and Valens within the "Triumvirate" of Valentinian I, Valens and Gratian 367–375 (11)

17) Tiberius Claudius Nero (= Nero) 54–68 A.D. (14) and = Valens 364–378 A.D. (14)

18) "Co-rule" of Nero, Burrus and Seneca 54–62 A.D. (8) and = co-rule of Valens, Valentinian I and Gratian 364–375 A.D. (11)

19) "Co-rule" of Nero and Seneca 54–65 A.D. (11) and = co-rule of Valens and Gratian 367–378 A.D. (11)

20) Servius Sulpicius Galba 68–69 A.D. (1) and = Jovian 363–364 A.D. (1)

21) Confusion 69 A.D. (less than 1 year) and = confusion 378 A.D. (less than 1 year)

22) Two emperors named Titus Flavius Vespasian 69–81 A.D. (12) and = Gratian, Valentinian II after Valens' death 379–392 A.D. (13)

23) Titus Flavius Domitian 81–96 A.D. (15), and = Theodosius the Great 379–395 A.D. (16)

24) Marcus Cocceus Nerva 96–98 A.D. (2) and = Eugenius 392–394 A.D. (2)

25) Co-rule of Nerva 96–98 A.D. (2) and = co-rule of Eugenius 392–394 A.D. (2)

26) Marcus Ulpius Trajan 98–117 A.D. (19) or 101–117 A.D. (16) and = Arcadius 395–408 A.D. (13)

27) Publius Aelius Hadrian 117–138 A.D. (21) and = Honorius 395–423 A.D. (28)

28) Titus Aurelius Antoninus Pius 138–161 A.D. (23) and = Aetius 423–444 A.D. (21) or 423–438 A.D. (14)

29) Marcus Aurelius 161–180 A.D. (19) and = Valentinian III 437–455 A.D. (18), or 444–455 A.D. (11), or 423–455 A.D. (32)

30) Marcus Aurelius Commodus Antoninus 176–192 A.D. (16) or 180–192 A.D. (12) and = Ricimer 456–472 A.D. (16)

31) Publius Helvius Pertinax 193 A.D. (less than 1 year) and = Olybrius 472 A.D. (less than 1 year)

32) Marcus Didius Severus Julianus 193 A.D. (less than 1 year) and = Glycerius 473–474 A.D. (less than 1 year)

33) Decimus Clodius Albinus 193 A.D. (less than 1 year) and = Julius Nepos 474 A.D. (less than 1 year)

34) Gaius Pescennius Niger 193–194 A.D. (1) and = Romulus Augustulus 475–476 A.D. (1)

35) Lucius Septimius Severus 193–211 A.D. (18) and = Odoacer 476–493 A.D. (17)

36) Marcus Aurelius Antoninus Caracalla 193–217 A.D. (24) or 211–217 A.D. (6) and = Theodoric the Great 497–526 A.D. (29) or 493–526 A.D. (33)

Since the above list contains other figures in addition to the emperors' rule durations, which are formally unrelated to the calculation of $\lambda(M, H)$ (e.g., the "struggle between Tiberius and Germanicus"), we should restore the original jet made up only of rule durations to compute the coefficient. It was this jet pair that was discovered by the $\lambda(M, H)$ method.

It turns out that $\lambda(M, H) = 10^{-12}$, which means practically full coincidence of both jets.

The total durations of the Empires are different, viz., 299 and 256 years, respectively. Though, compared with the total, the discrepancy of 43 years is small, the fact should be carefully accounted for. It turns out that the *Second Empire* has not a single "massive" co-rule, comparable with the rule duration itself, whereas the corresponding jet from the *Third Empire* possesses four "massive" co-rules: pairs (8, 9), (12, 13), (16, 17) and (19, 20). We represent both jets on the time axis by associating each emperor with an interval with ends at the rule's start and finish (see Fig. 110 in Appendix 1). The four "special" pairs (see above) break the jet of the *Third Empire* into five blocks. What will happen to the graph of the *Third Empire* jet if we eliminate all the co-rules by moving the associated emperors' pairs apart, and arrange them consecutively and not parallel? We carry out all shifts in one direction through the duration of the corresponding co-rule, without altering anything inside the blocks. It is important that, after this procedure, the jet graphs for the Third and Second Empires on the time axis become almost identical (see Appendix 1, Figs. 110, 111). It is the calculation of the eliminated durations of the co-rules with taking into account the data from No. 29 (see the list) that makes the *Second Empire* 43 years longer than the Third. Thus, this excess is not only completely absorbed by the four "massive" co-rules, but, having vanished after the above procedure, makes both dynastic jets practically fully coincident on both the uniform scale and the time axis.

This leads us to the hypothesis that the above jets are dependent. It is probable that one of the lists is a copy of the other; it is also possible that both were copied from a third "original".

We would like to expand on the formal standpoint.

We carried out the jet, and not the full stream comparison. The question arises whether the jets possess any objective characteristics distinguishing them from their streams. It turns out that the answer is positive.

Second Empire. It is important that its jet nearly completely exhausts the whole of the stream. Only two emperors, Lucius Verus (161–169 A.D.) and Geta (209–212 A.D.), were not included. However, they were co-rulers along with great political figures in the jet, viz., Lucius Verus is "covered" by Marcus Aurelius (161–180 A.D.), and Geta by Caracalla (193–217 A.D.).

Third Empire. Here is the *complete list* of its emperors, all their rule variations and confusion periods, ordered with respect to the midpoints of the time intervals [128], [134], [74] and [146]. The emperors in the jet are printed in capitals; all years are A.D.

1) Tetricus (270–273); 2) LUCIUS AURELIAN (270–275); 3) Tacitus (275–276); 4) confusion (275–276); 5) Florian 276; 6) Probus (276–282); 7) confusion (282–284); 8) Carus (282–283); 9) Julian 283; 10) Carinus (283–285); 11) Numerian (283–284); 12) Carausius (286–293); 13) DIOCLETIAN (284–305); 14) Allectus (293–296); 15) Maximian (286–305); 16) Constantius I Chlorus (293–306), first version; 17) Galerius (293–311), first version; 18) CONSTANTIUS I CHLORUS (305–306), second version; 19) Flavius Severus (306–307); 20) Galerius (305–311), second version; 21) confusion (305–309); 22) Maximinus Daza (306–313); 23) Maxentius (307–312); 24) Alexander (308–311); 25) TETRACHS (306–324); 26) Licinius (308–324), first version; 27) Licinius (313–324), second version; 28) CONSTANTINE I (306–337), first version; 29) Constantine I (313–337), second version; 30) Constantine I (324–337), third version; 31) Constantine II (337–340); 32) Constans (337–350); 33) Constantius II (337–361), first version; 34) Constantius II (340–361), second version; 35) Magnentius (350–353); 36) JULIAN (361–363); 37) JOVIAN (363–364); 38) VALENTINIAN I (364–375); 39) VALENS (364–378); 40) Gratian (367–383), first version; 41) CONFUSION (378); 42) GRATIAN (379–383), second version; 43) Valentinian II (375–392), first version; 44) VALENTINIAN II (379–392), second version; 45) Magnus Maximus (383–388); 46) Flavius Victor (384–388); 47) THEODOSIUS THE GREAT in West and East (379–395); 48) EUGENIUS (392–394); 49) ARCADIUS in West and East (395–408); 50) HONORIUS (395–423); 51) Marcus (407); 52) Gratian II (407); 53) Constantine III (407–411); 54) Priscus Attalus (409–410), first rule; 55) Heracleon (409–413); 56) Jovius (410–413); 57) Priscus Attalus (414), second rule; 58) Constantius III (421); 59) John (423), first version; 60) John (423–425), second version; 61) AETIUS (423–444), first version; 62) Aetius (423–428), second version; 63) Valentinian III (423–455), first version; 64) VALENTINIAN III (437–455), second version; 65) Valentinian III (444–455), third version; 66) Petronius Maximus (455); 67) Avitus (455–456); 68) Majorian (457–461); 69) Ricimer (456–472); 70) Libius Severus (461–465); 71) Procopius (467–472); 72) OLYBRIUS (472); 73) GLYCERIUS (473–474); 74) anarchy and confusion (472–475); 75) JULIUS NEPOS (474) or (474–475); 76) ROMULUS AUGUSTULUS (475–476); 77) ODOACER (476–493); 78) Theodoric (493–526), first version; 79) THEODORIC (497–526), second version.

Note that many emperors from the Third Empire not in the jet ruled only for a short time, about 1–2years; many are known to us only from the coins and many ruled in the provinces such as Gaul, Africa, etc. (We omit the details.)

It is important that the jet of the Second Empire is strictly monotonic, i.e., the middle years of the emperors' rules increase strictly monotonically.

It is also important that the intervals of the emperors' rules completely cover the whole of the Third Empire in 82 B.C.–217 A.D.

The following graphic representation is convenient, where, for each emperor, we can construct an isosceles triangle on the time axis with base on the rule interval, and the rule duration as height; then the emperor is schematically represented by the vertex, and the dynastic stream can be visually represented on the plane by a broken line joining all the emperors of the jet one by one.

The jet of the Third Empire, parallel to the Second Empire, does not exhaust the whole of the former (we will study this "remaining part" in the following); however, it is the "most representative" in the following sense:

(1) the trajectory of this jet on the plane (see above) has no self-intersections, which means that the chronological sequence of the emperors in the Second Empire jet mostly coincides with that of the corresponding jet in the Third Empire. Furthermore, the chronological sequences of the rules in the Second and Third Empires jets coincide in 93% of the cases. The only two disruptions occur for two emperors who ruled no longer than two years. But for our excessive scrupulousness and inclusion of these short-term rulers, the monotonicity of the trajectory (jet) would be immediately restored. It is important that, in spite of the disruption, the jet trajectory has no self-intersections.

(2) The Third Empire jet parallel, or isomorphic, to the Second Empire, is the basic one in the dynastic stream of the Third Empire. Therefore, the emperors who were not included are co-rulers at least with one of those in the jet. In other words, the jet from the Third Empire, discovered by us, passes through the greatest rulers (with respect to the rules).

(3) It is important that the intervals of the emperors' rules for the Third Empire jet completely cover the whole time interval detailed for the Third Empire, which means that, after enumerating all the rulers, the chronicler would embrace the whole history of the Third Empire without omissions, and would represent each year in his description (see Fig. 87), where the rulers are denoted by the vertices of the corresponding triangles which are not represented, and where the thick broken line denotes the Third Empire jet, whereas the dotted lines join the points which are different versions of the same ruler (in accordance with the choice of the beginning of his rule). Furthermore, the Third Empire jet we discovered possesses the optimum property, viz., that any other jet whose trajectory is placed under the one indicated should contain more points. In other words, following this jet, the chronicle would embrace the entire Third Empire, confining itself to the minimal number of rulers.

In the following, certain of the Third Empire rulers not in the indicated jet will be "sent" to other parallels.

It can be seen in Fig. 87 that the dotted line segments are similarly inclined, which is related to the different versions of the rule duration arising if the starting point varies.

We could now end our brief description of the first jet pair, where the jets are close in the sense of the smallness of $\lambda(M, H)$; however, along with numerical coincidence, there is a striking parallel in the biographies of the Second and Third Empire rulers, overlapping in accordance with the above identification. The "biographical identification" is a new fact completing the formal identification of these jets. We do not assert that one of the empires is the "original" one, whereas the other one is a "copy"; for the present, we do not ask the question "what actually happened"; our goal is merely to note and systematize the available identifications of numerical data, and, as it turns out, also of the related legends. The organization of this entire set of new chronological data into some noncontradictory scheme, taking into account and explaining all the identifications, is complicated. The problem was solved by the author within the GCD framework.

Since the "biographical parallels" only complete a more essential, numerical parallel (see above), we restrict ourselves to a brief indication of certain ones of the biographical identifications. Recall that these "biographies" are due to different chroniclers; therefore, they are sometimes different as to tinging the ruler's activity, and the most striking in this chain of coincidences of the bare facts is that they all arise after consecutively and formally comparing the rulers with the same ordinal numbers in the interval of *c.* 300 years.

We only deal with the surviving legends, and not with the biographies of authentic rulers; therefore, in the sequel, we will almost always understand by a "biography" only the set of facts that was ascribed by the chronicler to some particular historical figure, not at all assuming that this is in any way exact.

(1) Both jets in the Second and the Third Empires that we discovered, start with great political figures possessing names (e.g., = Lucius), and similar honorary titles not applicable to anybody else (Restitutor Urbis, Restitutor Orbis).

(2) Both jets end with political figures committing rather similar actions, e.g., giving civil rights to all of the free population, etc.

(3) In both jets, the co-rules practically coincide. The officially collective co-rules like triumvirates tetrarchies, etc., overlap.

(4) There is a consecutive (through *c.* 300 years) "biographical parallel", which sometimes becomes a striking identity (see below).

It is important to bear in mind that all ancient rulers' names had meaning, such as "powerful" or "staunch". They were therefore not names as we understand the term today, but rather just nicknames, and the same ruler could have different nicknames in different places where different languages were spoken.

1.3. The 330-year rigid shift in Roman history. The parallel between the Second and the Third Roman Empires. Remarkable Biographical Parallels

Enquête-Codes (Biographical Parallel)

1a. Lucius Sulla	1b. Lucius Aurelian
1.1. Official title: *Restitutor Urbis* (City Restorer). Applicable to no one else in Second Empire	1.1. Official title *Restitutor Orbis* (World Restorer). Applicable to no one else in Third Empire
1.2. Name: Lucius	1.2. Name: Lucius
1.3. Roman emperor (see, e.g., Plutarch [268], [268*], V. 2, pp. 137–138)	1.3. Roman emperor (according to traditional history)
1.4. Reached supreme power after civil war as most successful army commander [134]	1.4. Reached supreme power after Gothic war as most successful army commander [134]

1.5. One of most bloody wars in Roman history, lasting for many years ([134], p. 197)	1.5. One of most bloody wars in Roman history, lasting for many years (*ibid.*)
1.6. Civil war	1.6. This war was civil and external. It completed great civil war in Italy in mid-3rd c. B.C.
1.7. Title of emperor given to Sulla by army [268]	1.7. Declared emperor by army (*ibid.*)
1.8. Senate declared Sulla dictator [134]	1.8. Senate confirmed Aurelian's election as emperor under army pressure (*ibid.*)
1.9. Being first emperor, actually founded Roman Empire after anarchy	1.9. "Restored" Roman Empire after anarchy. First emperor
1.10. Ruled for 4 years from 83 (or 82) to 78 B.C	1.10. Ruled for 5 years in 270–275 A.D. ([134]; [74], Table 15)

In 1.10: Sulla's rule begins either 83 B.C. ([134], p. 197) or 82 B.C., the year of his victory at Rome's walls over the enemy ([134], pp. 197–220).

In 1.3a: Today, Sulla is normally not regarded as a formal emperor (*ibid.*), which is not consistent with direct ancient sources (e.g., Plutarch) calling Sulla an emperor. The contemporary historians strive to supply this title with a "different" sense if Sulla is meant (see, e.g., the Russian edition of Plutarch's *Parallel Lives*, V. 2, p. 514, Comm. 61). Plutarch himself said nothing on the matter [268].

2a. Confusion ([134], pp. 207–208)	2b. Confusion ([134], pp. 413–447)
2.1. Again civil war after Sulla's death	2.1. State power disrupted after Aurelian's death (mutiny), his successor Tacitus murdered
2.2. Two great army commanders: Junius Brutus and Marcus Aemilius Lepidus	2.2. Two emperors: Florian and Probus
2.3. Both commanders' armies defeated	2.3. Florian's army defeated
2.4. Duration of confusion period was about 1 year in 78–77 B.C.	2.4. Confusion period lasted about 1 year in 275–276 A.D.

3a. Marius Quintus Sertorius ([134], pp. 208–209)	3b. Probus ([134], p. 413)
3.1. Power gained by Sertorius after Sulla's death and confusion period	3.1. Probus became emperor after Aurelian's (Sulla's analogue) death and confusion period
3.2. Conspiracy against him	3.2. Soldiers' mutiny against Probus
3.3. His murder	3.3. Murder of Probus
3.4. Ruled for 6 years in 78–72 B.C.	3.4. Ruled for 6 years in 276–282 A.D.

4a. Confusion ([134], p. 215)	4b. Confusion ([134], pp. 647–648; [74], Table 15)
4.1. Much confusion after Sertorius' death in 72 or 71 B.C., Spartacus' insurrection	4.1. Much confusion after Probus' (Sertorius' analogue) death in 282 or 284 A.D.
4.2. Two great army commanders in those two years: Pompey and Crassus	4.2. Two great army commanders in those 2 years: Aurelius Carinus and Numerian (Pompey's and Crassus' analogues)
4.3. Confusion duration lasted 2 years in 72–71 B.C.	4.3. Confusion period lasted for 2 years, from end of 282 to beginning of 284 A.D.

5a. Gneius Pompey the Great (organized First Triumvirate)	5b. Diocletian the Divine (organized First Tetrarchy)
5.1. After confusion period in 70 B.C., power passed to emperor Pompey, who obtained triumph and consulship [268]	5.1. After confusion period in 284 A.D., Diocletian was declared emperor [268]
5.2. Pompey's rule was called "Pompey principate" ([128], Ch. XI)	5.2. With Diocletian in power, "new epoch, of Dominate, started in history of Roman Empire" ([134], p. 413)
5.3. Pompey was one of the greatest rulers in Roman history	5.3. Diocletian was one of the greatest rulers in Roman history
5.4. Carried out great democratic reforms (in particular, of court and military) ([134], p. 277)	5.4. Carried out great democratic reforms (in particular, court, military and monetary) ([128], p. 649 and further)
5.5. Declared "God" in lifetime ([128], p. 279)	5.5. Declared "Divine" in lifetime ([134], pp. 422–424)
5.6. Senate stripped Pompey of all his duties in 49 B.C. ([128], p. 329)	5.6. Abdicated in 305 A.D. ([134], p. 424)
5.7. Organized so-called First Triumvirate	5.7. Organized so-called First Tetrarchy
5.8. Ruled for 21 years in 70–49 B.C. [74]	5.8. Ruled for 21 years in 284–305 A.D.

In 5.1a: The situation for the term "emperor" in the case of Pompey is extremely similar to that for Sulla; though Pompey is normally not regarded as a "true" emperor, Plutarch calls him such without any reservations. There are ancient Latin inscriptions in which Pompey is called emperor (see, e.g., [132], p. 91, No. 34).

6a. Pompey's and Julius Caesar's co-rule. First Triumvirate	6b. Diocletian's and Constantius I Chlorus' rule. First Tetrarchy
6.1. (a) Pompey, (b) Julius Caesar, (c) First Triumvirate, (d) Crassus	6.1. (a) Diocletian, (b) Constantius I Chlorus, (c) First Tetrarchy, (d) Maximian
6.2. At top of his fame in 60 B.C., Pompey created so-called First Triumvirate to fight enemies, passing power to two great political figures, Julius Caesar and Crassus, and cooperating with them ([134], p. 227)	6.2. At top of his fame in 293 A.D., Diocletian created so-called First Tetrarchy to fight enemies, passing power to three great figures: Constantius I Chlorus, Gaius Galerius and Maximian ([134], p. 420)
6.3. Pompey first came to terms with Crassus, and then united with Julius Caesar	6.3. Diocletian first cooperated with his co-ruler Maximian, and then introduced Constantius Chlorus (and also Galerius, who however, did not play an important role)
6.4. The coalition called First Triumvirate (*ibid.*)	6.4. This coalition called in history First Tetrarchy (*ibid.*)
6.5. Julius Caesar was less popular and important than Pompey, but more than Crassus ([134], pp. 226–228)	6.5. Constantius Chlorus was less popular and important than Diocletian (Pompey's analogue), but more than Maximian (Crassus' analogue) (*ibid.*)
6.6. After Pompey's deposition, power passed to Caesar, his co-ruler	6.6. After abdication, Diocletian's power passed to Constantius Chlorus, his co-ruler
6.7. Pompey and Caesar co-ruled for 11 years in 60–49 B.C.	6.7. Co-rule of Diocletian and Constantius Chlorus lasted for 11 years in 293–305 A.D.

7a. Confusion	7b. Confusion ([134], pp. 244–247, [128], pp. 330, 332, [74], Table 12)
7.1. Much confusion after Pompey's overthrow in A.D. 49, lasting for 4 years in 49–45 B.C. ([134], pp. 244–247)	7.1. Much confusion after Diocletian's abdication in 305 A.D., lasting for 4 years in 305–309 A.D. [128], [134]
7.2. Confusion period embraces all of Caesar's and Second Triumvirate's rule	7.2. Confusion period embraces all of Constantius Chlorus' (Caesar's analogue) rule and Second Tetrarchy (Second Triumvirate analogue)
7.3. Ends with Octavian Augustus' rise	7.3. Ends with Constantine's (Augustus' analogue) rise

8a. Julius Caesar	8b. Constantius I Chlorus
8.1. First Triumvirate winner	8.1. First Tetrarchy winner
8.2. Came to power after confusion period and dynastic struggle, crushing former co-rulers	8.2. Came to power during confusion period and dynastic struggle, crushing former co-rulers
8.3. Ruled for 1 year in 45–44 B.C.	8.3. Ruled for 1 year in 305–306 A.D., was proclaimed "Augustus" in 305 A.D.
8.4. Adopted and advanced 19-year-old Octavian	8.4. Enthroned his 20-year son Constantine
8.5. Octavian then became famous Augustus, and was made demigod	8.5. Became famous Augustus, and was made demigod

In 8a: In traditional history, Julius Caesar (as well as Sulla and Pompey) is regarded as a "fictitious" emperor, which again contradicts ancient data. For example, Plutarch called Julius Caesar "king" [268], [268*], V. 3, pp. 486–487. There are ancient coins on which Julius Caesar is called emperor. There are antique Latin inscriptions in which he is called emperor without any reservations (see, e.g., [132], p. 184, No. 137).

9a. Triumvirs and increasing role of one of them, Gaius Julius Caesar Octavian (Augustus)	9b. Tetrarchs and increasing role of one of them, Gaius Flavius Valerius Constantine (Augustus)
9.1. Supported by his armies, 19-year-old Octavian, Julius Caesar's son, claimed throne, and then got it after Julius Caesar's death	9.1. 20-year-old Constantine, Constantius Chlorus' son, proclaimed Caesar of West after Constantius Chlorus' death in 306 A.D.
9.2. Has his armies' support, is extremely popular	9.2. Proclaimed emperor by his armies, is extremely popular
9.3. Begin of so-called Second Triumvirate with Octavian's participation	9.3. So-called Second Tetrarchy with Constantine's participation
9.4. Disregard of Second Triumvirate member, Antonius, for Julius Caesar's son Octavian	9.4. Disregard of Second Tetrarchy member, Galerius, for Constantius Chlorus' son, Constantine
9.5. Due to Octavian's armies's strength and his popularity with Roman aristocracy, Antonius' conclusion of peace treaty with Octavian. Second Triumvirate ends, defeat of Antonius	9.5. Second Tetrarchy ends, defeat of enemy fleet in sea battle of Hellespont in 324 A.D., sole ruler
9.6. Confusion period and Triumvirate lasted for 17 years in 44–27 B.C.	9.6. Confusion period and Tetrarchy lasted for 18 years in 306–324 A.D.

10a. Gaius Julius Caesar Octavian Augustus. Second Triumvirate winner (these two schemes are practically identical)	10b. Gaius Flavius Valerius Constantine Augustus. Second Tetrarchy winner
10.1. Octavian's final defeat of his last adversary, Antonius, in the sea battle of Actium	10.1. Constantine's final victory over his last adversary Licinius in sea battle of Adrianople field
10.2. End of civil war period in Roman history ([134], p. 259)	10.2. End of civil war period in Third Empire history ([134], p. 429)
10.3. Octavian Augustus was one of greatest Roman emperors. Name: Gaius	10.3. Constantine I Augustus was one of greatest Roman emperors. Name: Gaius
10.4. Antonius was first his close friend and co-ruler, and then deadly enemy	10.4. Constantine's friend and co-ruler, and then mortal enemy
10.5. Service in Eastern army before rule	10.5. Service in Eastern army before rule
10.6. Importance of Second Triumvirate, its members, struggle against them, etc., at start of his career	10.6. Importance of Second Tetrarchy, its members, struggle against them, etc., at start of his career
10.7. Proclaimed "holy" [146], [146*], p. 339	10.7. Proclaimed son of God-Sun ([128], p. 674). Everything related to emperor's personality declared "holy". Church allegedly proclaimed Constantine "holy" and coequal with apostles ([128], p. 674)
10.8. New epoch in Roman history since Augustus. Roman Empire often considered to have started since this period, 27 B.C. (*ibid.*)	10.8. New epoch in Roman history since Constantine I, alleged state support of Christianity
10.9. Concentration of all important military, civil and religious power functions (*ibid.*, [134], pp. 281–290)	10.9. Concentration of all important military, civil and religious power functions ([128], p. 668)
10.10. Augustus' legislation, revival of new laws and earlier codexes ([128], p. 408)	10.10. Constantine's legislation, revival of new laws and earlier codexes of Diocletian's epoch ([128], p. 669)
10.11. No permanent residence	10.11. No permanent residence
10.12. Rome turned into new city after civil war, Octavian Augustus established himself in Rome. Rome regarded as centre of greatest importance (*ibid.*)	10.12. Transfer of Empire's capital from Rome to Constantinople, which was officially called New Rome ([134], p. 436)

10.13. Rome turned into luxurious city according to chronicles	10.13. New Rome turned into luxurious city, capital
10.14. Rome turned into marble from wooden and brick town, and was completely reorganized. 82 temples constructed and restored (*ibid.*)	10.14. New Rome turned into marble fromwooden and brick town, completely reorganized, introduction of specific administrative division coinciding with that of Italian Rome. Construction of palaces, hippodrome, temples (*ibid.*)
10.15. Birth of Jesus Christ in 27th year of Octavian Augustus' rule	10.15. Birth of Basil the Great (Jesus' analogue), in 27th year of Constantine I's rule (see above)
10.16. Ruled for 41 or 37 years	10.16. Ruled for 31 years

In 10.16: There are two variants of the start of Augustus' rule, viz., 27 B.C. (see above) and 23 B.C., the year of the start of the emperor's absolute power. He was given dictator's rights, lifetime consulate and infinite unrestricted legislative power [134], [146]. Three variants for Constantine I (see above) existed. Here, we have taken the basic one, who ruled in 306–337 A.D.

11a. Tiberius	11b. Constantius II
11.1. No direct heir after Augustus' death ([128], p. 412)	11.1. No direct heir after Constantine I's death, separation of Empire between his three sons and two nephews, ferocious power struggle ([134], p. 438)
11.2. Due to unsolved problem of succession, fighting other claimers of the throne (e.g., Germanicus) after enthronement (*ibid.*)	11.2. Due to unsolved problem of throne succession, capture of Constantinople and murder of families of two of Constantine's half-brothers (*ibid.*)
11.3. Adopted by Augustus (*ibid.*)	11.3. Constantine's son (*ibid.*)
11.4. Smothered (strangled) by "bed covers" (*ibid.*,p. 423)	11.4. Died suddenly (*ibid.*, p. 440)
11.5. Ruled for 23 years in A.D. 14–37	11.5. Ruled for 24 years in 337–361 A.D.

12a. Struggle between Tiberius and Germanicus. Murder of Germanicus	12b. Struggle between Constantius II and Constans. Murder of Constans
12.1. Simultaneous appearance of Germanicus and Tiberius on political arena ([128], p. 414), both of regal origin ([128], p. 414)	12.1. Simultaneous appearance of Constantius II and Constans on political arena in 337 A.D.; Constans, brother's co-ruler in West ([134], p. 439)

12.2. Germanicus, Tiberius' nephew. Their lots always closely related; Tiberius' permanent primacy (*ibid.*)	12.2. Constans, Constantius II's brother. Constantius II always took upper hand (*ibid.*)
12.3. Several great victories over "Barbarians" at his career start (*ibid.*)	12.3. Several victories over Barbarians at his career start (*ibid.*)
12.4. Due to competition between Tiberius and Germanicus, serious struggle between them. Germanicus blamed by Tiberius for conspiracy preparation (*ibid.*)	12.4. Allegedly religious riots in Empire, Constantius II and Constans in different camps ([134], p. 439)
12.5. Germanicus' murder by Piso, governor of Syria (*ibid.*)	12.5. Constans' murder by impostor Magnentius (*ibid.*)
12.6. Allegedly desiring to divert suspicion of Germanicus' murder, Tiberius organized process against Piso and put him to death (*ibid.*)	12.6. Expedition against Magnentius and his execution (*ibid.*)
12.7. "Co-rule" lasted for 13 years in A.D. 6–19	12.7. Co-rule lasted for 13 years in 337–350 A.D.

13a. Gaius Caesar (Caligula)	13b. Caesar Julian
13.1. Not much information about Caligula [128]. Allegedly mad, imagined himself "earthly divinity", developed his cult by very morbid means ([134], p. 300, [128], pp. 423–424)	13.1. Much information about Julian, greatest religious reformer, information about reforms' character contradictory, sometimes called "God" by Byzantine historians [134]
13.2. Ruled for 4 years in A.D. 37–41	13.2. Ruled for 2 years in 361–363 A.D.
13.3. Killed due to conspiracy ([134], p. 301)	13.3. Killed in expedition allegedly by javelin. Many legends about his death ([134], p. 441)
13.4. Legend of his nickname "little soldier's boot" (= Caligula) because of his soldier's boots in childhood	13.4. Traditionally regarded as fervid worshipper and priest of Mithra. Forced as Mithra's priest to wear red soldiers' (!) boots or shoes [91]

14a. Confusion after Caligula's death. Short confusion period under emperor	14b. Confusion after Julian's death. Short confusion period under emperor
14.1. Confusion after Caligula's death in 41 A.D. Election of Claudius as emperor by army ([134], p. 301)	14.1. Confusion after Julian's death in 363 A.D. Election of Jovian as emperor by army ([134], p. 441)

14.2. Claudius' rule lasted for only several months. Senate attempted to oppose army's decision (*ibid.*)	14.2. Jovian "ruled" for no more than 7 months in East, not reaching capital in his expeditions (*ibid.*, [74], Table 16)

15a. Claudius	15b. Valentinian I
15.1. Army proclaimed Claudius emperor during confusion period lasting for several months	15.1. Army proclaimed Valentinian I emperor after confusion period with Jovian in East
15.2. Scribonianus' uprise 1 year after Claudius' enthronement ([134], p. 301)	15.2. Procopius' uprise 1 year after Valentinian's enthronement ([134], p. 442)
15.3. Scribonianus' uprise was one of most powerful and well-known in Empire's history. Scribonianus was vice-regent in Illyria (*ibid.*)	15.3. Procopius' uprise was one of most powerful and well-known in Empire's history. Procopius was Julian's relative (*ibid.*)
15.4. Simultaneous disclosure of conspiracy by Scribonianus' partisans in Rome ([134], pp. 301, 442)	15.4. Simultaneous disclosure of conspiracy by Procopius' partisans in Rome (*ibid.*)
15.5. Defeat of Scribonianus' armies and conspirators	15.5. Defeat of Procopius armies and conspirators
15.6. Great repressions against Roman population and prior administration (*ibid.*)	15.6. Great repressions against wide circles of uprise supporters (*ibid.*)
15.7. Serious opposition from army, praetorians and legionaries. Roman nobility was also against Claudius (*ibid.*)	15.7. Serious displeasure in army, also embracing "wide circles of population" (*ibid.*)
15.8. Poisoning of Claudius (*ibid.*)	15.8. His sudden death only reported (*ibid.*)
15.9. Ruled for 13 years in A.D. 41–54	15.9. Ruled for 11 years in 364–375 A.D.

16a. Claudius' and Pallas' "co-rule". Claudius, Pallas and Narcissus within "triumvirate" framework	16b. Valentinian's and Valens' co-rule. Valentinian I, Valens and Gratian within "triumvirate" framework
16.1. (1) Claudius, (2) Pallas and (3) Narcissus	16.1. (1) Valentinian I, (2) Valens and (3) Gratian
16.2. "Triumvirate" of Claudius and his two powerful favourites, Pallas (Valens?) and Narcissus (Gratian?) exerting enormous influence on Empire's politics during Claudius'	16.2. "Triumvirate" organized by Valentinian I: Valens, his co-ruler. Gratian's help in West since 367 A.D. ([134], pp. 441–442). Close names PLLS = VLNS if freed of vowels

rule ([128], p. 426)	(cf. often assimilated "p" and "v")
16.3. "Triumvirate" members in order of their influence: Claudius, Pallas, Narcissus (*ibid.*)	16.3. "Triumvirate" members in order of their influence: Valentinian I, Valens, Gratian (*ibid.*)
16.4. Claudius' and Pallas' "co-rule" lasted for no more than 13 years	16.4. Valentinian's and Valens' co-rule lasted for 11 years

17a. Tiberius Claudius Nero (= Nero)	17b. Valens
17.1. Nero, Claudius' adopted son, became emperor after Claudius had been poisoned ([128], p. 789)	17.1. Remained sole ruler after Valentinian's "sudden death" in 375 A.D. ([128], p. 793)
17.2. Ruled for 14 years in A.D. 54–68	17.2. Ruled for 14 years in 364–378 A.D.
17.3. Sharply distinguished from Second Empire rulers by series of murders, persecutions and confiscations ([128], p. 431). Treasury repeatedly filled with mass confiscations	17.3. Sharply distinguished from Third Empire rulers by series of murders, persecutions and confiscations [134]. Treasury repeatedly filled with mass confiscations
17.4. Displeasure in empire with Nero's policy. Plot in A.D. 65	17.4. Displeasure in empire with Valens' policy. Conspiracy and Procopius' uprise (see above)
17.5. Empire's upper classes at head of plot ([128], p. 437)	17.5. Empire's upper classes at head of conspiracy ([134], p. 442)
17.6. Disclosure of conspiracy and defeat of uprising (*ibid.*)	17.6. Disclosure of conspiracy and defeat of uprising (*ibid.*)
17.7. Great repressions and mass denunciations in return (*ibid.*)	17.7. Great repressions and mass denunciations (*ibid.*)
17.8. Ferocious persecution of Christians; death of vast multitude of Christians with atrocious tortures (*ibid.*)	17.8. Ferocious persecution of Christians. Valens was Arian. In particular, persecution of Basil the Great under Valens = Herod (*ibid.*; see above)
17.9. "Anti-Christian repressions" especially strong in Rome (*ibid.*)	17.9. "Anti-Christian repressions" especially strong in Rome (*ibid.*)
17.10. Empire sharply deteriorated at end of Nero's rule (*ibid.*)	17.10. Empire sharply deteriorated at end of Valens' rule (*ibid.*)
17.11. Julius Vindex uprise, culmination of this turbulent time ([134], p. 306)	17.11. Goths' uprise on Danube in 376 A.D., culmination of this turbulent time ([134], p. 443)

17.12. Uprise in Aquitania, on border of empire. No conspiracy in Rome (*ibid.*)	17.12. Uprise on Danube, border of empire. No conspiracy in Rome [128]
17.13. Call for Western provinces to overthrow Nero ([128], p. 438)	17.13. Call for Western provinces to overthrow Valens
17.14. Governors of Nearer Spain joined revolt ([134], p. 306)	17.14. Mesis and Thrace joined uprise (*ibid.*)
17.15. Vindex's defeat by Rhine legions. However, they turned arms against Nero and demanded his dismissal (*ibid.*)	17.15. Defeat of Government troops ([128], p. 443)
17.16. Nero's fleeing and death ([128], p. 438)	17.16. Valens' fleeing and perishing during persecution (*ibid.*)
17.17. Nero's predecessor was Claudius, whose wife was well-known debauchee Messalina, woman with "stained reputation". Valentinian I, analogue of Claudius (see right column). Messalina was killed by Claudius after a scandal in which she publicly married her lover	17.17. Due to parallel between legends of Basil the Great and Jesus, Valens overlaps with king Herod (see above). John the Baptist reproached Herod (i.e., Valens) for marrying brother's (Valentinian's) wife ([128], p. 441), clearly with her consent. Thus, Valentinian's (Valens' predecessor and Claudius' analogue) wife was woman with "stained reputation"(?)
17.18. The names of Nero and his predecessor Claudius are close: complete names of both contain the following similar formula: "Claudius Tiberius Nero Druse Germanicus"	17.18. Very close names: Valens and Valentinian

18a. Nero's, Burrus' and Seneca's "co-rule". Death of Burrus	18b. Valens', Valentinian I and Gratian's co-rule. Death of Valentinian I
18.1. (1) Nero, (2) Burrus, (3) Seneca	18.1. (1) Valens, (2) Valentinian I, (3) Gratian
18.2. Policy during first part of Nero's rule in philosopher Seneca's and praetorian prefect Burrus' hands ([128], p. 430)	18.2. Policy during first part of Valens's rule in his elder brother Valentinian's (Burrus' analogue) hands
18.3. Burrus placed first in this "triumvirate", Nero's chief adviser ([134], p. 305)	18.3. Valentinian I placed first in this "triumvirate" ([74], Table 16), Gratian third
18.4. Nero's 8-year co-rule with Burrus in 54–62 A.D. (*ibid.*)	18.4. Valens co-ruled with Valentinian I for 11 years in 364–375 A.D. [134]

18.5. Seneca's co-rule with Nero during almost all of his reign in 54–65 A.D.	18.5. Gratian's (Seneca's analogue) co-rule with Valens during almost all his reign in 367–378 A.D.

19a. Nero's and Seneca's "co-rule"	19b. Valens' and Gratian's co-rule
19.1. Lasted for 11 years in 54–65 A.D.	19.1. Lasted for 11 years in 367–378 A.D.

20a. Servius Sulpicius Galba	20b. Jovian
20.1. Proclaimed emperor by army	20.1. Proclaimed emperor by army
20.2. Ruled for about 1 year in 68–69 A.D. ([128], p. 789, [134], p. 208)	20.2. Ruled for about 1 year in 363–364 A.D. ([128], p. 793)
20.3. Abolishment of almost all orders and customs of his predecessor [128]	20.3. Abolishment of almost all orders and customs of his predecessor (*ibid.*)

21a. Confusion	21b. Confusion
21.1. Civil war after Galba's death. Continued for no more than 1 year in 69 A.D.([134], p. 309)	21.1. Civil war after Valens' death. Lasted for no more than 1 year in 378 A.D. ([134], p. 443)

22a. Two emperors called Titus Flavius Vespasian	22b. Gratian after Valens' death and Valentinian II after Valens' death
22.1. Coincident names. Regarded as "father and son" ([128], p. 789, [134], pp. 309–310). "Double Titus" ruled for 12 years in 69–81 A.D. in the West	22.1. Gratian and Valentinian II. Unique rulers of Western Empire (at this time). Ruled for 13 years in 379–392 A.D. ([128], p. 793, [74], Table 16)

23a. Titus Flavius Domitian	23b. Theodosius I the Great
23.1. Came to power after "double Titus"	23.1. Came to power during Gratian's and Valentinian's rule in West
23.2. Concentrated enormous power in his hands, which was stressed in chronicles ([134], p. 313)	23.2. Concentrated enormous power in his hands, which was stressed in chronicles ([134], p. 444, [122], p. 793)
23.3. Demanded titles of Lord and "God" (*ibid.*)	23.3. Extremely religious ruler. Complete control over Church [134]
23.4. Dacians' threat to provinces of Balkan peninsula ([134], p. 314)	23.4. Goths' threat to provinces of Balkan peninsula

23.5. Heavy defeat of Domitian's armies (*ibid.*)	23.5. Heavy defeat of his armies (*ibid.*)
23.6. Hard and long war with Dacians	23.6. Hard and long war with Goths
23.7. Peace treaty with Dacians (*ibid.*)	23.7. Bribing Goths, reached peace treaty with them ([134], p. 444)
23.8. Treaty regarded as unfavourable: In spite of Dacians being empire's "allies", relations with them extremely tense ([134], p. 316)	23.8. Treaty regarded as unfavourable: Goths "formed semi-independent state on Roman territory" (*ibid.*)
23.9. Treaty concluded in 8th year of rule (*ibid.*)	23.9. Treaty concluded in 7th year of rule (*ibid.*)
23.10. One of most important treaties signed by empire (*ibid.*)	23.10. One of most important treaties signed by empire (*ibid.*)
23.11. Internal trouble after war. Saturninus' conspiracy. Emperor's repressions (*ibid.*)	23.11. Internal trouble after war, allegedly on religious basis. Massacres, looting, arson. Emperor's repressions (*ibid.*)
23.12. Ruled for 15 years in 81–96 A.D.	23.12. Ruled for 16 years in 379–395 A.D.

24a. Marcus Cocceus Nerva	24b. Eugenius
24.1. Became emperor immediately after Domitian's death. Ruled for 2 years in 96–98 A.D. in West ([134], p. 317)	24.1. Became emperor immediately after Theodosius' death. Ruled for 2 years in 392–394 A.D. in the West ([128], p. 793)

25a. Nerva's co-rule	25b. Eugenius' co-rule
25.1. Trajan, well-known emperor "eclipsing" Nerva, his co-ruler	25.1. Theodosius I, well-known in history of empire, and "eclipsing" Eugenius, his co-ruler
25.2. Co-ruled for 2 years in 96–98 A.D.	25.2. Co-ruled for two years in 392–394 A.D.

26a. Marcus Ulpius Trajan	26b. Arcadius
26.1. Rule regarded as beginning of so-called Golden Age ([134], p. 317)	26.1. Regarded as "lucky". Overpowered "rich and cultural East" in 395 A.D. ([134], p. 445)
26.2. Ruled for 19 years in 98–117 or 16 years in 101–117 A.D. Little known for about first 3 years of his rule (*ibid.*, p. 128)	26.2. Ruled for 13 years in 395–408 A.D. ([128], p. 793, [74], Tables 16–17)

26.3. Three large-scale wars in his rule	26.3. Three large-scale wars in his rule
26.4. Famous Decebalus, Dacians' leader, his adversary on Balkan peninsula [134]	26.4. Famous Alaric, Goths' leader, his adversary [128], [134]
26.5. Overlapping of Goths and Dacians (cf. No. 23)	26.5. Overlapping of Goths and Dacians (cf. No. 23)
26.6. First war with Decebalus started almost immediately after coming to power [128]. (More precisely, in third year of his rule, but information about these three years is practically absent.)	26.6. First war with Alaric started almost immediately after coming to power [128]
26.7. Decebalus (name has meaningful translation): legendary army commander in traditional history	26.7. Alaric (name has meaningful translation): legendary army commander in traditional history
26.8. Large-scale and heavy war with Decebalus. Lasted for 2 years (*ibid.*, [134])	26.8. Large Roman army headed by Stilicho waged war with Alaric. Lasted for 2 years (*ibid.*)
26.9. Peace treaty with Decebalus after war ([128], p. 789)	26.9. Peace treaty with Alaric ([128], p. 793)
26.10. Strengthening Decebalus' army during armistice. Decebalus' army powerful for several years	26.10. Strengthening Alaric's army during armistice. He is powerful for several years
26.11. Armistice violated by Decebalus. Second war with Trajan	26.11. Violation of armistice by Alaric. Second war with Arcadius
26.12. Continued for several years	26.12. Lasted several years
26.13. Results inconclusive. Armistice	26.13. Results inconclusive. Armistice
26.14. Third war with Trajan. Lasted for several years [128], [134]	26.14. Third war with Arcadius. Lasted for several years (*ibid.*, [134])
26.15. War with "Parthia"	26.15. War with Alaric
26.16. Third war lost, Rome's defeat [128]	26.16. Third war lost, Rome's defeat, army commanded by *Roman* (Stilicho)
26.17. Decebalus on Balkans was Trajan's principal enemy	26.17. Alaric from Balkans was Arcadius' principal enemy

27a. Publius Aelius Hadrian	27b. Honorius
27.1. Adopted by Trajan, relative of Trajan's wife ([134], p. 322)	27.1. Arcadius' brother [134]

27.2. Roman forces weakened ([134], p. 324)	27.2. Roman army becomes decrepit ([134], p. 446). The descriptions of these two processes under Hadrian and Honorius were carried out in the modern monographs practically in the same words:
27.3. "Since many Roman citizens refused the service in the legions, Hadrian started filling the legionaries' ranks with people from the provinces with the right to Roman citizenship, and also with free provincials. Since his time, the legionaries completely lost their 'Roman' character, and turned into an army collected from different races, armed with Roman ammunition as lingua franca" ([134], p. 324)	27.3. "The Roman armies of the time were not any more similar to the legions of the earlier empire. Though the name 'legions' was retained, the ammunition and organization of the Roman army after the defeat at Adrianople completely changed. It became the contingent of mercenary Barbarian warriors ... Most of the army commanders were chiefs of Barbarian tribes with Roman military titles" ([134], p. 446)
27.4. Army's demoralization	27.4. So-called Adrianople massacre. Though historians mean Roman armies' defeat near Adrianople in 378 A.D., Hadrian may not be purely accidentally related to Honorius' biography, chain of coincidences
27.5. Hadrian's serious illness, suspicious character, childless ([134], pp. 322–325)	27.5 Honorius' serious illness, lightheaded, childless ([134], p. 449, [124], [124*], p. 33)
27.6. Most important treaty with Parthia, war which overlaps with war with Alaric (cf. above)	27.6. Important peace treaty with Alaric by Arcadius' order
27.7. Suddenly suspicious of conspiracy among his army commanders. Cruel reprisals. No names in sources. Conspirators "among high army commanders"	27.7. Treacherous murder of his best army commander, Stilicho, charged with conspiracy: alleged calumny ([128], p. 793)
27.8. Ruled for 21 years in 117–138 A.D.	27.8. Ruled for 28 years in 395–423 A.D.

(See [74], [128], p. 793, [134], p. 325).

Remark. The "biographies" of the Roman emperors, preserved by the chronicles, are quite fragmentary and are not at all known in every detail. Therefore, these accidentally preserved data, which sometimes are even of extremely commonplace nature—say, fragments of descriptions of reforms, of tense situations in the country, etc.—sometimes become important as unique evidence. For us, they are just sets of formal data, basically of legendary character, which we are forced to compare also in a purely formal way, without investigating the problem of what "actually" happened.

28a. Titus Aurelius Antoninus Pius	28b. Aetius
28.1. Emperor after Hadrian in 138–161 A.D. ([128], p. 789)	28.1. 6-year-old Valentinian III, in formal custody of his mother Placidia, proclaimed emperor in West. She, in turn, was under influence of Aetius, Barbarian by birth [124], official custodian of Valentinian III ([128], p. 757). Unique ruler of empire. Theodosius II, his co-ruler in East, figure of little importance, had no influence on empire's policy [124], ([124*], p. 35)
28.2. Turbulent rule in military respect. Numerous wars in various parts of empire with Dacians, Germans and in East ([134], p. 326)	28.2. Turbulent rule in military respect. Repeated intrusions by Barbarians [128]
28.3. Quite successful professional army commander. In spite of large number of enemies, cleverly defended empire [124]	28.3. Remarkable professional army commander. Success in military operations [124]
28.4. Revealed extreme cunning due to generally unstable situation of empire; in particular, ingratiated himself with lower classes: dispensed food, restricted power of ruling class over slaves, etc. ([128], p. 789; [134], p. 325)	28.4. Being Barbarian, forced to constantly improve his position in Rome, to reveal extreme cunning in internal policy, and to ingratiate himself with the most varied classes of Roman society. Well-known politician (*ibid.*)
28.5. Ruled for 23 years in 138–161 A.D. ([128], p. 789)	28.5. Ruled for 21 years in 423–444 or 14 years in 423–437 A.D. His authority lessened in 437 A.D. ([124*], p. 486). Power taken by Valentinian III after custody was lifted, though formally, Aetius remained influential until 444 A.D., year of his final fall, when he lost important battles ([124*], p. 486)

29a. Marcus Aurelius	29b. Valentinian III
29.1. Antoninus Pius' (Aetius' analogue) adopted son. ([134], p. 326)	29.1. Aetius' (Valentinian's custodian; see above) "adopted son"
29.2. Co-ruled with Lucius Verus (*ibid.*)	29.2. Co-ruled with Theodosius II in East [134]
29.3. Lucius Verus was younger (*ibid.*)	29.3. Theodosius II was younger (*ibid.*)
29.4. Lucius Verus completely dominated by Marcus Aurelius: "Marcus Aurelius, eldest of them, was the actual ruler ..." ([134], p. 326)	29.4. Theodosius II completely dominated by Valentinian III (*ibid.*)
29.5. Lucius Verus' death before Marcus Aurelius' rule came to end (Lucius Verus' being younger) ([134], pp. 326–327)	29.5. Theodosius' death before Valentinian's rule came to end (Theodosius being younger)
29.6. Great difficulties "turning almost all of their rule into epoch of ferocious wars and economic crisis" (*ibid.*)	29.6. Great difficulties turning almost all of his rule into epoch of ferocious wars and economic decrepitude. So-called fall of empire started [134], [124]
29.7. War with king Vologaeses (*ibid.*)	29.7. Hardest war with king Attila (*ibid.*)
29.8. War with varying success, and very long	29.8. War with varying success, and very long
29.9. Peace treaty with Vologaeses, but danger remained	29.9. Peace treaty with Attila, but danger remained
29.10. War with nomad tribes breaking through Roman frontier fortifications (*ibid.*, p. 280)	29.10. War with nomad tribes, "Barbarians", intruding into empire. Series of hard wars both in West and East ([128], p. 38)

We now come to the final phase of the parallel. In both empires, hard years of confusion start simultaneously. In the Third Empire, we mostly follow the events in the West. Starting with Theodosius II, the ties between East and West grow weak.

30a. Marcus Aurelius Commodus Antoninus	30b. Ricimer
30.1. Came to power after Marcus Aurelius' death. His rule was remarkable for many "favorites" [146], ([146*], pp. 405–407)	30.1. Talented army commander advancing in 455 A.D. after Valentinian's death. Acquired enormous influence in Rome; was its actual ruler for several years. "Ricimer became the most powerful person in the Western Roman Empire" [146].

			His rule is remarkable for many "favorites", several emperors ruling for few years, succeeding each other (*ibid.*), ([146*], pp. 487–490). The comparison of these two groups of favorites leads to their practically complete coincidence
30.2.	First favorite, Perennius, soon killed (*ibid.*)	30.2.	Petronius Maximus killed in three months, first emperor (*ibid.*)
30.3.	Cleander, next favorite (*ibid.*)	30.3.	Avitus, next "emperor" (*ibid.*)
30.4.	Cleander forced to abdicate after some time (*ibid.*)	30.4.	Avitus forced to abdicate after some time (*ibid.*)
30.5.	Eclectus' enthronement and his dismissal after a short time (*ibid.*)	30.5.	Flavius Julius Majorian's enthronement and his dismissal after a short time (*ibid.*)
30.6.	Little data about several others of Commodus' favorities: certain Marciana (*ibid.*)	30.6.	Little data about several others of Ricimer's henchmen: Libius Severus, Anthemius (*ibid.*)
30.7.	End of this reshuffling of favorites with Commodus' death (*ibid.*)	30.7.	End of this reshuffling of emperors with Ricimer's death in 472 A.D. (*ibid.*)
30.8.	Ruled for 16 years in 176–192 or 12 years in 180 (year of his father's death)–192 A.D.	30.8.	Ruled for 16 years in 456–472 A.D.

31a.	Publius Helvius Pertinax	31b.	Olybrius
31.1.	Ruled for less than 1 year in 193 A.D. Little known. Hard times of Second Empire [146]	31.1.	Ruled for less than 1 year in 472 A.D. Little known. Hard times in Third Empire [146]

32a.	Marcus Didius Severus Julianus	32b.	Glycerius
32.1.	Ruled for less than 1 year in 193 A.D. Little known. Ruled during confusion [146]	32.1.	Ruled for less than 1 year in 473 A.D. Little known. Ruled during confusion [146]

33a.	Decimus Clodius Albinus	33b.	Julius Nepos
33.1.	Ruled for less than 1 year in 193 A.D. Little known. Ruled during confusion [146]	33.1.	Ruled for less than 1 year in 474 A.D. Little known. Ruled during confusion [146]

34a. Gaius Pescennius Niger	34b. Romulus Augustulus
34.1. Ruled for 1 year in 193–194 A.D.	34.1. Ruled for 1 year in 475–476 A.D.
34.2. Defeated by Severus and overthrown ([128], pp. 407, 790)	34.2. Defeated by Odoacer and overthrown ([128], p. 794; [146])

35a. Lucius Septimius Severus	35b. Odoacer
35.1. Proclaimed emperor in Germany after Niger. Connected with Germans [146]	35.1. Proclaimed emperor after Romulus Augustulus and recognized by Constantinople. Germanic Herules' Roman leader ([128], p. 760)
35.2. Defeated Pescennius Niger, Romulus' analogue. Niger killed after battle (cf. Orestes, Romulus' father ([235], p. 408)	35.2. Defeated Romulus Augustulus' Roman armies headed by his father Orestes, and overthrew Romulus. Orestes killed [146]
35.3. Strong ruler, reasonable and conscientious [146]	35.3. Reasonable and conscientious ruler, trying to restore empire's unity (*ibid.*)
35.4. His rule was sharply critical in many respects (*ibid.*)	35.4. His rule was critical in Third Empire's history. End of "purely Roman Empire". Two last emperors Odoacer and Theodoric were strangers
35.5. Difficult war with "Parthian king Vologaeses IV" with varying success. Suppression of peoples living at frontiers in north, also hard task (*ibid.*)	35.5. War with Theodoric with varying success. Goths' intrusion from north (*ibid.*). Odoacer defeated in battle, co-ruled, and soon killed (*ibid.*)
35.6. Ruled for 18 years in 193–211 A.D.	35.6. Ruled for 17 years in 476–493 A.D.

36a. Marcus Aurelius Antoninus Caracalla	36b. Theodoric the Great
36.1. Severus' co-ruler [146]	36.1. Odoacer's co-ruler [146]
36.2. Ruled in Western Empire	36.2. Ruled in Western Empire
36.3. Struggle with his co-ruler Publius Septimius Geta. Both brothers hated each other, and irrevocably divided army and court (*ibid.*)	36.3. Constantly troubled by his Eastern co-ruler Anastasius. Repeated military confrontation. Empire divided into Western and Eastern Empires (*ibid.*)
36.4. Great flexibility in internal policy. Army demoralized by bribing. Discipline deteriorated (*ibid.*)	36.4. Considerable flexibility in internal policy. Often resorted to bribing army (*ibid.*)

36.5. Full citizens' rights to all communities in empire (*ibid.*)	36.5. Equal foreigners' rights with Romans'. Great reshuffling of population (*ibid.*)
36.6. Died during preparation of campaign against Parthians in 217 A.D. (*ibid.*)	36.6. Died during preparation of campaign against Barbarians (*ibid.*)
36.7. Ruled for 24 or 6 years in 193–217 or 211 (year of Severus' death)–217 A.D.	36.7. Ruled for 29 or 33 years in 497–526 or 493 (year of Odoacer's death)–526 A.D., but officially recognized by Zeno only in 497 A.D. (*ibid.*)

Here end the dynastic streams of the Second and Third Empires. It is striking that the parallel continues still further, viz., the periods 217–235 and 526–536 A.D. are also parallel.

We illustrate this with the following examples.

1. Second Empire ended its existence amid fires, wars and anarchy, 217–270 A.D., traditionally called "political anarchy in mid-3rd c.", "soldier emperors" ([134], p. 406)	1. Third Empire ended its existence in West amid fires, wars and anarchy, 526–652 A.D., traditionally called "political anarchy in mid-6th c., time of Eastern Goths' rule in Italy" [146]
2. Great anarchy, unique in global Second Empire's history	2. Great anarchy, unique in global Third Empire's history
3. Power seized by Julia Maesa in 217 A.D. after short rule by freedman Macrinus(?) ([134], p. 404–406). The names "Amalasuntha" and "Maesa Julia" are probably close: Freed of vowels, they sound MLSNTH and MSJL	3. Power seized by Amalasuntha after Theodoric's (Caracalla's analogue) death [146], ([146*], pp. 498–499)
4. Julia Maesa was Caracalla's relative (*ibid.*)	4. Amalasuntha was Theodoric's daughter (*ibid.*)
5. Her daughter Mamaea was nearby, in "supporting role". Two women	5. His sister Matesuentha was nearby, in "supporting role". Two women
6. Julia Maesa well-known in Roman Empire's history: only she and Amalasuntha ascended as emperors to throne	6. Amalasuntha well-known in Roman Empire's history: Only she and Julia Maesa enthroned as emperors
7. Julia Maesa's elder son Varius Avitus Bassianus (Marcus Aurelius Antoninus) Heliogabalus was Roman emperor (*ibid.*)	7. Amalasuntha's elder son Amalaric was Roman emperor (*ibid.*)
8. Heliogabalus completely dominated by Julia Maesa (*ibid.*)	8. Amalaric completely dominated by Amalasuntha (*ibid.*)

9. Heliogabalus ruled for 4 years in 218–222 A.D. (*ibid.*)	9. Amalaric ruled for 5 years in 526–531 A.D. (*ibid.*)
10. Heliogabalus was killed (*ibid.*)	10. Amalaric was killed (*ibid.*)
11. Power passed to Alexander Severus, weak and irresolute man, Julia Maesa's puppet (*ibid.*)	11. Power passed to Athalaric, Amalasuntha's second puppet, completely dominated by her (*ibid.*)
12. Alexander Severus ruled for 13 years in 222–235 A.D. (*ibid.*)	12. Athalaric ruled for 8 years in 526–534 A.D. ([74], Table 18)
13. Julia Maesa killed in 234 A.D. (*ibid.*)	13. Amalasuntha was killed in 535 A.D. (*ibid.*)
14. War in East with "Persians" at end of Julia Maesa's rule (*ibid.*) Gothic war started 3 years after her death, lasting from 238 to 251 A.D. [124]	14. War in East with Constantinople and "Persians" at end of Amalasuntha's rule. Start of Gothic war in 6th c. (*ibid.*)

We have compared the periods of 217–234 A.D. at the end of the Second Empire and of 526–535 A.D. at the end of the Third Empire in the West. The parallel continues still further; however, the investigation is made complicated by the fact that the two periods of the hardest civil wars are subjected to comparison, and that their history is extremely intricate and incomplete.

It turns out that the periods of 235–270 and 535–695 A.D. are also related by a parallel (with the years 535–695 A.D. strongly compressed), which in the following makes up the subject matter of a special study.

It is important that, reaching 270 A.D., we came just to the start of the Third Empire. It was with 270 A.D. that we began the parallel between the Second and Third Empires. Thus, we completely exhausted the whole time interval from the beginning of the Second until the start of the Third Empire.

The period 240–270 A.D.,which separates the Second Empire from the Third, is regarded as that of political anarchy reaching its peak:

"... until Claudius II came to power (in 268 A.D.—A. F.), there had existed no united Empire ..." ([134], p. 410).

Thus, 270 A.D. chosen by us as the year of the Third Empire's start was, in fact, that of the "Empire's restoration" after its alleged complete dissolution (Appendix, Fig. 97).

2. Charlemagne's Empire and The Byzantine Empire. The 330-year Rigid Shift. Comparison of the 4–6th cc. A.D. and the 7–9th cc. A.D.

The manifestation of the *c.* 333-year rigid shift is a good example of the overlapping of the block II on the line C_2 (Carolingian Empire of Charlemagne) and that on E (Eastern Roman Empire in the 4–6th cc. A.D.).

We now continue listing the parallels (isomorphisms) which we discovered in ancient dynasties. One of the strongest is the overlapping of Charlemagne's Empire from Pépin of Héristal to Charles the Fat, or 681–887 A.D., and the initial interval of the Byzantine stream in 333–527 A.D.

According to Ch. Bémont and G. Monod, Pépin of Héristal started the Carolingian dynasty [124]. He ruled in 681–714 A.D. (*ibid.*). Charlemagne's Empire ended in 887 A.D. when Charles the Fat was overthrown. The year is officially regarded as the start of the empire's dissolution (*ibid.*). Charlemagne's Empire is usually considered to have started with 768 A.D., the first year of Charlemagne's rule, but, since the Carolingian dynasty was originated by Pépin Héristal (681–714 A.D.) (see above), the three previous rulers, Pépin Héristal (681–714 A.D.), Charles Martel (721–741 A.D.) and Pépin the Short (751–768 A.D) are also included [251] in Charlemagne's Empire. The numerical isomorphism is of the following form (we also indicate certain "biographical" parallels):

1a. Pépin of Héristal	1b. Basil the Great
1.1. Ruled for 33 years in 681–714 A.D. [124], "age" of Jesus at Crucifixion	1.1. "Ruled" for 35 years from 333 ("king's birth") to 368 A.D. (No Crucifixion?)
1.2. Translation of name: "Seed, God, Heresy" can be understood as "God sowing heresy"	1.2. Founder of new religion, "heresy" from standpoint of prior cult, due to isomorphism of legends of Great King (= Jesus?)
1.3. Sole ruler of 3 Frankish kingdoms, so-called Mayor of palace (*ibid.*)	1.3. Titled Great King. Arius (325–361 A.D.) + Constantius II (337–361 A.D.) ruling for 31 years could be possibly taken instead. Since both were contemporaries, choice is unimportant

2a. Charles Martel	2b. Theodosius I the Great
2.1. Ruled for 20 years in 721–741 A.D. [124]	2.1. Ruled for 16 years in 379–395 A.D. (see above)
2.2. Well-known ruler. Carolingians' magnificence started with his formidable internal policy and lucky wars. Ended anarchy, making nobles' leadership and priesthood respect his power (*ibid.*)	2.2. Well-known ruler. Nicknamed "Great", concentrated enormous power in his hands (see above). Completely controled Church in Eastern Empire
2.3. Described by legends as staunch partisan of Christianity (*ibid.*)	2.3. Regarded as ardent Christian (see above)
2.4. More talks than battles with enemies (*ibid.*)	2.4. Often preferred bribing enemy to direct military confrontation (e.g., with Gothic chiefs). Peace treaty ([134], p. 444)

3a. Pépin the Short	3b. Arcadius
3.1. Ruled for 14 years from 754 (anointed by Stephen II) to 768 A.D. (year of his death) [124]	3.1. Ruled for 13 years in 395–408 A.D. (see above)
3.2. Anointment similar to ancient kings of Israel and close union of God with elected officials (*ibid.*)	3.2. Described both in God-contending (Israeli) and God-praising (Judaic) chronicles as Joash God-contending and Jehoran God-praising (the Bible)
3.3. Chronicles exceptionally attentive to religious reform. Pope Stephen II, head of Western church hierarchy, extremely influential. This pair is unique in Carolingian history. Pépin promised to obey pope (*ibid.*)	3.3. Chronicles exceptionally attentive to great prophet John Chrisostom and his enormous influence on Arcadius' entire policy during his rise c. 400 A.D. (see above). This pair is unique in Eastern Empire's history of 4–7th cc. A.D.

4a. Charlemagne	4b. Theodosius II
4.1. Ruled for 46 years in 768–814 A.D. [124]	4.1. Ruled for 42 years in 408–450 A.D. (see above)
4.2. Greatest Carolingian ruler. No reign since Theodosius the Great so brilliant and so embodying idea of empire. Often written as *Carolus*, or simply "king". Charlemagne = Great King	4.2. Rather mediocre ruler. In spite of long rule, strangely few particulars. Theodosius I, officially titled the Great (as well as Charlemagne) and who ruled 13 years earlier, should be mentioned. Bulk of documents describing Theodosius' I rule possibly ascribed to Charlemagne and Theodosius I the Great
4.3. Proclaimed Roman emperor (*ibid.*)	4.3. "Romaic" emperor

5a. Carloman	5b. Constantine III, or Leo II
5.1. Ruled for 3 years in 768–771 A.D. [124], ([124*], p. 134)	5.1. Ruled for 4 years in 407–411 A.D. (see above). Leo II ruled for 1 year
5.2. Co-ruled with Charlemagne, started co-ruling at Charlemagne's enthronement	5.2. Co-rule with Theodosius I (Charlemagne's analogue) started with Theodosius' enthronement
5.3. Meaningful name: Carloman = Charle-magne?, i.e., Charles the Great. *Magne* means "great"; "g" not pronounced. Strange coincidence with co-ruler' name, possible reflection of	5.3. Constantine III has the same name as Constantine the Great, one of greatest emperors. Like "Charlemagne", he also was Roman emperor. At any rate, purely formal

Charlemagne, arising due to "doubling" of certain documents speaking of same Charlemagne. Carloman regarded as Charlemagne's brother (*ibid.*)	coincidence of names "Charlemagne" and "Constantine" by dynastic parallel, identification not accidental (see below)

We will speak in more detail about the "Constantines" in the history of the Roman Empire. In particular, we shall also come back to the overlapping of Charlemagne and Constantine.

5.4. Donation of Charlemagne to pope in 774 A.D. consisting of all of central Italy, Corsica, Venice, Istria and Benevento [124]	5.4. Donation of Constantine allegedly consisting of all of Western Empire and Rome [124]
5.5. Unique Donation in Carolingian history	5.5. Unique Donation in Roman Empire 3rd–7th-c. history
5.6. Text and document itself regarded as lost (*ibid.*)	5.6. Text of Donation of Constantine preserved. Appeared first (!) just under Charlemagne (as regarded traditionally) [124]. Pope under Charlemagne repeatedly referred to Donation of Constantine as basis for possessing above geographic regions (*ibid.*)

Thus, the Donation of Charlemagne is regarded as irretrievably lost, but then we have the preserved Donation of Constantine appearing strangely enough just under Charlemagne. The pope, Charlemagne's contemporary, referred to the Donation of Constantine, having signed the Donation of Charlemagne five years earlier. Both "Donations" state almost the same. In our opinion, the "Donation of Charlemagne" and "Donation of Constantine I" represent the same document, which, by the way, has been preserved.

5.7. Loss of text regarded by modern historians as proof of this document's nonexistence as described by Charlemagne's biographers (*ibid.*)	5.7. Appearance of "Donation of Constantine I" just under Charlemagne regarded by modern historians as basis for charging this document with forgery (*ibid.*)
5.8. Vague indications that "Donation" was made by Pépin (believed to be Pépin the Short, but who possibly was Pépin of Héristal). Existence of this "Donation" regarded as	5.8. Since Pépin of Héristal overlaps with Basil the Great or Arius and Constantius II, "Donation of Constantine" just occurred under Pépin according to traditional

doubtful (*ibid.*)	chronology; therefore, "traces" of this Donation had to be left under one of Pépins, both placed in time before Charlemagne, which is just what we observed
5.9. Acceptance by Charlemagne of title *imperator augustus*. Also called *excellentissimus, serenissimus* and *piissimus*, titles recalling 6th c., and indicating Christian nature of Holy Empire. Somewhat antique luxury in Barbarian ruler's court (*ibid.*)	5.9. Constantine I, certainly, "augustus". Famous Octavian Augustus is his analogue in 2nd Empire. Ruling in 4th c. A.D., Constantine the Great allegedly was Christian emperor, possibly orthodox or Arian
6a. Louis the Pious. Ruled for 19 years in 814–833 A.D. (year of his abdication). Died in 840 A.D. [124]	6b. Leo I. Ruled for 17 years in 457–474 A.D. [124], [128], [74]
7a. Lothair, Western emperor. Ruled for 15 years in 840–855 A.D. ([74], Table 21)	7b. Zeno. Ruled for 17 years in 474–491 A.D. (*ibid.*)
8a. Charles the Bald. Ruled for 35 years in 840–875 A.D. Lothair's brother, started co-rule with him in 840 A.D. 85, and ended in 855 A.D. Died in 877 A.D. ([74], Table 21; [124])	8b. Theodoric. Ruled for 33 years in 493–526 (*ibid.*)
9a. Louis the German. Ruled for 32 years in 843–875 A.D. ([74], Table 21)	9b. Anastasius. Ruled for 27 years in 491–518 A.D. (*ibid.*)
10a. Louis II emperor of Western Holy Roman Empire. Ruled for 20 years in 855–875 A.D. ([74], Table 21; [124])	10b. Odoacer. Ruled for 17 years in 476–493 A.D. (*ibid.*)
11a. Charles the Fat. Ruled for 7 years in 880–887 A.D. (year of his overthrow) or 880–888 A.D. (year of his death) ([74], Table 21; [124])	11b. Justin I. Ruled for 9 years in 518–527 A.D. (*ibid.*)

12a. Carolingian Empire's dissolution [124]	12b. Western Roman Empire's dissolution. War between Western and Eastern Empires. Death of Theodoric in 526 A.D. Anarchy in empire

Calculations show that $\lambda(M, H) = 8.25 \times 10^{-9}$ for the whole stream from Pépin of Héristal to Charles the Fat.

Besides the isomorphism, it is interesting to see how these two streams overlap on the time scale, for which we let the start of Charlemagne's rule in 768 A.D. (it was Charlemagne who "culminated" in the Empire) coincide with that of his analogue, Theodosius II, in 408 A.D., or, which is the same, the reigns of Carloman, "Charlemagne", and Constantine III (see Figs. 43, 44, Table 4). We see that both streams are well consistent.

3. Chronological "Cut" in the Traditional Version of Ancient History

I discovered the chronological cut in the global analysis of the chronology of the Mediterranean, Europe and Asia, taking into account the listed isomorphisms.

Making use of [74] (to obtain the result, any sufficiently complete chronological tables are suitable), we succeeded in constructing a complete chronological diagram for all the kingdoms with preserved historical data. These tables are more convenient, since the 19th-c. chronological data are closer to the original conception dating from the 15–16 th cc.; therefore, analyzing [74], we investigate "rawer" material than that of the modern, "brushed-up" tables. All the kingdoms listed in [74] were divided into two groups: those possessing their own annual chronicles, and those whose data are known only from the documents of the first class. Especially much attention was paid to various ancient and medieval chronologies, eras, etc., because they form the chronological skeleton of the history (Fig. 88). It is important that the basic systems of chronology were not at all continuous: from the viewpoint of traditional chronology they had frequently been "forgotten" (sometimes for centuries) and were then "reintroduced" in the same shape.

1) In the basic eras, *dating based on the Olympiads* allegedly started in 776 B.C. ([74], Table 1). They were first introduced by Dactyl in 1453 B.C., forgotten and then assumingly reintroduced by Hercules in 1222 B.C.; they were forgotten again, and again reintroduced by Iphitus and Lycurgus in 884 B.C. However, they were used in chronology starting only with 776 B.C. The other games, e.g., the Isthmian, Nemean or Pythian games, were also forgotten and reintroduced many times. The year count by Olympiads stopped *c.* A.D. 1, lasting for about 776 years. The chronologists diverge by 500 years in their estimation of the year from which the Olympiads had been used in chronology. J. Blair asserts that it started at approximately the same time as the count since the foundation of the City (Rome?), traditionally believed to be the mid-8th c. B.C., whereas S. Lur'e claims that, in the epoch of Xenophon, i.e., 5–6th cc. B.C., the chronology based on the Olympiads

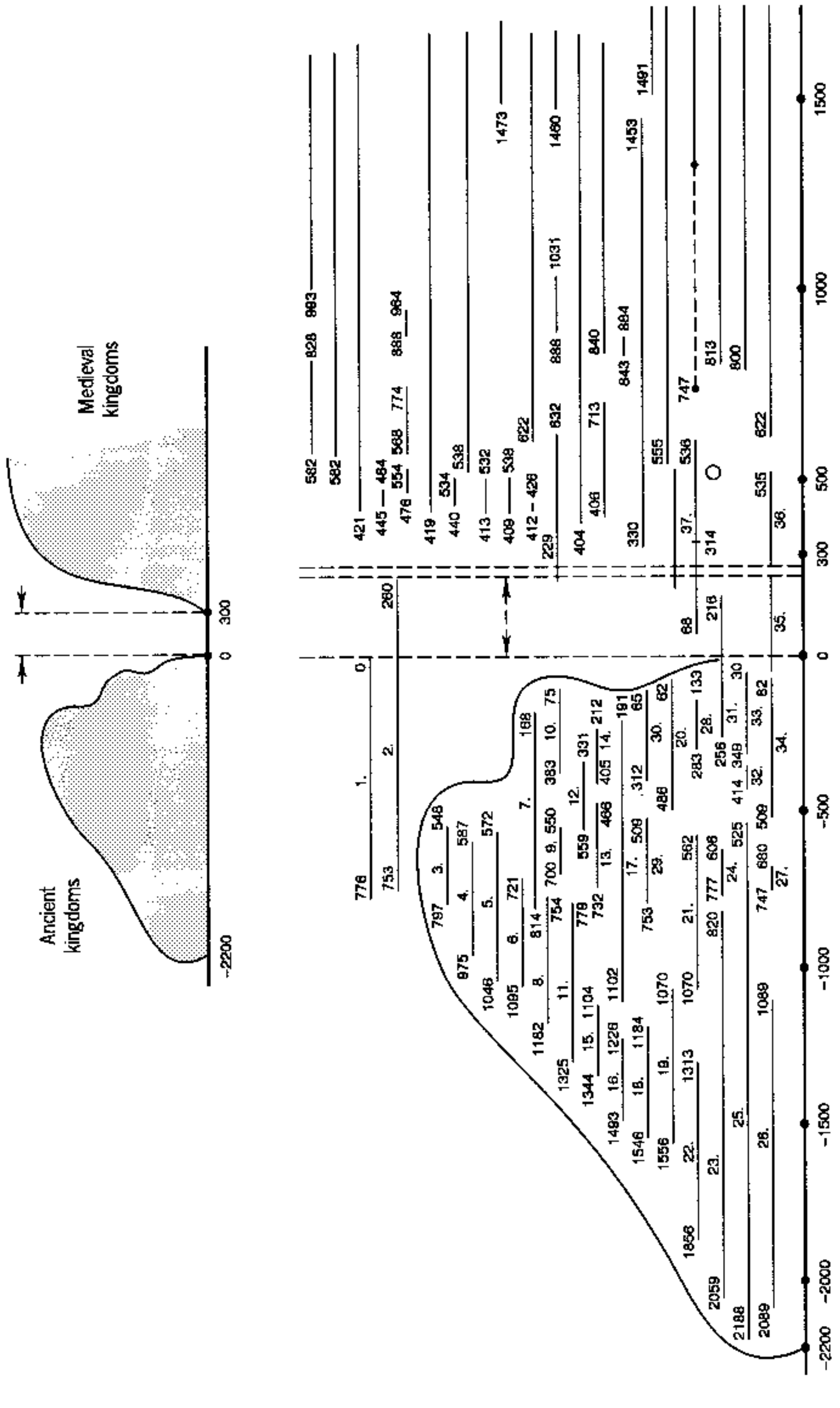

Figure 88. Chronological skeleton of traditional ancient and medieval history (medieval and modern version)

was not yet in use; it was first employed by the Sicilian historian Timaeus *c.* 264 B.C. ([142], p.224). According to S. Lur'e, Timaeus first introduced this chronology 512 years after the first Olympic games, now referred to as being 776 B.C. Thus, each time a counting of years with respect to Olympiads is encountered in a source, we should specify from exactly which date the author proceeds. According to which reference point is chosen, a date oscillation of not less than 500 years is possible even within the framework of tradition. It is important that there exists no correct substantiation of a reference from the Olympic count to that since the birth of Christ. Meanwhile, it was conjectured in [13] that counting of the years of the Olympiads (or 4-year period) was equivalent to the Julian calendar, with its leap-year system, which started not earlier than the 1st c. B.C.

2) Furthemore, *counting the years since the foundation of the City (Rome?)* started, as is normally assumed, in 753 B.C. ([74], Table 5). This was established by Varro assumingly in the 1st c. A.D. This way of counting off years ended in the 3rd c. A.D., viz., in 250–260 A.D., the period of civil wars in Rome and Italy. J. Blair asserts that most chronicles stop counting years since the foundation of Rome at that time ([74], Table 15). The identification of the City with Rome in Italy is not unambiguous, and admits the identification of New Rome on the Bosphorus, founded *c.* 300 A.D., and consecrated in 330 A.D. (*ibid.*). It is important that counting years since the foundation of the City stops precisely at the boundary between the Second and the Third Roman Empires, while overlapping the former and not being extended to the latter. Recall that the statistical dependences were discovered between the chronological data concerning them.

3) Further, *the counting of years since the birth of* Christ first came into use in 742 A.D., 700 years after the 1st c. A.D., and 200 years after the first calculations of Dionysius Exiguus (6th c. A.D.), who assumingly established more or less precisely the year of Jesus' death. Besides, having been first mentioned in an official document dating from 742 A.D., referring to years A.D. went out of use again, and started being employed from time to time only in the 10th c. A.D.

"It is only with 1431 A.D. (i.e., the 15th c.—A. F.) that the use of the term "Christian era" regularly started to be used in popes' epistles, though along with counting years since the 'Creation of the World' " ([88], p.52).

However, the term "Christian era" came into use in secular chronicles even later, being established only in the 16th c. in Germany, 16th c. in France, 1700 in Russia and 1752 in England [88]. Thus, we can speak of the regular use of "Christian era" starting only with the 16th c. A.D. The two principal ancient year counts, with respect to Olympiads and since the foundation of the City, stopped (as a minimum) 500 years before the first and unique official mention of "Christian era" in a document of 742 A.D.

4) Further, *the counting of years since the Creation of the World* is purely biblical and, hence, completely dependent on the dating of the books of the Old and New Testament.

5) The *Arabic year count since the Hejira* started in 622 A.D. ([74], Table 19).

It is important that all but two kingdoms are divided into two sets: those wholly existent before the start of the first millennium A.D., and those existing afterwards. The interval from 1 to 260 A.D. is intersected only by the Parthian kingdom and the

Roman Empire. Reasonably continual information regarding the Parthian dynasties is absent, and can only be restored from documents related to the other kingdoms ([74]); therefore, the Parthian dating cannot serve as a basis for any independent chronological reference. The second kingdom intersecting the interval is the Second Roman Empire, its end from 260 to 270 A.D. coinciding with that of the special interval 1–260 A.D. discovered by us. Moreover, the decade of 260–270, a period of civil wars and anarchy in the empire, is not covered by neither the Olympic count nor that since the foundation of the City, nor a *fortiori*, since the birth of Christ. The count since the foundation of the City stopped in 250–260 A.D., whereas the Olympic count stopped 250 years before (according to traditional chronology). The Christian count had not yet started and had not even invented, there being hundreds of years before its use. The statistical dependence between the chronological data regarding the Roman Empire in the 1st–3rd cc. A.D. and the 4–6th cc. A.D. was yet to be discovered. Hence, the Roman period of 1–260 A.D. is not independent and does depend chronologically on 314–536 A.D. (i.e., the Second Roman Empire is isomorphic to the part of the Third Roman Empire).

As we have seen earlier, the Second Roman Empire is parallel to a part of the Third Roman Empire (two versions of the same history). Therefore the Roman period of 1–260 A.D. is identified with the Third Empire (270–526 A.D.) (being pushed upwards). Then, the Roman episcopate also partly falls into the period of 1–260. However, the period of the first eight successors of St. Peter (68–141 A.D.) is legendary (see above), while that of 141–314 is not independent either and is isomorphic to 314–536 A.D. So, the first episcopate should be pushed upwards, *after which we see that the roughly 300-year-long interval from 30 B.C. to 270 A.D. turns out to be a zone where all the documents are completely silent in the chronological sense* (Fig. 88). The period from 30 B.C. to 270 A.D. ends in a chronological gap, too, since the two basic year counts of the time from the foundation of the City, and the Diocletian era which started in 284 A.D. [74], are not adjacent: the gap in between is 20 years. Any count since the birth of Christ is still out of the question. Certainly, new data have appeared, e.g., J. Blair's; his chronology of Egypt is scanty; however, the gap in the 1st–3rd cc. is still there.

4. The 1,053-year Second Basic Chronological Shift in European History

4.1. The general structure of the 1,053-year second chronological shift and the 1,800-year third chronological shift

The author has discovered that the "modern textbook" is probably fibred and is divided into the sum of almost identical copies of the same chronicle, shifted with respect to the "original" downward schift by c. 333, 1,053 and 1,778 years (Figs. 65, 66). We now briefly sketch the 1,053-year shift we discovered when comparing the volume functions constructed from annual textual information about the ancient and medieval history of Rome. We took Livy's *History of Rome* [174] as a text describing ancient history, and the fundamental work by F. Gregorovius [44] describing the Middle Ages, each of which we broke into fragments describing only one year. The volume of each fragment was calculated (see the graphs representing the volumes in Fig. 31, Part 1). The correlation of local maxima is seen explicitly. The graphs are smoothed, which indicates the dependence of the texts within the framework of the statistical model formulated and verified above. The dependence is explicit and of the same nature as that of the texts describing the same events. Moreover, we discovered that the two millennium-long intervals in the history of Rome (Europe), viz., 753 B.C.–250 B.C. and 300–1,300 A.D., also overlap, which is confirmed by other independent dating methods; in particular, by the method of dynastic parallels and overlapping of events of the corresponding periods, discovered with the enquête-code method.

The comparison of ancient and medieval primary sources and events will be carried out in accordance with one universal shift formula $T = X + 1053$, where X are the Julian dates in ancient history, and T are the Julian dates of medieval history. This is equivalent to $T = X + 300$, where T are years A.D., and X are years since the foundation of Rome, traditionally dated as 753 B.C. The comparison reveals surprising and far-reaching parallels overlapping ancient and medieval events under the 1,053-year rigid shift. Due to the lack of space, we discuss it only briefly and omit the bulky enquête-code tables occupying about 900 pages and the associated numerical treatment of the whole material.

Under the 1,053-year upward shift, the foundation of Rome traditionally ascribed to 753 B.C. coincides with 300 A.D.; therefore, in the study of the parallel, we may count the years since the foundation of Rome from 300 A.D. Note that the foundation of Rome was apparently also described in the Old Testament. In fact, Moses (Nm. 11:1–3) founds a town in TBRH (translated as Taberah), which is associated with the foundation of Rome on the Tiber. Besides, New Rome (Constantinople) was founded c. 330 A.D. [44]. We first give a short overview of the structure of the approximately 1,053- and 1,800-year shifts.

Traditional version	Shift $X + 1,053$	Shift $X + 1,800$
Regal period of seven kings in 8–6th cc. B.C.	Roman Empire in 3rd–6th cc. A.D.	Trojan kingdom of seven kings in 15–13th cc. B.C.
War with Tarquins, expulsion of kings from Rome. Start of Republic	Gothic war. Expulsion of Goths from Rome	Trojan war. Expulsion of Trojans from Troy
Ancient Republican Rome in 6th–1st cc. B.C.	Medieval papal Rome in 6th–9th cc. A.D.	Greek history in 12–9th cc. B.C.
Roman Empire in 1st–3rd cc. A.D. Start of Christian era. Jesus Christ	Holy Roman–German Empire in 10–13th cc. Hildebrand	Greek colonization in 8–6th cc. B.C. Rome of seven kings according to Livy

Soldier emperors in Italy. Anarchy and Gothic war in 3rd c. A.D.	War in Italy in mid-13th c. A.D. Fall of medieval Troy, town in Italy	War with Tarquins in Rome. Greek tyrants. Expulsion of kings
Roman Empire in 3rd–6th cc. A.D. Fall of Western Empire. War with Persians. Capture of Rome	Hapsburg Empire in 13–16th cc. A.D. Fall of Byzantine Empire in 15th c. A.D. Ottoman Sultanate. Mahometans	Famous epoch in ancient classical Greek history in 5th–2nd cc. B.C. Capture of Byzantine Empire, Empire of Alexander the Great. Macedonians

In the present section, we only consider the first two columns of the table.

The overlapping of regal Rome seven kings and the Roman Empire in the 3rd–6th cc. A.D. was first suggested in [13], and substantiated in [18] and [21], due to the application of the dynastic parallel method. This overlapping is represented on the time axis "termwise" under the 1,053-year rigid shift in Fig. 56 (Table 11). The seven kings of Livy turn out to be collective terms for the seven epochs in the history of Rome in the 3rd–6th cc. A.D. Each of them was represented by Livy as the "biographies" of one or two emperors in the 3rd–6th cc. A.D. The total duration of regal Rome was 244 years [174], whereas that associated with 300–552 A.D. lasted 252 or 246 years if we count from the first year of the rule of Constantine I. This overlapping of numerical dynasties is supported by the independent biographical parallel discovered with the enquête-code method. We give here only a short final table and indicate only the parallel events, almost completely omitting the detailed spelling-out of parallels and the enquête-codes. The table may serve only as a guide for the reader interested in restoring the basic stages of the overlapping.

The left column refers to ancient Rome (described mainly by Livy), whereas the right column refers to medieval Rome (described on the basis of [44]); 1,053-year shift.

4.2. The formula of the shift $X + 300$. Parallels between the First Roman Empire (Regal Rome), the Third Roman Empire and the Bible. The first 250 years of Roman history

We start with the analysis of the global isomorphism *lasting for 1,300 years*. Doing so formally, we let Livy's "foundation of the City" coincide with 300 A.D., and see whether this does not lead to a contradiction in comparing the *History of Rome* and other "ancient" Roman sources with medieval events according to the universal formula $X + 300$, where X are years since the "foundation of the City", used by Livy and other authors for the purpose of dating.

The "uniformity of comparison" is important in the suggested algorithm. The medieval and ancient chronologies and events are suggested to be compared uniformly, in accordance with the same formula $X + 300$, irrespective of the value of X. From the standpoint of the formula, medieval and antique chronologies are regarded as two rigid blocks overlapped with the 1,053-year shift, which causes 300 A.D. to coincide with the classical date of the foundation of Rome, 753 B.C.

(1) By the formula $X + 300$, the "regal Rome" of Livy, lasting for 244 years [174], overlaps with the Third Western Empire in 300–544 A.D. (2) The seven "kings" of Livy are collective terms for the seven epochs in the history of the Third Empire. Each epoch was represented by Livy as the "biographies" of one or two emperors whose deeds were described, ignoring or being unaware of other rulers. (3) The "biographical" isomorphism is manifest. Here are Livy's seven epochs (see Fig. 56).

(1) Romulus Quirinus (300–337 A.D.), his main "representative" being Constantine I.

(2) Numa Pompilius (337–380 A.D.), his main "representative" being Basil the Great (Great King).

(3) Tullus Hostilius (380–423 A.D.), his main representatives being Valentinian II and Honorius (Theodosius I, his co-ruler, could be taken instead of Valentinian II).

(4) Ancus Marcius (423–444 A.D.), his main representative being Aetius.

(5) Tarquinius the Elder (444–476 A.D.), his main representatives being Valentinian II and Ricimer.

(6) Servius Tullius (476–526 A.D.), his main representatives being Odoacer and Theodoric.

(7) Tarquinius the Proud (526–552 A.D.), his main representatives being the Gothic dynasty from Amalasuntha to Tejas.

Comparing the above with the numerical data supplied by Livy leads to 37–37, 43–43, 32–43, 24–21, 38–32, 44–50, and 25–26. We have $\lambda(M, H) = 10^{-4}$, which is minimum for streams of lenght 7. We now compare the total duration of Livy's regal Rome with that of the interval in the Third Empire, 300–552 A.D., which is 252 or 246 years long if we count off the first year of the rule of the first "king-emperor" Constantine I. The values 244 (Livy) and 252 differ by only 3% (with respect to 244). Livy's distinguishing certain of the indicated intervals is unambiguously consistent with the decomposition of the Third Empire into intervals bounded by long confusion periods. If we count how many years are "covered" by the above rulers in 300–552 A.D., then we obtain 242 years, whereas Livy supplied the value of 244 years. The consistency is ideal.

Livy (First Empire)	Third Empire	Bible
1a. Romulus Quirinus' epoch	1b. 300–337 A.D. (Constantine I (306–337 A.D.))	1c. Jeroboam I and Roboam
1.1. Foundation of Rome by Romulus ([174], Bk. 1, 7). Capital called after founder's name (RM = RML)	1.1. Constantine I founded (transferred) new capital, New Rome. Capital called after founder's name, viz., Constantinople	1.1. Jeroboam I (Constantine's analogue) transferred capital to Shechem and founded new capital (1K 12:1, 25)

The medieval chronicles call the temple of Constantine I in Rome Romulus' temple (see [44]).

1.2. No foundation of capitals in history of regal Rome after Romulus (*ibid.*)	1.2. No foundation of capitals in history of Third Empire's after Constantine I in 300–552 A.D.	1.2. No foundation of capitals in God-contending kingdom after Jeroboam I
1.3. Co-ruled with brother Remus ([174], Bk. 1, 6–7)	1.3. Constantine I co-ruled with Licinius (see above)	1.3. Co-ruled with Roboam (see above)
1.4. Murder of Remus by Romulus (*ibid.*)	1.4. Defeat of Licinius by Constantine I in Hellespont. Murder of Licinius in battle with Constantine I near Adrianople	1.4. Practically always at war (see above)
1.5. Sole ruler after Remus' murder (*ibid.*)	1.5. Sole ruler in 3rd Empire after Licinius' murder	1.5. —
1.6. Founders' names are close: RML = RM	1.6. —	1.6. Founders' names are close: JRBM = RBM
1.7. Rape of Sabines during period of Rome's foundation (see below)	1.7. —	1.7. Famous capture of girls of Shiloh immediately before foundation of God-contending kingdom (see also below) (Jgs 21:25)
1.8. Deified in his lifetime (Quirinus = deity) ([174], Bk. 1, 16)	1.8. Deified in his lifetime (see above). Canonization by Christian Church. Appearance of Arianism (= Jeroboam's heresy?)	1.8. Foundation of greatest religious movement, Jeroboam's heresy, playing important role in whole God-contending history
1.9. Ascension to Gods, explicitly christianized point of view (even evangelical) ([174], Bk. 1, 16)	1.9. Birth of Basil the Great in 333 A.D. at end of Constantine's life (died in 337 A.D.). Legends about Basil the Great are practically identical to those of Jesus = Asa. Hence, part of legends about Jesus = Asa possibly referring to end of Constantine's life	1.9. Establishment by investigating both God-contending and God-praising streams that "king Asa" (Basil's, or Jesus' analogue) started "ruling" 2 years before Jeroboam, i.e., at end of his lifetime (Jeroboam I being Romulus' and Constantine's analogue)

1.10. Sudden descension from Heaven. Appearance before Proculus Julius (*ibid.*, Bk. 1, 26)	1.10. Return to earth after Crucifixion of Jesus: "Some time later, Jesus showed himself to his disciples again ..." (Jn 21:1)	1.10. No such data in Book of Kings (see New Testament for Jesus)
1.11. "Lecture" to his disciples. Eventual ascension again (*ibid.*, Bk. 1, 16)	1.11. "Lecture" of Jesus to his disciples. Eventual ascension again: "... and in the act of blessing he parted from them and was carried into heaven" (Lk 24:51)	1.11. (see New Testament)

In my opinion, Livy placed the Christian legends both of Constantine I and Jesus at the end of Romulus' "biography". We now give a comparison of the legends of the Rape of the Sabines and the capture of the girls of Shiloh (cf. 1.7a and 1.7b).

1.7a (1). Event occurred under Romulus in newly founded Rome, i.e., during foundation of First Empire (regal Rome)	1.7b (1). Event occurred immediately before foundation of God-contending state: "In those days there was no king in Israel ..." (Jgs 21:25). Start of kingdom of Israel soon afterwards (according to Book of Judges and Kings)
1.7a (2). Few women in Rome. Threat to continuation of race (*ibid.*)	1.7b (2). Murder of all women in war. Threat to very existence of Benjamites (Jgs 21:16–21)
1.7a (3). Romulus sent ambassadors to neighbouring tribes, asking for their women (*ibid.*)	1.7b (3). Meeting of all elders of community to decide what to do for wives for those who remain, and asking for women of other tribes (Jgs 21:16–17)
1.7a (4). Welcome by neighbouring tribes of Romulus' ambassadors. Refusal to give women (*ibid.*)	1.7b (4). "... and the elders of the community said ... 'We cannot give them our own daughters in marriage because we have sworn that there shall be a curse on the man who gives a wife to a Benjamite' " (Jgs 21:16–25)

1.7a (5). Organization of festivities in Rome. Invitation of men from suburban villages along with their wives ([174], Bk. 1, 9)	1.7b (5). "Then they bethought themselves of the pilgrimage in honour of the Lord ... They said to the Benjamites, 'Go and hide in the vineyards ... When the girls of Shiloh come out to dance, ... seize one of them for ... wife' " (Jgs 21:19–25)
1.7a (6). Abduction and rape of women during festivities, thus providing for continuation of race. Start of Roman history in new City ([174], Bk. 1, 9)	1.7b (6). "All this the Benjamites did. They carried off as many wives as they needed, snatching them as they danced; then they went their way and returned to their patrimony, rebuilt their cities and settled in them" (Jgs 21:23)
1.7a (7). According to Livy, Rape of Sabines occurred in Italy. Foundation of Rome was made by Trojans' descendants originally arriving in Sicily after escape from Troy. Founders of Rome are "sons of Sicily", its descendants	1.7b (7). Women's abduction by Benjamites. Identification of peoples mentioned in Bible by N. A. Morozov in [13] with Mediterranean and European tribes (this location differs from traditional accounts, and is based on different reading of vowel-free terms). Identification of Benjamites with Sicilians, which places "girls of Shiloh" in Italy
1.7a (8). Term "Sabines" present in this legend	1.7b (8). Term "Benjamites" present in this legend

First Empire (regal Rome)	Third Empire	The Bible
2a. Numa Pompilius	2b. 337–380 A.D. and its main representative Basil the Great (333–378 A.D.). Emperor Julian (361–363 A.D.). We omit existing parallel between Julian's and Basil's "biographies"	2c. Judaic king Asa (Jesus?). Duplicate of Basil the Great
2.1. According to Livy, Numa was just and pious ruler, most experienced in church and civil laws	2.1. Basil the Great was one of greatest figures of Christian Church (Great King), founder	2.1. Founder of new religious cult. Important religious reforms

([174], Bk. 1, 18)	of modern religious service, Jesus' analogue (see above)	
2.2. Enthronement with direct help from Jupiter (*ibid.*)	2.2. Jesus (Asa), Basil's analogue in Third Empire, sent to earth "for service"	2.2. Jesus–Asa. See the Gospels
2.3. Almost all of Numa's initiatives of religious character (*ibid.*)	2.3. Basil's religious activity and its role in history of Third Empire mostly focussed on legends of Basil (see above)	2.3. Jesus–Asa's religious activity (according to the Gospels)
2.4. Great calendar reform. Separation of year into 12 months. Insertion of intermediate months for agreement with climatic changes and solar year. Similarity with Julian calendar with its system of leap years. Possible introduction of Sundays	2.4. Julian calendar traditionally assumed to have been introduced by Julius Caesar. Due to isomorphism between Second and Third Empires, it should have taken place under Constantius I Chlorus, i.e., *c.* 305–306 A.D., which is close to 333–378 A.D., Basil's "rule" (see also partial overlapping of Julian Caesar ruling in 361–363 A.D. and Julius Caesar; we omit details)	2.4. —
2.5. Interregnum after Numa's death ([174], Bk. 1, 22)	2.5. Interregnum after Basil's death in 378 A.D. Confusion (see above)	2.5. —

To 2.2a: It is strange that Livy should have reported nothing about Numa's death. It is possible that the reason may stem from referring these details (ascension, appearance before the disciples, etc.) to the end of Romulus Quirinus' rule.

3a. Tullus Hostilius	3b. 380–423 A.D. Valentinian II (378–392 A.D.) or Theodosius I (379–395 A.D.) and Honorius (395–423 A.D.)

3.1. Series of wars of Tullus with Alba first attacking Roman region. Start of first great war with "profane" ([174], Bk. 1, 23)	3.1. Domitian, Theodosius' duplicate in Second Empire. Start of first great war with Alba by Theodosius–Domitian at start of his rule. "Provinces of the Balkan peninsula were threatened" ([134], p. 314). Uprise of Dacians–Alba (Goths–Alba under Theodosius I) (see Second and Third Empires)
3.2. Alba united by dictator Mettius (*ibid.*)	3.2. "Alba (Dacians–Goths) united by Decebalus ("decebel", possibly derived from "Dacians *bellum*, i.e., "Dacians war")
3.3. Alba concludes peace treaty with Tullus ([174], Bk. 1, 24–25)	3.3. Alba's (Dacians-Goths') conclusion of peace treaty with Theodosius = Domitian under Valentinian II ([134], p. 444)
3.4. Violation of peace treaty by Alba. Another war with Rome. Defeat of Alba ([174], Bk. 1, 29–30)	3.4. Violation of peace treaty by Alba (Dacians–Goths). Start of another war with Rome. Alaric's arrival from Balkans ([128], p. 793)
3.5. In Tullus' lifetime (i.e., under Honorius ruling in 395–423 A.D.), rain of stones over Alban hills. "Awful voice" from peak of mountain. Alban hills traditionally placed in Italy. Apparent description by Livy of volcanic eruption	3.5. Powerful eruption of Vesuvius, well-known Italian mountain, located not far from Rome. Eruption dated to A.D. 79, destroying Pompeii as regarded by traditional history, but occuring under Honorius in 395–423 A.D. due to isomorphism of Second and Third Empires (in 409–420 A.D.; most probably, in 412 A.D.). Counting 79 years forwards from 333 A.D. ("birth" of Basil = "birth" of Jesus), we obtain just 412 A.D. (at end of Tullus epoch according to Livy)

4a. Ancus Marcius	4b. 423–444 A.D. Aetius
4.1. Enthroned after Tullus. Some correlation between names Ancus Marcius and Aetius	4.1. Actual ruler in Western Empire in 423–444 A.D. (see above)
4.2. Lucumonius' "appearance" in Rome. Subsequently called Tarquinius the Elder. Had great influence ([174], Bk. 1, 34)	4.2. Power gradually seized by young Valentinian III being in custody of Aetius (see above, [124], [128])

4.3. Tarquinius the Elder then became "Roman king", pushing aside and succeeding Ancus Marcius (*ibid.*)	4.3. Valentinian III then became, in fact, Roman emperor, pushing aside and succeeding Aetius (see above)
4.4. "Barbarian" Tarquinius the Elder came to Rome from another country, whereas Ancus Marcius was Roman (*ibid.*)	4.4. "Barbarian by origin", Aetius came to Rome from another country, whereas Valentinian III was Roman. Here, "Roman" and "Barbarian" are interchanged
4.5. Tarquinius' wife Tanaquil "of noble birth", much influenced Tarquinius the Elder (*ibid.*)	4.5. Valentinian's mother Placidia, in turn influenced by Aetius, official custodian of Valentinian III
4.6. Tanaquil's hunger for power, instigation of Tarquinius the Elder (*ibid.*)	4.6. Placidia characterized by chronicles as "intrigant" [124]. Valentinian III started pushing Aetius aside, probably, not without Placidia's help. Her "noble origin" due to being emperor's mother
4.7. Tarquinius' friendship with king (*ibid.*)	4.7. Naturally "close relations" between Valentinian III and Aetius, who was young emperor's custodian
4.8. King's children in Tarquinius' custody (*ibid.*). Here, the "custodian" and "charge" are interchanged	4.8. No one disputed Aetius' right to power until Valentinian III reached 27 years of age, Aetius being Valentinian's custodian (*ibid.*, p. 35)
4.9. Unique "custody" in "regal Rome's" history. No other king characterized in this way	4.9. Unique "custody" in Third Empire's history. No other emperor characterized in this way for such a long time and with custodian mother
4.10. "Ancus Marcius" ruled for 24 years, which is well consistent with associated biblical data (*ibid.*). It is felt that Livy knew old biblical version of Third Empire's history better than its more modern and totally secular version	4.10. Aetius ruled for 21 years (see above), though Bible speaks of 423–444 A.D. as of "interregnum", and gives him 24 years. (Fig. 89: between Jeroboam II and Menachem)
4.11. Tarquinius' study of Roman legislation under Ancus' tutorship at home and in war, in which he competed with everyone, even with king himself (!) ([174], Bk. 1, 35)	4.11. Valentinian III continued pushing Aetius aside, formally remaining in his custody and guidance. With Valentinian III growing, Aetius' influence decreased
4.12. Finally, enthronement of Tarquinius the Elder: his speech before Romans and request (?) to be	4.12. Finally, enthronement of Valentinian III: In 444 A.D., Aetius lost his influence after series of defeats

elected king (instead of Ancus). People agreed to bestow regal power on him. (*ibid.*)	in wars, and Valentinian III freed himself of burden of being in custody, while Aetius was still alive (*ibid.*)
4.13. No data about loss of regal power by Ancus Marcius. Tarquinius the Elder received it "peacefully", with "people's consent"	4.13. Valentinian III received all power "peacefully". No sharp turning point in 444 A.D., year of Aetius' loss of influence
4.14. No data about Ancus Marcius' end (*ibid.*)	4.14. Empowered by the throne, Valentinian III soon killed Aetius in Ravenna [146]

It is strange that Livy should refer the events of the "Romulus" and "Tullus" epochs to Italy, and place them near Italian Rome; on the other hand, certain other chroniclers describing the Third Empire refer the same events to the region of New Rome on the Bosphorus. It is possible that this confusion between the two Romes is due to ascribing certain Italian events to the East (and vice versa).

5a. Tarquinius the Elder	5b. 444–476 A.D. (Valentinian III (444–455 A.D) and Ricimer (456–472 A.D.))	5c. Bible. Menahem, Pekahiah and Pekah (= Ricimer (see above and Fig. 90))
5.1. Tarquinius' single, but very hard, war with "Sabines" with variable success, however ending peacefully ([174], Bk. 1)	5.1. Valentinian's single, but very hard, war with king Attila with variable success, however ending peacefully. Rome's payment of war tribute (see above isomorphisms). Attila = Pul?	5.1. Menahem's (Valentinian's analogue) single, but very difficult war with "king Pul" (see above), ending in ransom payable by Menahem in order to be released by "king Pul"
5.2. Tarquinius' times ended in turbulence according to Livy. Ferocious struggle for power. Tarquinius was killed by conspirators ([174], Bk. 1, 40)	5.2. Epoch's end coincided with Ricimer's rule. One of hardest confusion periods in Third Empire's history. Struggle for power. Series of short-ruling emperors changed by Ricimer. Anarchy (see above). After Ricimer's death, civil war in Third Empire in 472–475 A.D.	5.2. Epoch's end coincided with Pekah's (Ricimer's analogue) rule in 444–476 A.D. "Then Hoshea, son of Elah, formed a conspiracy against Pekah, son of Remaliah, attacked him, killed him ..." (2 K 15:30)

6a. Servius Tullius	6b. 476–526 A.D. Odoacer (476–493 A.D.) and Theodoric (493 or 497–526 A.D.)
6.1. Name "Servius" close to "Severus"	6.1. Septimius Severus, Odoacer's analogue in Second Empire (see above)
6.2. Characterized by Livy as rather reasonable, clever and resolute politician [174]. Emperor Geta (209–212 A.D.), Servius' = Septimius Severus' co-ruler. Name "Geta" rather close to "Goth" (or GTH if freed of vowels)	6.2. Both Odoacer and Theodoric well-known in Third Empire's history as resonable and resolute politicians (see above isomorphisms). Theodoric's Gothic origin

7a. Tarquinius the Proud	7b. 526–552 A.D. Gothic dynasty

There exists so explicit an isomorphism, very important for Roman and Greek history, between these two epochs that we devote a special section to its investigation (see below).

The question arises what percentage of the text by Livy is devoted to the events which turned out to be isomorphic in the Third Empire's history, or how much information was left by him outside those isomorphisms whose rough skeleton was exhibited above (we omit the details). It is important that Livy's text consists of separate stories devoted to one episode; having told it, Livy almost never repeated a story. It is easy to estimate the value $X = A/B$, where A is the volume (e.g., in pages) of those stories which turned out to be isomorphic to the Third Empire's events, and B the total volume of that portion of Livy's *History of Rome* which was compared with the Third Empire. We obtain that $X = 67\%$, which means that 67% of Livy's text describing regal Rome turned out to be isomorphic to part of the Third Empire's history. It is possible that some parallels remain undiscovered; we also cannot exclude the possibility that the remaining 33% of the text describe the events not covered by other chronicles which form the basis for the modern idea of the Third Empire.

4.3. War against the Tarquins and the Gothic war. The 1,053-year chronological shift and the formula $X + 300$. Comparison of the historical events of the 6th c. B.C. and the 6th c. A.D.

The action of the formula $X + 300$, which I used to describe the period from 300 to 500 A.D., is successfully extended also to the 6th c. A.D. We present the rough outline of the new isomorphism below.

1. War prehistory

1a. Servius Tullius	1b. Theodoric
1.1. Last king dying in regal Rome [174]	1.1. Last emperor of Western Third Empire dying in 526 A.D. when Italian anarchy started (see above)
1.2. Created church rights, established estates and electoral qualification ([174], Bk. 1, 42, 48)	1.2. Very flexible internal policy (see above). Founded kingdom of Ostrogoths, encouraged science and arts, gave foreigners equal rights as Romans, deported peoples (see [44], [146] and engaged in similar activity as Caracalla, Theodoric's analogue in Second Empire)
1.3. According to formula $X + 300$, died in 518 A.D. (*ibid.*)	1.3. Died in 526 A.D. (see above)

To 1.3: The difference of 8 years is precisely that between the duration of regal Rome and the Third Empire (see above).

2a. Tarquins coming to power after Servius Tullius' death. Tullia (and Lucretia)	2b. Goths (Amals) coming to power. Amalasuntha (and Matesuentha)
2.1. Power passed to Servius Tullius' daughter Tullia and her "husband" Tarquinius the Proud ([174], Bk. 1, 48, 49)	2.1. Power passed to Theodoric's daughter Amalasuntha and dynasty of Goths (Amals) (Tarquins' analogue) [109], [44]
2.2. Large group of "Tarquins" around Tullia (Tarquinius the Proud among them) (*ibid.*)	2.2. Support of numerous "Goths" for Amalasuntha. Closed clan as well as "Tarquins" (*ibid.*)
2.3. Very close names: Tullia and Julia	2.3. Due to isomorphism of Second and Third Empires, Amalasuntha overlaps with Julia Maesa (see above)
2.4. Tarquins ruled for 25 years from Servius Tullius' death to fall of Tarquinius the Proud (*ibid.*)	2.4. Goths ruled for 26 years from Theodoric's death to Goths' defeat in 552 A.D. Very close figures: 25 and 26 years
2.5. Tarquinius the Elder, probably descendant of Tarquinius the Proud, also newcomer to regal Rome (see above and *ibid.*)	2.5. Arrival of Goths and of Barbarians (see above). Regarded as strange element in Italy (at least, according to Procopius' description, whose account is used) [109], [44]

2.6. "Tarquinius", probable version of *Terra Aquilonious*, i.e., "Northern Land" [343]	2.6. Arrival of Goths from North, from "Northern Land"

To 2.6a: The Latin–Russian Dictionary by I. Kh. Dvoretsky doesn't supply a translation of the term "Tarquinius" (?); the above translation given by us indicates that the "Tarquins", people from the "Northern Land", newcomers, could be associated with the Goths. Livy's last "king", Tarquinius the Proud, is a collective term for the "Gothic dynasty" in 526–552 A.D.

2.7. Soon expulsion of Tarquins from Rome (see below). Freed of vowels, "Tarquinius" = TRQN (there is another close name Torquātus, adorned with necklace). Servius' rule before Tarquins. "Tarquins'" clan characterized by term TRQN, which is close to TRNK	2.7. Repressions on Boëthius and Symmachus prior to Theodoric's death. Torquātus Severus present in Boëthius' name (being his tribal names fixed in Theodoric's epoch and after him in 6th c. A.D.: Severus and TRQT (TRQN?) [124]. Franks' participation in Gothic war in 6th c. A.D. as Goths' allies. Term "Franks" (TRNK) is close to TRQN

Thus, both in the Tarquins' and Gothic wars, the same important term is fixed, meaning the clan of Rome's enemies: TRQN = TRNK (sometimes, the "Franks" will be identified with PRS; see below). (Sometimes "F" = "T" = "PH").

2.8. Tullia passed power to "Tarquinius" [174]	2.8. Amalasuntha (Julia Maesa) passed power to her son (Goth) Amalaric
2.9. This rule still regarded as "regal", Tarquinius being last king (however, to be exiled soon) (*ibid.*)	2.9. This rule still regarded as "regal", Amalasuntha (and Amalaric) having been recognized by Constantinople as legitimate kings; however, Goths were soon expelled ([44], V. 1)
2.10. Lucretia and Tullia. Both women were Tarquins' "wives", of regal descent (*ibid.*)	2.10. Amalasuntha and her sister Matesuentha (and also Mamaea, Julia Maesa's daughter), of regal descent (see Second and Third Empires' isomorphism above)
2.11. Both women's active participation in court life. No other women mentioned at that time (*ibid.*)	2.11. Both women's active participation in court life. No other women playing any important role in Italy at that time are mentioned ([44], [109])

2.12. Lucretia's suicide. Tullia's expulsion (her fate unknown) ([174], Bk. 1:58–59)	2.12. Murder of Amalasuntha in 535 A.D. (Julia Maesa was also killed in Second Empire. Matesuentha's alleged murder (?) (*ibid.*)

Here, Lucretia and Tullia are replaced by Amalasuntha (Julia Maesa) and Matesuentha (Mamaea). However, the motive of murder is present in both pairs.

2.13. Lucretia's alleged rape by Sextus Tarquinius (TRQN) before she died. Lucretia impaled herself on sword out of disgrace (*ibid.*)	2.13. Title of "king" passed to Goth (=TRQN) Theodahad, with Amalasuntha being in power. Theodahad was Amalasuntha's inexorable enemy. Immediately after coming to power, he reciprocated and sent Amalasuntha into exile on island where she was murdered, allegedly on Theodahad's order ([44])
2.14. Lucretia's death (and just this death!) started war with Tarquins. Tarquins' subsequent exile (*ibid.*)	2.14. Amalasuntha's death (and just this death!) started Gothic war, after which Goths were expelled from Rome (*ibid.*)

2. Start of the GTR-war

3a. Start of war. Exile of Tarquins	3b. Start of war. Expulsion of Goths from Rome
3.1. As soon as news about Lucretia's death became known in Rome, city rose against Tarquins (whole clan!). Junius Brutus gathered crowds on Forum and incited crowds to strip Tarquinius the Proud of power, exiling him. Start of war. ([174], Bk. 1:59)	3.1. Receiving news of Amalasuntha's murder, Eastern Empire's ruler Justinian I ordered Roman–Byzantine armies to Italy to expel Goths. Mund attacked Goths on land, whereas Belisarius attacked Sicily with his fleet. Start of war. [44], ([44*], V. 1, p. 319)
3.2. Tarquinius' murder as Lucretia's offender, who started war ([174], Bk. 1:60)	3.2. Amalasuntha's "offender" Theodahad, who started war, was murdered one year after Amalasuntha's death ([44*], V. 1, p. 327)
3.3. Tarquinius' flight after exile. His murder by one of his personal enemies in revenge (*ibid.*)	3.3. Escaping for liberty, Theodahad made for Ravenna after Goths' expulsion, and was strangled by a Goth who was his personal enemy (*ibid.*)

3.4. Well-known Lucius Junius Brutus, son of Marcus, and his importance in exile of king Tarquinius the Proud ([174])	3.4. Well-known Roman, pope John II Mercurius, son of Proectus of Celeus hill (?), important in expulsion of Goths from Rome in 533–538 A.D. Ruling in 532–535 A.D., he must have played great role in these turbulent times (though I could not find details of his "biography")
3.5. Name Junius Marcus Brutus Lucius = NS MRC BRT LC if freed of vowels (we take all "blocks" of which this long name is composed)	3.5. Name John Mercurius Proectus from Celeus = N MRC PRCT CL. ([44*], V. 1, p. 335, comm.(d))

It is possible that there are different versions of the same name, viz., Junius = John, Marcus = Mercury, Brutus = Proectus and Lucius = Celeus.

3.6. Lucius Junius Brutus, son of Marcus: one of most famous Romans in Roman history. Roman literature rich in mentions of him (e.g., *ibid.*)	3.6. John II Mercurius, son of Proectus, one of most famous popes. Monuments in his memory still preserved in Rome, with inscriptions, which not every pope can boast (*ibid.*)
3.7. Lucretia called "Roman" by Livy. Her patriotic speech before death (*ibid.*). Her death started the war	3.7. Amalasuntha's initiation into dynasty of Amals, Goths who were much influenced by Roman culture (in contrast to Gothic kings afterwards). Gothic king Vitiges' destruction of Amals' hereditary rights after Amalasuntha's death ([44*], V. 1, p. 327)
3.8. Junius Brutus' and Valerius' uprise in Rome. Tarquinius' overthrow (*ibid.*)	3.8. Byzantine (Romaic) armies' arrival in Italy. Pope John II (Brutus' analogue). Armies commanded by Belisarius (Valerius' analogue) (*ibid.*)
3.9. City's savior Brutus was enthusiastically received in camp, but king's children expelled ([174], Bk. 1, 60)	3.9. Belisarius' armies march on Rome immediately after Gothic king Vitiges' flight. Enthusiastic reception of Greeks as liberators by Romans on December 9, 536 A.D. ([44*], V. 1, p. 329)
3.10. Receiving news about exile of Tarquins, the king Tarquinius, started for Rome with purpose of suppression (*ibid.*)	3.10. Having learned of Belisarius' march on Rome, Vitiges also organized his expedition to capital in first days of March, 537 A.D. (*ibid.*, p. 329)

3.11. Gate closed on Tarquinius, and exile announced. Battle of Rome (?) to take place: It is improbable that, having heard of his dismissal, Tarquinius would retreat in embarrassement (for he came in order to supress) (*ibid.*). But Livy tells nothing about Tarquinius' reaction	3.11. Gate closed on Vitiges. Goths started storming Rome but failed. Subsequent siege regarded as one of turning points in Italian history. Goths' defeat in 538 A.D. Fifty-nine battles in one year and 9 days, traditionally regarded as start of Goths' fall (*ibid.*pp. 348–363)
3.12. Most active participation in "exile" of Tarquins by Roman Valerius, one of most popular political figures of period ([174], Bk. 2, 1)	3.12. Belisarius, well-known Roman army commander, took most active participation in expulsion of Goths from Rome and then from Italy (*ibid.*)
3.13. Valerius, well-known Roman army commander, headed Roman armies in battles with Tarquins. His life is enshrouded in legends. He became a national hero and "figure no. 1" in war with Tarquins after Brutus' death (*ibid.*)	3.13. Belisarius had already destroyed Vandals' throne in Africa in 535 A.D. and was free to liberate Italy. Justinian decided to unite eastern and western territories of empire again. To fulfil this, fate made him a gift of one of greatest army commanders (*ibid.*)
3.14. Name "Valerius, Volusius' son" = VLR VLS if freed of vowels, i.e., made of consonants VLSR. Term "son" could appear later in comparing names "Valerius" and "Volusius" ascribed to same person	3.14. Name "Belisarius" = BLSR if freed of vowels, which is very close to VLR VLS, and coincides with VLSR. Note that all these sound similarities arise on making the history of ancient and medieval Rome coincident according to formula $X + 300$. Thus, VLSR = VLSR

3. War with Rome

4a. Tarquins' war with Rome	4b. Gothic war with Rome
4.1. Junius Brutus, one of two principal participants in exile of kings (he overlapped earlier with "pope John II" in 6th c. A.D.). Pair: Valerius and Brutus, who commanded Roman armies in war with Tarquins. Name: Junius (John?). Junius Brutus commanded Roman cavalry ([174])	4.1. Under Belisarius, who was Roman army commander, well-known general John (cruel cavalry commander). He was made popular by capturing Goths' king Vitiges. His "predecessor, pope John" had already been dismissed by that time; therefore, general John "chronologically continued pope John", replacing him in war history

4.2. Brutus was killed in battle with Tarquins. It is possible that "several Johns" were fused into one collective image of "Junius" by Livy (*ibid.*)	4.2. General John was killed in battle with Goths. Though Procopius described several "Johns", mixing up their description [109], ([109*], p. 273)
4.3. In war, the Tarquins formed a closely related clan, forming one dynasty (Tarquinius the Proud, Tarquinius Superbus, Tarquinius Collatine, son of Tarquinius the Proud) (*ibid.*)	4.3. In Gothic war, Goths formed closely related clan as unique dynasty electing their kings during this short and turbulent period (Vitiges, his nephew, Gothic king from Verona, Totila, Tejas) [44]
4.4. After "exile of kings", Roman consulship. Consuls were elected for one year. This was well-known consulship allegedly current in Rome for centuries until its end in mid-6th c. A.D. [39], ([174], Bk. 2, 1)	4.4. In mid-6th c., Italian consulship ended, which occurred precisely before Livy's Roman consulship, i.e., before 544 A.D. = 300 + 244. Year 245 since foundation of Rome was first year of republic and consulship [39], [174]

To 4.4.: The last Roman consul was Decius Theodorus Paulinus in 534 A.D. He was known only for being the last in the long succession of Roman consuls. Thus, by the formula $X + 300$, Livy's consulship started just where the Western Roman Empire's consulship "ended" according to traditional chronology. At the same time, "consulship traces" are encountered in the traditional history of medieval Rome, just starting with 6th c. A.D. In spite of the tendency of certain historians to forget the Roman consulship after the 6th c. A.D., they are forced to admit that individual consuls were still "encountered", though their lists "were not preserved", with the consuls' lists of republican and regal "ancient" Rome nevertheless being available (note that "ancient" Rome overlaps with the Middle Ages by the formula $X + 300$).

4.5. According to Livy, in 245 year since foundation of City, or 545 A.D. according to $X + 300$, Valerius, Belisarius' analogue, started as consul. Valerius and Brutus were very first republican consuls. They were also first consuls after "exile of kings". Valerius (and Brutus) started by himself long succession of "ancient consuls" (whose lists are largely preserved) ([174], Bk. 2, 1), [39], ([39*], p. 206)	4.5. After first period of struggle with Goths, Belisarius is called off from Italy to war with Persians, and again appeared in Italy at end of 543 or beginning of 544 A.D. Belisarius (see above) was first (or one of first) Roman consul after expulsion of Goths, who started long succession of medieval consul (whose complete lists were not preserved ([44], ([44*], V. 1, p. 319))

4.6. Valerius (Volusius' "son") was consul in 245–247 years since foundation of City (3 years), and then dismissed from consulship (*ibid.*)	4.6. Belisarius was in Italy again in 544–548 A.D. (3 to 4 years). In 548 A.D., Belisarius left Italy, called off by Justinian ([44*], V. 1, pp. 401–402)

These two time intervals coincide not only in length but also on the absolute scale if we apply our formula $X + 300$. (because $245 + 300 = 545$).

4.7. After his dismissal from consulate in 548 A.D. according to $X + 300$, Valerius was still alive for some time, and died in 551 A.D. according to $X + 300$ (*ibid.*)	4.7. After his removal from Italy in 548 A.D., Belisarius was alive for some time and died *c.* 551 A.D., data being legendary [124]

Though the dates of death differ by ten years, which is a small figure in comparison with the intervals under consideration, the previous chronological milestones of their "biographies" coincide ideally if we apply the same universal formula $X + 300$.

4.8. In spite of his dismissal from consulate and state affairs in 548 A.D. (under $X + 300$), Valerius (Volusius) was again appointed consul for one-year term shortly before his death in 550 A.D. in accordance with $X + 300$ (*ibid.*)	4.8. In spite of his removal from Italy in 548 A.D. and being charged with high treason (see below), Belisarius was lucky to be aquitted. He was soon released, all his titles restored, and part of his estate regained [44]
4.9. "Rights restoration" occurred immediately before Valerius' death (being appointed consul) (see above and *ibid.*)	4.9. Belisarius was "restored in rights" immediately before his death. He regained part of his assets which he did not manage to lay his hands on, though, because of his death (*ibid.*)
4.10. Valerius died surrounded by halo of great fame. He was, in everybody's opinion, best both at war and in peace, and enjoyed enormous fame (*ibid.*)	4.10. Belisarius died surrounded by halo of great fame. His deeds made him equal to ancient heroes. This characteristic is unique for 6th c. A.D.
4.11. Great army commander, unique for this epoch, died in poverty. Having enjoyed enormous fame, but with scanty means, he died without any funds for a burial be buried on, and money was given by state (*ibid.*)	4.11. Great army commander, unique in this epoch, died in poverty, without being able to make use of returned assets. He died in disgrace and in such oblivion that legend made him symbol of inconstancy of human happiness. His assets were confiscated when he was arrested ([44], [124])

4.12. Profiting from favourable attitude towards him, Valerius not only induced envy after victory over Tarquins, but also was suspected of longing for regal power. He built himself a house on Velia's top, which allegedly was unconquerable fortress. These speeches and popular confidence disturbed Valerius' spirit. Calling citizens to meeting, he ascended tribune and gave a speech, trying to reject charges of attempts to seize power. In particular, can any valour be respected by them so that no suspicion may fall on it? Should he, most cruel enemy of kings, be afraid to be charged with striving for regal powers himself? ([174], Bk. 2,7). I couldn't find any other consul charged similarly during entire existence of republic until 1st c. B.C. in Livy	4.12. During Gothic war, Belisarius was charged with high treason. Goths offered him Italian Crown with purpose of "tearing" Belisarius away from Justinian, and provide themselves with support of Belisarius' corps. In 539 A.D., Belisarius defeated Gothic king Vitiges, and Goths offered him Crown. At end of 539 A.D., before Belisarius sailed from Italy, new Gothic king from Verona sent ambassadors to inform him that he would place purple at Belisarius' feet if he fulfilled promise to declare himself Italian king. Belisarius deceived Goths, and placed Crown at disposal of Justinian. Unwilling to rise against emperor, famed hero calmly went to Byzantine Empire [44]. But the very fact of Belisarius' alleged consent to Italian Crown served as pretext for subsequent arrest and confiscation of his assets [124], ([124*], p. 84)

4. Stream of parallel events

4.12(1). Great army commander charged with high treason and capturing throne	4.12(1). Great army commander charged with high treason and capturing throne
4.12(2). Probably, charge was based on real circumstances	4.12(2). Charge was based on real circumstances, viz., Belisarius' consent to Crown during talks with Goths
4.12(3). Valerius was dismissed from consuls, and, judging by Livy's description, fell into disgrace	4.12(3). Belisarius was called from Italy, and arrested on charge of high treason. Subsequently fell into disgrace
4.12(4). Tried to refute charges, making public speeches in Rome	4.12(4). Probably, attempted to refute charges in New Rome (no data about process preserved)

4.12(5). During "trial of Valerius", anybody thinking to capture regal powers was declared outlaw and stripped off all possessions [174]. Probably, it was just for this fact that Valerius' assets were confiscated ("died in poverty")	4.12(5). Belisarius' assets were confiscated (see above). He died in poverty. (We have to make use of those facts from "biographies", of ancient historical figures that were preserved by sources no matter how commonplace they were. Furthermore, remaining information often vanishes, not being preserved until today)
4.12(6). Then consul Valerius offered laws which not only freed him of suspicion of coveting regal powers, but also made affair look different, which gained him popular support. He was appointed consul once more (*ibid.*)	4.12(6). Then Belisarius was pardoned and his former titles returned (see above). He was surrounded by halo of fame
4.12(7). All these events occurred in 545–546 A.D. in accordance with $X + 300$ (*ibid.*), and are well consistent with dates in right column	4.12(7). All these events occurred c. 544–548 A.D. (in 548 A.D., Belisarius was called from Italy, charged with high treason (?))
4.13. War: Tarquins were far from Rome, marched on capital from time to time	4.13. War: Goths were far Rome, but went on military expeditions to capital from time to time
4.14. In 543–544 A.D., Tarquinius the Proud sent message to senate ([174], Bk. 2, 3)	4.14. In 543 A.D., new Gothic king Totila, sent letter to Roman senate from Naples [44]. Dates are well consistent with left column
4.15. Regal ambassadors from Tarquinius came, only asking for possessions, and making no mention king's return. When their demand was heard in senate, its discussion was going on for several days [174]	4.15. Totila's letter charged Romans with gratitude towards Goths and contained no word about his desire to return to Rome as ruler. Letter had no demands of military nature. In particular, Totila did not demand banishing Romaic Greeks from Rome. Letter was forwarded by captive Romans ([44], [109])
4.16. Long discussions. They were afraid that refusal of possessions would lead to war, whereas payments might mean support and help to wage war (*ibid.*)	4.16. General John declined to reply. Then Totila sent some more letters of peaceful character (*ibid.*)

4.17. Tarquinius' ambassadors asked for young Romans' help, and covertly made plans of regal power restoration. They held talks in order to secretly let king's family into city at night. Preparation of conspiracy ([174], Bk. 2, 3–4)	4.17. Greatly agitated, people read these proclamations everywhere in city. Greek rulers suspected Aryan Roman priests of secret accord with Goths. Conspiracy was probably, also organized with praetor Cethegus (*ibid.*; see also below)
4.18. Roman nobility's participation in conspiracy. However, conspiracy was disclosed, conspirators arrested, brought to court, and executed ([174], Bk. 2, 5)	4.18. Roman nobility's participation (including Arian priests and patrician praetor Cethegus) in conspiracy. However, conspiracy was disclosed, and conspirators expelled from Rome (*ibid.*)
4.19. Receiving news of conspiracy's failure and execution of conspirators, Tarquinius decided to prepare himself for open war ([174], Bk. 2, 6)	4.19. After conspiracy failure and conspirators' expulsion, Totila took on expedition to Rome in 543–544 A.D. (*ibid.*)
4.20. Livy almost everywhere spoke simply of "Tarquinius", and not of Tarquinius the Proud, while describing war, and combining all Tarquins at once under this term (*ibid.*)	4.20. Goths made war in closely united group. Their kings were military commanders rather than kings who lived in some constant residence [109]
4.21. Tarquinius started tour of Etruria, "asking" Etruscans to help him to return to throne. Most probably, this implies movement of Tarquinius' armies in conquering Etruria. Livy wrote that the speeches were effective. Tarquinius went on expedition with allies who were following him in his attempt to return kingdom, and pursue Romans in war (*ibid.*)	4.21. Totila decided at first to overpower several Etrurian cities, and also Picenum and Aemilia. This event was described more truly in "Gothic" version of war than in Livy: Totila did not make tour of Etruria, beseeching help, and captured Etruria, gathering strength for his armies [44], [109]
4.22. In 544–545 A.D. under $X + 300$, Tarquinius' armies and their allies approached Rome (*ibid.*)	4.22. In summer 545 A.D., Totila camped near Rome [44]

The coincidence of the date is ideal (under $X + 300$).

4.23. Battle of Rome started. Tarquins repelled attacking Romans, though Romans defeated Tarquins' allies [174]	4.23. Battle of Rome started. Belisarius retreated from Rome. Goths unruffled. Roman armies preserved by this retreat [44], [109]

4.24. For some obscure reason, Tarquins did not enjoy victory over Romans: Quite unexpectedly, they left Rome. Livy "explained" it as a miracle, narrating that one night a loud voice was heard, saying that victory was in Romans' hands ([174], Bk. 2, 7). Terrified, Tarquins hurriedly left	4.24. For some obscure reason, Goths did not enjoy their victory over Romans: Quite unexpectedly, they left Rome. It is surprising that Totila should not have commanded all his forces to Porto in order to end war, because Belisarius was staying there with his army (*ibid.*)
4.25. After Tarquins' unexpected defeat at dawn, when no enemy was seen, consul Valerius triumphantly returned to Rome (*ibid.*)	4.25. After Goths' unexpected retreat, Belisarius, advancing with all his armies, managed to enter Rome. As soon as great army commander was there, he made himself famous, and his genius and luck came back to him doubled. Though Goths tried to return, they were immediately beaten off (*ibid.*)
4.26. It occurred in 545 A.D. (under $X + 300$) (*ibid.*)	4.26. It was in spring of 547 A.D. This battle of Rome lasted from 545 to 547 A.D. (*ibid.*)

The coincidence of dates is ideal (under $X + 300$).

To 4.24: As we noted, Livy ascribed Valerius' victory to a miracle: Voice of (God) Sylvan made Roman adversary flee in horror (*ibid.*)	To 4.24: Even in faraway places, everyone was startled, in deepest bewilderment, by failure of Goths near Rome, which was then half open, to successfully resist Belisarius ([44*], p. 398)

4.27. After this first unsuccessful battle of Rome after Tarquins exile, they asked for king Porsenna's help (= PRSN) ([174], Bk. 2, 9). It is important that TRQN (= Tarquins) and PRSN (Porsenna) were allies in this war	4.27. After first unsuccessful battle of Rome and expulsion of Goths, Totila was seeking Franks' help [44]. Recall that Franks could overlap with "Persians" (= PRS if freed of vowels) (cf. "Parisians"). It is important that Goths (TRQN's analogue) and Franks (either PRS or TRNK; see above) were allies. Along with Goths, Franks are carriers of term TRNK in 6th-c. war

4.28. King Lars Porsenna decided to support Tarquins and took part in their second expedition to Rome. Tarquins' and Porsenna's united armies approached Rome. Senate was frightened of Roman plebs accepting peace proposals ([174], Bk. 2, 9). Let us recall that: Porsenna = Porsena, Porsinna, Porsina (see [343], p. 785)	4.28. Procopius did not report whether or not Franks participated in Totila's second expedition to Rome. Moreover, Theodebert allegedly refused to give Totila his daughter. However, several years earlier, Franks' armies did take part in war along with Goths, and Vitiges resorted to Theodebert's help as early as war with Romans. Then Frank Theodebert intruded Italy but retreated after Belisarius' threats (*ibid.*, [109])
4.29. Second expedition to Rome, according to Livy, occurred in 546 A.D. (under $X + 300$). Meanwhile, Valerius headed Roman armies against Porsenna = Porsena (*ibid.*)	4.29. Second expedition to Rome occurred in 548–549 A.D. Belisarius was called from Italy 540–544 A.D. and headed Roman armies against Persians (!)

The agreement of the dates 546 and 548–549 A.D. is close (under $X + 300$).

4.30. Valerius was at war with Porsenna during second invasion by enemy on Rome (*ibid.*)	4.30. Belisarius was at war with "Persians" (= PRS if freed of vowels) before second invasion of Rome)

The sound analogy is obvious, viz., Porsena = Persians (PRSN = PRSN).

4.31. Porsenna (and Tarquins) laid siege to Rome, but could not take it ([174], Bk. 2, 10)	4.31. Totila conquered part of Rome, except Adrian's castle with Roman guards (*ibid.*)
4.32. Defending Rome, Horatius Cocles was especially valiant (*ibid.*). Name: Cocles = CCLS, which is almost coincident with CLCC	4.32. Especially valiant was brave army commander Cilician Paul in defense of Rome (in particular, of Adrian's castle; see above) (*ibid.*) Name: Cilician = CLCC
4.33. Not taking Rome, Porsenna retreated from Roman bounds. Thus ended second battle of Rome ([174], Bk. 2, 13)	4.33. In 549 A.D., Totila left Rome. Thus ended second battle of Rome (*ibid.*)
4.34. It was last battle of Rome in war against Tarquins (*ibid.*)	4.34. It was last battle of Rome in Gothic war (*ibid.*, [109])

5. End of the GTR-war

5a. End of war with Tarquins	5b. End of Gothic war
5.1. In 550 A.D. (under $X+300$), Valerius was elected consul for last time, and finally left arena of war with Tarquins, dying in 551 A.D. (under $X+300$) [174]	5.1. At end of 548 or beginning of 549 A.D., Belisarius was called from Italy, and finally left Gothic war arena [44]. Agreement of dates 550–551 A.D. and 548–549 A.D. well consistent under $X+300$
5.2. Lartius became Roman army commander in Italy in 553 A.D. (under $X+300$) instead of Valerius ([174], Bk. 2, 18)	5.2. Justinian's appointment of Narses, another well-known, but not as brilliant as Belisarius, army commander who ended Gothic war
5.3. Name Lartius (= LRT), which is close to NRS	5.3. Name: Narses (= NRS)

The dates 553 and 551 A.D. are extremely close (under $X+300$).

5.4. Lartius was first dictator in "ancient" Rome and invested with full powers (*ibid.*)	5.4. Narses' investment with extraordinary powers, his unlimited dictatorship in Italy [109]
5.5. In 559 A.D. (under $X+300$), Tarquins fought Roman armies, now far from Rome, for last time. It was last battle of war with Tarquins. It is important that I have thereby listed ALL battles in this war described by Livy (*ibid.*)	5.5. In 552 A.D., Gothic army headed by Totila fought Romaic Greeks, now far from Rome, for last time. It was last battle in Gothic war. It is important that I have thereby listed ALL battles in this war, described by medieval accounts
5.6. Battle was extremely ferocious, and ended in Tarquins' defeat (*ibid.*)	5.6. Battle was extremely ferocious, and ended in Goths' defeat [109]
5.7. King Tarquinius the Proud was wounded and carried to safety by his warriors, and died in Cumae after some time ([174], Bk. 2, 19, 21)	5.7. While fleeing, king Totila was heavily wounded, and died after some time ([44], [44*], V. 1, pp. 407–408)
5.8. Son of Tarquinius the Proud also took part in Tarquins' last battle against Romans (*ibid.*)	5.8. In last battle of Goths with Romans after Totila's death, young Tejas became king for short time, defeated in 553 A.D., i.e., almost immediately after Totila's defeat (*ibid.*)

5.9. After defeat, Tarquins vanish from Italian political stage, and completely from "ancient" (republican) Roman history. Livy stopped mentioning them after report of complete defeat. It remained unknown where they went after battle	5.9. After defeat, Goths vanished from Italian political stage. It remained unknown where they left for from battlefield (*ibid.*)

Thus, in most cases, we observe a striking coincidence of the right and left dates and events under the action of the suggested formula $X+300$, which is a consequence of the results obtained by means of computing $\lambda(M,H)$ (see above). The divergence of two or three years (rarely reaching 10 years; see above) can be explained by Livy, who said (Bk. 2., 21) that chronological inaccuracy baffled the researcher, since different people distributed the magistrates differently, which have occurred in such ancient times that one cannot make out the succession of consuls or what happened when. This is, probably, a 13–15th cc. A.D. text.

The coefficient $X = A/B$ (see above) equals 74% for part of Livy's text, describing the war with the Tarquins, i.e., 74% (!) is exhausted by the isomorphism exhibited above.

I discovered that this war was also described in other well-known sources (e.g., the Trojan war; the isomorphism plays the most important role in studying Greco–Roman chronology).

As can be gathered from the GCD (see above), this is an isomorphism encountered most often: Many well-known wars in "ancient" history are duplicates of this medieval one. However, the GTR-war is not at all the original of all these "reflections", itself appearing in the 6th c. A.D. due to the same chronological shifts. The original of the Trojan–Gothic–Tarquins, etc., wars listed in the GCD occurred probably in the 13th c. A.D. (in Italy and Constantinople). In the following, we devote a special section to this most important circumstance.

4.4. The Second Roman Empire and the Holy Roman Empire in the 10–13th cc. A.D. The 1,053-year chronological shift and the formula $X + 300$

1. Ancient Rome and medieval Rome in 555–850 A.D. Above, we have demonstrated the action (in 300–553 A.D. = 250 years long time interval) of the important chronological shift formula $T = X + 300$ years (which is equivalent to the 1,053-year shift). It turns out that the discovered parallel can be extended further through the 7–9th cc. A.D. We only give a brief summary.

Ancient Rome in 500–200 B.C.	Medieval Rome in 555–850 A.D.
1a. Marauding of Rome by Gauls	1b. Marauding of Rome by emperor Constantius
2a. Invasion of Gauls and their defeat in 405 since foundation of City (Rome or New Rome?)	2b. Invasion by Lombards and peace with them signed in 705 A.D.

3a. First Samnite war	3b. War with Lombards in 717 A.D.
Second Samnite war	New wars with Lombards
4a. War with Samnium until 464 since foundation of City. Expedition to Rome in 469 (= 769 A.D.)	4b. Wars with Lombards until 765 A.D. Invasion in 769 A.D.
5a. First Punic war	5b. First conflicts with Saracens
6a. Gallic wars	6b. Franks' wars in Italy
7a. Second Punic war	7b. Wars with Saracens
Second Roman Empire from 1st c. B.C. until 3rd c. A.D.	Roman–German Empire in 10–13th cc. A.D.
8a. Total duration of Second Empire from 82 B.C. to 217 A.D. is 299 years	8b. Total duration of Holy Roman Empire from 962 (or 964) A.D. to 1254 A.D. is 292 years
The numbers 292 and 299 are quite close	
9a. Second Empire is localized in Italy	9b. Empire in 10–13th cc. A.D. is also localized in Italy
10a. Start of Second Empire in 971 A.D. under $X+300$ (counting from foundation of City: $971 = 671 + 300$ years), which is very close to 962 and 965 A.D.	10b. Empire in 10–13th cc. A.D. started either in 962 A.D. (coronation of Otto I in Rome) or 965 A.D. (when Otto I conquered Italy) [124]
11a. First emperor of Second Empire as well as first emperor of Third Empire was titled *Restitutor*	11b. First emperor in 10–13th cc. A.D. "restored" Roman Empire, as written by medieval chronicles (*ibid.*)
12a. Second Empire fell in 1270 A.D. (according to $X + 300$). End of Caracalla's rule in 217 A.D., which is close to 1250–1256 A.D.	12b. Empire fell between 1252 (or 1254) and 1256 A.D., 1254 A.D. being its official "end" (*ibid.*)

2. John the Baptist and John Crescentius (10th c. A.D.). We now come to the comparison of enquête-codes ("biographies") pertaining to the end of the 10th and the beginning of the 11th c. A.D. with their duplicates, from the 1st c. B.C. to the 1st c. A.D.

It is possible that part of the Gospel, speaking of Jesus, reproduces important events of the 11th c. A.D. The formula $X + 300$ makes the era of Jesus overlapping with that of Gregory VII Hildebrand. According to the Gospel, John the Baptist had prophesied ("a new era") and died a martyr prior to Jesus. It is probable that the legend was also "lowered" to the beginning of the Christian era from the 10th c. A.D. The formula $X + 300$ causes the epoch of John the Baptist to overlap with that of John Crescentius. The isomorphism is roughly as follows, viz., John the Baptist = John Crescentius, well-known political Roman figure in the 10th c. A.D.;

king Herod = emperor Otto III; ruler Philip (Herod's brother) = pope Bruno, religious Roman ruler, Otto's (Herod's) cousin; Herodias = (possibly) Stefania.

John the Baptist	John Crescentius (10th c. A.D.)
1a. Name: John	1b. Name: John Crescentius

The name parallel is obvious. It is interesting that in orthodox (in particular, Russian) tradition the name "John the Baptist" sounds as "John Crestitel'". The name "Crestitel" is based on the word "cross".

2a. Well-known prophet, struggling against king Herod and his family clan (Herod and Philip)	2b. John Crescentius hero of secular Rome, fighting against foreign power, and leading national party

To 2b: Around 960 A.D., the National Roman Party was founded in Rome by John Crescentius, a "prominent Roman. ... For several years, John Crescentius was indeed the ruler of Rome ... as head of the National Party" ([44*], V. 3, pp. 325–326). He was the most famous representative of the Crescentius family in Rome in medieval times. He was the "holy ruler of Rome, but not an independent sovereign" ([44*], V. 3, pp. 326–327).

3a. Leader of religious movement (before Christ)	3b. Overthrew pope John XV and led church power in Rome [44]
4a. Well-known monk. Prophesied "in the whole Jordan valley" (Mt 3:5)	4b. Allegedly took orders in 972 or 981 A.D. (*ibid.*). According to previous identifications, Italy may be "Jordan valley"
5a. King Herod was John's principal opponent	5b. Emperor Otto III was Crescentius' principal opponent
6a. King Herod was authentic figure. John the Baptist, demonstrating his religious independence, submitted himself to Herod's secular rule	6b. Emperor Otto III was crowned by Roman emperor in 996 A.D., which put end to Crescentius' rule as patrician (*ibid.*)
7a. Originally neutral relationship between John the Baptist and Herod	7b. Originally neutral relationship between John Crescentius and Otto III (*ibid.*)

To 5b: In the absence of Otto III (983–1002) who was away from Rome, John Crescentius was the ruler of Rome in 985 A.D. He formally recognized the rule of the German throne (in the person of Otto III) ([44*], V. 3, p. 328). Otto III was in Rome in the year 981. After the death of the empress Theophano in 991, John Crescentius "finally took control of the city in his own hands" ([44*], V. 3, p. 342). Otto III attacked Rome in 996 and conquered it. The Romans were vanquished. Crescentius remained the leader of his party, but not the independent ruler.

To 6b: "After 13 years, during which nobody was invested with the title Emperor, Rome once again saw the New August within its walls" ([44*], V. 3, p. 346).

To 7b: Otto III made his cousin Bruno pope.

8a. Philip was of regal descent	8b. Bruno was of regal descent (grandson of Otto I the Great) [44]

Both represent two family clans opposing John the Baptist.

9a. Negative attitude of Gospel towards king Herod, Philip, and on the contrary, favourable treatment of John the Baptist	9b. Inimical attitude of Roman national party to Germans Otto III and Bruno. In contrast, Crescentius was Roman national hero
10a. John's arrest and imprisonment by king Herod	10b. Crescentius' arrest and trial (sentenced to exile) by Otto's order [44]

To 9b: "Both the Pope and the Emperor were relatives and both were of German origin ... The Romans were not disposed amicably towards these blond saxons who had come to rule over their city and also the christian world. The young aliens could not command a reverential attitude towards themselves" ([44*], V. 3, p. 346).

To 10b: "After the appointment of the Pope (Bruno—A. F.) who was of royal origin, it was necessary to tame the city ... Mutinous Romans who had expelled John XV were put on trial ... Some of the popular leaders (of the mutiny—A. F.) including Crescentius were sent to exile" ([44*], V. 3, p. 347).

11a. "Amnesty" of John the Baptist, declared by Herod (and Philip). Though John the Baptist was imprisoned, he was not executed, but, on the contrary, enjoyed Herod's support (Mk 6:24–28)	11b. "Official amnesty" declared by Otto III (and Bruno) for Crescentius, who stayed in Rome, but was dismissed from politics (analogue of "house arrest") [44]

To 11b: "Not used to power, ... Gregory V (born as Bruno—A. F.) wanted to conquer Rome by his goodwill, and requested the young emperor, who was also amicably disposed, to rescind these orders. Crescentius swore allegiance and continued to live in Rome as a private citizen" ([44*], V. 3, p. 347).

12a. "Offence" against Philip and Herodias by John the Baptist	12b. "Offence" against pope Bruno by Crescentius. Expulsion of Bruno from Rome by John [44]

To 12b: The expulsion by John Crescentius of Bruno, the personal appointed of Otto III and Otto's cousin, was indeed an obvious "affront" to the entire Otto–Bruno clan.

13a. Herodias' daughter took part in events. Herodias was Herod's wife (Mk 6:17–22). Herodias' daughter "infatuated" king Herod with her dancing	13b. Stefania was John Crescentius' wife and Otto's (Herod's?) mistress [44]. Stefania "infatuated" Otto III

To 13b: According to medieval chronicles, Stefania (after the death of Crescentius) was given away "as a booty" to the mercenaries. "But this narrative is purely a fabrication provoked by the national hatred of the Romans, and there exists another quite different legend according to which Stefania is portrayed in the fabulous role of the beloved of the conqueror of John (i.e., Otto III—A.F.)" ([44*], V. 3, pp. 358–359). "It was stated that the new Medea in the person of Crescentius' widow (i.e., Stefania—A. F.) entangled Otto III in her charms ..." ([44*], V. 3, p. 104).

14a. Catastrophic turn of events for John. Demand of John's execution	14b. Catastrophe: uprise in Rome, headed by Crescentius [44]

To 14b: "Having established his tribunal in the eternal city and pacified the Romans by declaring amnesty, Otto III ... returned to Germany ... However, the departure of Otto soon served as a signal for Romans to rise in revolt, and the National party again made a desperate attempt to overthrow the German yoke. Crescentius hatched a conspiracy to overthrow the German pope and his cronies. Discontent was rife among the masses: aliens who were ignorant of the Roman law dispensed justice and appointed judges who were not paid by the state and were therefore corrupt and biased ... The mutiny took place and the Pope fled on September 29, 996 ... The brave mutineer (John Crescentius—A. F.) hurried ... to establish his rule in Rome ... After the Pope's flight, a total revolution occurred in the administration of Rome ... Crescentius again declared himself as a patrician and the Consul of Romans" ([44*], V. 3, pp. 348, 351–352). In 998, Otto approached Rome with his army, and the city capitulated, except for the St. Angels castle where Crescentius and his allies took refuge, "vowing to fight till the last drop of blood ... Otto demanded that Crescentius lay down his arms" ([44*], V. 3, p. 355). Having received an insolent reply, Otto soon laid a siege to the castle and captured it on April 29, 998.

15a. John's execution by Herod's order. John's beheading often used as important theme in iconography, painting, etc	15b. Crescentius' execution by Otto's order. John's beheading often used as important theme of medieval legends and chronicles in 10th c. A.D.
16a. John the Baptist famous Christian martyr	16b. John Crescentius famous Roman martyr [44]

To 15b: "Crescentius was beheaded, cast down and then hanged ... According to the Italian historians, Crescentius' eyes were torn out, his limbs were broken and he was dragged on a cow's skin through the streets of Rome ..." ([44*], V. 3, p. 358–359). " Many fantastic tales were woven around the death of Crescentius" ([44*], V. 3, p. 358).

To 16b: "The Romans long bewailed the ill-fated Crescentius ... it is not without reason that from this time onward until late in the 11th century, the name is discovered with such striking frequency in the annals of the city. Many families bestowed it on the sons in memory of the brave champion of Roman liberty" ([44], V. 3, p. 433).

17a. Legend of perfidy leading to John's execution. Herodias' cunning, perfidiously making John the Baptist to be executed. Thus, Herodias responsible for John's death (see permutation)	17b. Legend of perfidy leading to Crescentius' execution. Otto's cunning, who deceitfully imprisoned Crescentius. Stefania responsible for Otto's death

To 17b: "According to other versions, which were also in abundance, Crescentius' death was attributed to the disgraceful betrayal on the part of Otto" ([44*], V. 3, p. 358–359). It is alleged that Otto promised to grant clemency to Crescentius through the warrior Tamm. When Crescentius surrendered on these terms, Otto condemned John to death as a traitor ([44*], V. 3, p. 359). Crescentius' execution was such an important political event that even the death of Otto III in 1002 is connected with John Crescentius in the legends surrounding him ([44*], V. 3, p. 404).

Herodias—the wife of Herod and responsible for the death of John Crescentius	Stefania—the wife of John Crescentius and responsible for the death of Otto III (Otto's mistress as per some versions; cf. left column)

The term "wife" has been interposed here, and hence the names of the husbands have been reversed.

"Otto's death was soon converted into a legend. It was rumored that the new Medea in the form of Crescentius' widow entangled Otto in her charms. Pretending to heal the ailing emperor, she wrapped him in a poisoned deerskin. According to another version, she poisoned his drink, while a third version maintains that she put a poisoned ring on his finger ..." ([44*], V. 3, p. 404).

18a. Birth of Christ in John's time	18b. Possible birth of Hildebrand under Crescentius

Crescentius' activity is referred to 991–998 A.D. Besides, there exists another Crescentius, also John, who allegedly was a son of the first John Crescentius. Like his father, he ruled Rome from 1002 to 1012 A.D. ([44], V. 4, p. 5).

He was little known. It is possible that it is just another version of the John Crescentius legend. Note the great events of religious nature in the history of other countries, which are related only to John Crescentius (e.g., conversion of Russia to Cristianity c. 988 A.D.), whereas his activity is dated just around the end of the 10th c. A.D.

3. Jesus Christ and Gregory VII Hildebrand (11th c. A.D.). Now, if we move upwards on the time axis, we reach the epoch of Gregory VII (Hildebrand). The well-known church reformer is regarded as one of the greatest popes. His reform had most serious social and political consequences (in particular, Church Schism). As the author of the well-known decree on the priests' celibacy, which stirred Germany, France, Spain and Italy, he was the first to advance the idea of the Crusades, and demanded to make secular rulers subordinate to papal authority. The consequence of this forceful overthrow was a ferocious struggle lasting for 50 years among the partisans of the old church and the new reformed one.

Hildebrand	Christ
1a. Born in *c.* 1020, i.e., in 18th year of Henry II (saint, i.e., *august*) Augustus of the Holy Roman–German Empire (see Figs. 11, 12, Table 7)	1b. Born in 23rd (or 27th) year of rule of Augustus Octavian of the Second Roman Empire (= Roman Empire in 10–13th cc. A.D.)

The difference of the right and left dates is 5 (or 10) years under the shift $X+300$, both dates being almost coincident.

2a. Died in 1085 A.D.	2b. Died in *c.* 33 A.D. (= 1086 A.D.?)

Applying the shift $X + 300$, we obtain: $753 + 300 + 33 = 1086$ A.D. The dates 1085 and 1086 A.D. are very consistent.

3a. In 1049 A.D., Hildebrand arrived in Rome, and his reformation activity started [44]	3b. In accordance with formula $X+300$, Christ was "born" in 1053 A.D., which differs by only 4 years from 1049 A.D.

Thus, the Christian era started in 1053 A.D., which was the start of the Gregorian reforms (Church Schism in 1054 A.D.)!

4a. 1054 A.D., well-known date referring to division of Western and Eastern churches. Start of "Christian" era (?)	4b. 1st year A.D. was year of beginning of new, evangelical religion, which precisely overlaps with evangelical "explosion" in 11th c. A.D. under shift
5a. Hildebrand was "joiner". His birth described as that of God ("flames sprang from his head ...") ([44], V. 4, p. 168)	5b. Christ was called "son of carpenter". His birth is that of God

6a. No data about his mother, but as boy he lived in S. Maria on the Aventine, his uncle being Abbot. Born in Italy [44]	6b. Christ's mother Mary declared Saint. Starting with 13th c. A.D., chronicles assert that archangel Gabriel appeared before Mary in Italian town of Loreto where she lived ([78], p. 198)
7a. Hildebrand was greatest reformer, enemy of all sorts of "old-believers". Famous decree against selling church posts	7b. Christ was greatest reformer who fought "old-believers". Legend of driving traders out of temple (Lk 19 : 45–47)
8a. Hildebrand started reform in 1049 A.D. when he was 29 or 30 years of age, being born in 1020 A.D. (his "church birth" occurred in 1049 A.D.), which supplies two versions for his "age", viz., 36 and 65 years	8b. "When Jesus began his work he was about thirty years old ..." (Lk 3:23). There exist two versions of Christ's age, viz., 33 and almost 50 years, the first being the more probable. However, second figure, 50 years, is close to 65 years
9a. Reform officially culminated (started?) in 1054 A.D. with Church Schism 15 years after death of Conrad II in 1039, i.e., in 15th year of rule of Roman emperor Henry III "the Black"	9b. Christ's reform started in 15th year of "Black" emperor Tiberius (Lk 2:1; cf. overlapping of Second Empire with that in 10–13th cc. A.D. under $X + 300$ shift)
10a. Countess Matilda, who possessed half of Italy, and disposed of her estates for his sake [44]	10b. Christs' companion, repentant sinner Mary Magdalene, who and "many others, which ministered unto him of their substance", "... women provided for them out of their own resources" (Lk 8:3)

To 10: The name of the Countess was written Matilda ([44], V. 4, p. 182, Note 1) or Mathilda, which sounded roughly like Madgilda or Magdalene (?), whereas the name of the evangelical Mary was just Magdalene.

It is believed that Matilda was an "ideological ally" of Hildebrand, "a friend of Gregory and the genius–preserver of the papal hierarchy ([44*], V. 4, p. 148). It is alleged that this "famous lady ... did not observe the marital vows ... her husband was frequently away" ([44*], V. 4, p. 148). (It should be recalled that according to the Gospels, Maria Magdalene was a sinner who had confessed). Special detailed discussions were made in the chronicles of the 11th century about whether the relations between Matilda and Hildebrand went beyond "platonic" (the Roman catholic church insists that the relations between Gregory and Matilda were "platonic"). However, "malicious and spiteful tongues ... cast a shadow of doubt over these relations" ([44*], V. 4, p. 148). The Gospels also touch on the intimate relations between Christ and Magdalene. This issue is also discussed in early christian texts.

Speaking of the absence of coins for the Roman papal period between 984 and the times of Leo IX (mid 11th century), Gregorovius remarks, "It is even more surprising that no coins have remained from Gregory VII ([44*], V. 4, p. 74, Comm. 41)	However, medieval coins with Christ's portrait (and the accompanying inscription) do exist. Hence, it can be assumed that the coins of Gregory VII Hildebrand do exist but are attributed to Christ. This is in accord with the formula $X + 300$

The spiritual father of Hildebrand was the Pope Leo IX (1049–1054), born as Bruno in real life (!) ([44*], V. 3, p. 57). It should be recalled that Pope Bruno (with a different "number") played a significant role in the "John Crescentius affair". A confusion between the two Brunos probably caused a displacement of John the Baptist (Crescentius) closer to Christ (Hildebrand) on the time scale from its "actual" position in the 11th century chronicles which are themselves "multi-layered documents" compiled as a result of displacements.

Pope Leo IX was the "spiritual father" of Hildebrand. He started the church reforms in 1049 that were continued successfully by Hildebrand. If Hildebrand was "God", Leo IX was God's "father"	Leo (Arius) was the "spiritual father" of Asa, or Basil the Great, or Jesus (see the isomorphisms above). It was Arius (Leo in translation) who began the church reforms ("founded" the Aryanism). Asa (Jesus) later completed the reforms

In the Bible (The Book of Joshua), Joshua is preceded by Aaron, i.e., lion, viz., Arius. The pair Leo (Arius)–Asa (Jesus) are encountered in the above isomorphisms (as well as in a large series of Biblical isomorphisms which are omitted for want of space). By the way, Aaron (and Moses) also passed on their mission (according to the Gospels) directly to the evangelical Christ (see also the Qoran in which Aaron and Moses are called the uncles of Jesus Christ, see above).

Pope Leo IX ruled for 5 years (1049–1054) ([44*], V. 4, p. 57)	Leo–Arius for 3 or 8 years (two versions: 325–330–333 A.D.) see the biblical parallels above

The 11th-c. chronicles discussed the problem of the relations between Hildebrand and Matilda in detail (was the love platonic?).

11a. Hildebrand came to Rome in 1049 A.D. with group of his partisans, which was start of his service to Leo IX	11b. Christ's arrival in Jerusalem with group of apostles started Jesus' service

To 11: Medieval texts compared the arrival of Leo IX and Hildebrand in Rome with the appearance of the apostles [44].

"In February 1049, the new Pope (Leo IX—A. F.) accompanied by a small suite entered Rome. He was barefooted and humbly chanted the prayers. Such an unusual sight left the Romans astounded. It appeared that the Apostle had come to the town. This bishop was not accompanied by the mighty nobles. He knocked at the city gates like an ordinary pilgrim, asking the Romans if they would accept him in the name of Christ ... However, the small contingent of people accompanying the new Pope also included a person whose spiritual strength was higher than the king's rule ... This man was Hildebrand" ([44*], V. 4, p. 57).

12a. During culmination of reform, conspiracy against Hildebrand in 1075 A.D., organized by Cencius. Attempt on Hildebrand's life [44]	12b. Judas' conspiracy against Christ, attack on him, and his "Crucifixion"
13a. Conspiracy ended in failure; though Hildebrand was on verge of perishing, he stayed alive ([44], V. 4, p. 157 *et seq.*)	13b. Though Christ suffered and then "died", he was resurrected, and appeared before his disciples
14a. Sharply negative attitude of 11th-c. chronicles towards Cencius, who was related to Hildebrand's party	14b. Sharply negative attitude of Gospel towards Judas, who was among Christ's apostles
15a. Cencius soon became leader of malcontents in Rome, heading anti-Hildebrand movement. Chronicles described Cencius' deeds as treason	15b. Judas soon joined malcontents in Jerusalem, and spoke to Pharisees. Gospel described Judas' deeds as treason. Hence, widespread term "Judas the traitor"

"In chronicles of those times (to be more precise, containing narratives of those times—A. F.), Cencius is portrayed as a shameless robber and adulterer ... This damning portrayal of the leader of the Kadal party was perhaps no exaggeration." ([44*], V. 4, pp. 126–127.)

Cencius took part in Hildebrand's reforms, and was closely associated with his party ([44*], V. 4, p. 126)	Judas took part in Christ's reforms, and was one of his 12 apostles and pupils (see Gospel)

Stefan, Cencius' father, was the prefect of Rome and maintained good relations with Hildebrand's party. Moreover, Cencius was from the Crescentius race (see the superimposition of Crescentius on Baptist), i.e., from the forerunners of Christ.

Cencius soon became head of the party of disillusioned Romans and led the revolt against Hildebrand ([44*], V. 4, p. 155)	Judas soon joined the discontented (in Jerusalem) against Jesus' reforms and conspired with Pharisees. See the Gospels

Chronicles of 11th century view the further acts of Cencius as a betrayal of Hildebrand. He repaid Hildebrand's kindness to him by treachery ([44*], V. 4, p. 155)	The Gospels describe the acts of Judas as a betrayal of Jesus and his deeds. Judas paid back the reformer "by treachery". Hence the usage Judas the traitor

In the beginning of 1075, Cencius attempted to overthrow Hildebrand. The coup was abortive and the prefect of the city filed a case against Cencius, but Hildebrand himself (and Matilda) rose in support of Cencius who was released exceptionally owing to the intervention of the reformer ([44*], V. 4, p. 155). A lunar eclipse occurred in 1075. This eclipse is mentioned in the Gospels as the one coinciding with Christ's crucifixion.

16a. "He (Cencius—A. F.) meditated revenge. Since the breach with Henry had become irreparable, he formed a scheme for Gregory's overthrow. In the name of the Romans he urged Henry (emperor—A. F.) to seize the power in the city, and promised to deliver the Pope a prisoner ..." ([44], V. 4, p. 100)	16b. "... Judas Iscariot ... went to the chief priests to betray him to them" (Mk 14:10–11)" ... and Judas went to the ... officers ... to discuss ways and means of putting Jesus into their power" (Lk 22:4–5)

The Gospels do not state the possible motives behind Judas' treachery, although they were discussed many times in the Christian literature as an important theological problem. Other chronicles of the 11th century (see above) are more plausible and soberly link "Cencius' treachery" with the struggle for power in Rome.

17a. "The scene at Christmas of 1075 is one of the most hideous in the history of medieval Rome. The Pope read the usual mass on the vigil of the festival at the altar of the Presepio in S. Maria Maggiore; shouts and the clash of arms arose; Cencius rushed into the church, sword in hand, with the nobles who were his fellow-conspirators." ([44], V. 4, p. 191)	17b. "Suddenly, while he (Jesus—A. F.) was still speaking (praying with his disciples—A. F.), Judas, one of the Twelve, appeared, and with him a crowd armed with swords and cudgels, sent by the chief priests, lawyers, and elders". (Mk 14:43–44). Like Hildebrand, Jesus was sermonizing with his disciples
18a. "He seized the Pope by the hair at the altar, dragged him bleeding away, threw him on his horse, and galloped through the city by night	18b. "Then they seized him (Jesus—A. F.) and held him fast" (Mk 14:46). "Some began to spit on him, blindfolded him, and struck him with

to his palace or tower ..." ([44]). Events occurred at night

their fists, crying out, 'Prophesy!' And the High Priests' men set upon him with blows" (Mk 14:65). Events occurred at night

19a. "The city was in uproar, the alarm bells were rung, the people rushed to arms, the priests with lamentations veiled the altars ..." (*ibid.*) However, there was no open armed military confrontation ([44], V. 4, pp. 191–192). Hildebrand forgave Cencius (cf. Jesus "forgiving" Judas)

19b. "When his (Jesus'—A. F.) followers saw what was coming, they said, 'Lord, shall we use our swords?' And one of them struck at the High Priest's servant, cutting off his right ear. But Jesus answered, 'Let them have their way' " (Lk 22:49–51). But no open armed confrontation followed

20a. Eleventh-c. chronicles report nothing about Hildebrand or his "Crucifixion"

20b. Gospel then described Jesus' trial and his Crucifixion, "passion of Our Lord"

21a. "Gregory issued from the darkness of that night with the glory of an indomitable man and a martyr" ([44], V. 4, p. 193)

21b. Jesus Christ is famous martyr in Christian pantheon, and his "passion" is at centre of Christian cult

22a. Cencius was revengeful Roman, and with the purpose of warning Gregory, he did not stop thinking of one conspiracy after another until sudden death caught him in Pavia (*ibid.*)

22b. "So he (Judas—A. F.) threw the money down in the temple and left them, and went and hanged himself" (Mt 27:5)

23a. Second principal figure of Reformation in 1st c. A.D. was Peter Damiani, Hildebrand's closest associate, who was born in 1007 A.D. and excelled in many fields (*ibid.*)

23b. Second principal figure of evangelical movement in 1st c. A.D. was Peter Simeon, who is regarded founder of Roman church. Holy See was founded by St. Peter

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To 23a.: Peter headed an army of hermits in the times of Hildebrand, whose influence "borders on the mysterious, and can perhaps only be compared with that of the schools of the prophets of the Old Testament" ([44], V. 4, p. 103). Peter Damiani was known as a religious zealot of the reformed church of Gregory VII:

"As Hildebrand represents the statesmanlike head of the Church, so does Damiani her sensitive heart" ([44], V. 4, pp. 107–108).

Damiani then became cardinal and bishop of Osta (*ibid.*). He died in 1072 A.D.

"... with the reputation of having been the most pious man of the Church of his time" ([44], V. 4, p. 162).

His cause was immediately taken up by another Peter, the so-called Peter the Hermit, who headed a crusade (*ibid.*).

These two Peters are the unique "famous Peters" about which 11th-c. chronicles speak so much. It is possible that they have also been mentioned in the Gospel under the collective image of "Peter Simeon".

According to ancient Russian chronicles, Russia was baptized by the apostle Andrei [103, p. 121–122]. However, according to traditional chronology Russia's baptization occurred at the end of 10th or in the beginning of 11th century	One of Christ's apostles was Andrei; see Mark's Gospel 1:16. Like other apostles, he walked around the world, spreading Christ's word. According to traditional chronology, he lived in the first century

The dating of Russia's baptization by the apostle Andrei in 10–11th century A.D. is in marked contrast with the dating of Andrei's life (by 1000 years), but is in ideal agreement with the formula $X + 300$, according to which the period 10–11th century A.D. corresponds to the flourishing of "baptization" and evangelism" (John Crestentius, Hildebrand).

According to the traditional history, the legend about Russia's baptization by the apostle Andrei is a "later insertion" to the annals of history [103, p. 121]. However, in XVI century, Ivan the Terrible "indicated that Russians accepted christianity not from the Greeks, but from the apostle Andrei himself. This was brought to the notice of the Greeks a century later by the monk Arsenii Sukhanow who was sent ... to Greece ..." [103, p. 121]. According to our formula $X + 300$, the baptization of Russia by Andrei is an irrefutable fact.

4. Star flares in the Second Roman Empire and the Holy Roman Empire. The "evangelical star" in 1 A.D. and star flare in 1054 A.D. Note one very important fact. The attempt on Gregory's life (and his "suffering") occurred in 1075 A.D. It was just in 1075 A.D. that a lunar eclipse occurred, whose characteristics were described in the Gospel during the "Crucifixion" (see above). Thus, we possess a striking agreement of astronomical dating with dynastic overlappings. Recall that 1075 A.D. is a unique satisfactory solution of the so-called "evangelical" eclipse. A similar coincidence exists also in dating the so-called supernovae flares. The complete list of star flares (their dates) which are regarded as reliable is given in [35], [254]: 2296 B.C., 2241 B.C., 185 A.D., 393, 668, 902, 1006, 1054, 1184, 1230, and the subsequent spikes in 16th century (see Kepler's list). This list indicates only one flare (185 A.D.) during the Second Empire. We should also add here the famous "evangelical" star described in the Gospel to have occurred at Christ's "birth" (Mt 2:2,7,9–10). The Wise men: "Where is he that is born King of the Jews? for we have seen his star in the east ... Then Herod, when he had privily called the wise men, enquired of them diligently what time the star appeared ... The star, which they saw in the east, went before them ..." (Mt 2:2, 7, 9–10).

Kepler studied the astronomical picture of the first century B.C. in order to find the "remnants" of the celebrated "Bethlehem star". The chronicler Ideler also studied this "Magis' star" (Context 1978, pp. 128–129).

Second Roman Empire	Roman Empire in the 10–13th cc. A.D.
24a. Complete list of star flares fixed in texts: "evangelical" flare in 1 A.D. and that in 185 A.D.	24b. Complete list of star flares fixed in texts: that in 1006 A.D., well-known flare in 1054 A.D., one in 1184 A.D. and in 1230 A.D.
25a. Well-known flare in 1 A.D., which was visible as it was rising (in East) (Mt 2:2,7,9–10)	25b. Well-known flare in 1054 A.D., which was visible in "eastern skies" according to chronicles [254]
26a. This "star" was represented repeatedly in iconography, painting, and many chronologists attempted to date Christ's "birth" by it alone	26b. Remains of star flared in 1054 A.D. in Crab nebula. This flare was mentioned in many medieval documents

These two flares are ideally coincident under the 1,053-year shift.

27a. Flare in 185 A.D.	27b. Flare in 1230 A.D.

They are made coincident under the 1,053-year shift with a difference in 8 years.

28a. Flare lasted for 7 months	28b. Flare lasted for 8 months

Thus, the whole list of star flares of the Second Empire turned out to be isomorphic under the 1,053-year shift to part of the star list of the empire of the 10–13th cc. A.D. It is probable that the flare of the star in 1054 A.D. ("evangelical"), visible even in the daytime (!), caused a religious stir in the 11th c. A.D., which was expertly managed by Gregory VII.

The problem regarding the dating of evangelical events by an eclipse described in the Gospel and many early Christian documents is of long history and was repeatedly discussed by the astronomers. Our point of view is that the description of the eclipse in early Christian sources and in the Gospel is rather *confused*; we do not regard these data as worthy of attention, and are forced to discuss the problem only for the following reasons, viz., with respect to a long dispute regarding the dating of the astronomical data and the relation of the legends of Christ to the start of the first millennium, an important reference point for the establishment of dates.

5. Eclipse that occured during the Crucifixion. That an eclipse occurred during the "Crucifixion" is mentioned by many Christian authors such as Phlegon, Africanus, Synkellos, Eusebius ([13], V. 4. pp. 386–388). However, these authors did not come to an agreement as to the nature of the eclipse: whether it was lunar or solar. The reason for the confusion is that the Gospel according to Luke has the words "darkness fell all over the earth ... and the sun was darkened" (Luke 23:44–45), which caused the difference in opinion. For example, Phlegon wrote that the total solar eclipse lasted from six to nine, or three hours (*ibid.*, p. 386), which is impossible, for a solar eclipse may be no more than eight minutes long, whereas three hours is just a normal figure for a total lunar eclipse. Moreover, according to Phlegon, there was a full moon, which once more indicates the complete misunderstanding of the essence of the problem: There could only be a lunar eclipse at a full moon (*ibid.*). Therefore, the 16–19th-c. chronologists were mostly concentrated on the search of a lunar eclipse to which the above and other data refer. Another lunar eclipse of A.D. 33 was suggested, only today regarded as a confirmation of the traditional "Crucifixion" date.

Besides, it is assumed traditionally that Christ was "crucified on a cross". However, the Greek original mentions *staurós* instead, which means a pole (all derivatives of the term having the same meaning). By the way, in some translations (e.g., Slavonic), a form is preserved which is closer to the original, viz.,

"With the Romans, the execution by crucifying on a cross was performed totally differently, viz., a large pole was planted into the soil, the criminal led to it, drawn on ropes upwards and then fastened ... No such cross as represented on Christian icons was employed by the Romans" ([88], p. 179).

We now turn our attention to the Gospel and the material regarded by the traditional chronologists as a basis for dating the "evangelical" eclipse. It is assumed traditionally that all the events are described in the Julian calendar, but the count of the day hours starts with 6 p.m. (according to contemporary time count). In fact, it is said in the text that it was the eve of the Jewish Sabbath (Jn 19:38,42), and the Jews started the count of a new day with the evening. "Early on Sunday morning ... Mary Magdalene came to the tomb" (Jn 20:1). Thus, the body was removed on Friday in the daytime and, therefore, was hanging all night from Thursday to Friday (according to the modern count), i.e., all night of the Jewish Friday.

"The hour of the crucifixion was nine in the morning ..." (Mk 15:25–26).

"At midday a darkness fell over the whole land, which lasted till three in the afternoon ..." (Mk 15:33–34).

Friday, Saturday and Sunday—all these days, as correctly noted by F. Ginzel, may be found only in the Julian calendar; besides, Sunday is the first day of the week.

While associating the Julian Friday with the date of Christ's suffering, church tradition also insists on the use of just this calendar in the Gospel. For example, J. Blair indicates that Jesus Christ was crucified on Friday, whereas his tables refer to the Julian calendar ([74], Table 13). The Julian Friday is also recognized by other chronologists (see [173], V. 2, p. 541). Besides, according to tradition, Judaea was at that time under Roman power and the Roman, i.e., Julian, calendar was used.

Now, we shall discuss the hour count in the Gospel. According to F. Ginzel, the Romans started counting the day from midnight, whereas the Jews from sunset (i.e., 6 p.m. according to the modern count) (*ibid.*). There were 24 hours in the Jewish day, 12 hours in the day time and as many at night.

Thus, the day started with 12 hours at night, and ended with 12 hours in the day time.

Since tradition ascribes the authorship of the Gospel and participation in these events to the Jews, it is natural that the Gospel should employ the Jewish hour count. Nevertheless, we are not going to predetermine what the method of counting the hours was, and discuss both versions, Jewish and Roman. It turns out that the hypothesis for the Roman way of counting hours is untenable, and there is no convenient eclipse. As was noted above, the chronologists suggested April 3, A.D.

33, as a solution.

The study of eclipses reveals that the solution is very strained.

Besides, F. Ginzel extremely noncategorically establishes its correspondence to church tradition ([172], No. 36; [173], p. 541). This is quite clear because the phase was 7″, the start of the eclipse (Jerusalem time) 15 hrs. 44 min., and the end 18 hrs. 37 min. A lunar eclipse can be visible only after the sunset. With the phase of 7″, a little more than half the moon is in the earth's shadow. The eclipse could be visible in Jerusalem only for a few minutes immediately after sunset as a chip sliding off the lunar disc, and filling no more than one-twelfth of the disc's diameter. Besides, the eclipse does not at all satisfy the evangelical time intervals, and, lastly, no "darkness over the whole land" for three hours can be spoken of. We do not even mention the fact that it occurred at the spring equinox. Such "solutions" can be indicated practically every five years.

Applying the formal dating method, and assuming that the "Crucifixion" could have occurred from 200 B.C. to 800 A.D., N. A. Morozov offered as a solution 368 A.D. (though assuming that the "Crucifixion" occurred in March) ([13], V. 1, pp. 96–97). Because N. A. Morozov supposed that traditional chronology is basically correct starting with the 4th c. A.D., he analyzed the eclipses "only until the 8th c. A.D., i.e., from deepest antiquity until the second half of the Middle Ages (not continuing further due to impracticality)" (*ibid.*). However, I approached the problem more formally and extended the computations upwards into the Middle Ages for the purpose of deriving a complete and objective picture. It is interesting that an exact (!) solution was then found, viz., the lunar eclipse of April 3, 1075 A.D., which was a Friday as required by the conditions of the problem (*ibid.*). The coordinates of the culmination point of the eclipse were $+10°$ longitude and $-8°$ latitude. The eclipse was visible in all the regions of interest in Europe and the Near East (the eclipse phase was 4″8). As is traditionally believed today, the "Crucifixion" occurred two days before Passover (certainly not earlier than the equinox). In particular, the said eclipse of A.D. 33 occurred on April 3, just two days before Passover, which was on April 5, Sunday, A.D. 33. The exact solution, April 3, 1075 A.D., discovered, therefore occurred on the traditional day of the "Crucifixion", but in another year, and also two days prior to Passover, on April 5, Sunday. From this standpoint, our exact solution coincides with the traditional one adopted by the Church; however, the date we found is considerably later than the traditional one, and is 700 years later compared with the one given in [13], V. 1. Here, the chronological shift is $1075 - 33 = 1042$ years, which is close to the 1,053-year shift to be discussed below. The eclipse phase was 4″8, i.e., small. In the previous sections, while analyzing the history of the 11th c. A.D. and especially the "biography" of the pope Gregory VII Hildebrand, we saw that the eclipse of 1075 A.D. is consistent with the other events occurring in the 11th c. A.D.

It is interesting that astronomical data point to the occurence of the "Crucifixion" at the longitude of Rome, and not near Jerusalem as asserted by orthodox tradition.

It is important that it was only in the 6th c. A.D. that the date of Jesus' "birth" began to interest the chronologists!

"For more than five centuries, the Christians had no era of their own, and had not given a single thought to the time of Christ's birth (!—A. F.). No attempt to resolve this, we believe, quite important problem for all Christianity is recorded in the history of these centuries, and there are no historical notes based on the time when Christ was born" ([147], p. 96).

It is believed in traditional history that the use of the term "Christian era" was first suggested by Dionysius Exiguus, a Scythian monk and biblical scholar; however, it was not accepted, and, besides this unique mention, no document until the 7th c. A.D. had spoken of the Christian era. It was only in the 7–8th cc. A.D. that the English historian Bede the Venerable (*c.* 672–735 A.D.) made use of it; however, his chronicle is unique in this sense for the 7th c. A.D., and the term Christian era got into more frequent use only since the 10th c. A.D. The so-called "Diocletian era" was most widespread in the times of Dionysius (and before him), who allegedly had no desire to count years from the pagan king, and switched to counting years since the birth of Christ (but only for the so-called paschal cycle), 248 since Diocletian, amounting to 532 B.C. ([152], pp. 90–91). The original of Dionysius' texts was not preserved and his "computations" were restored only in the 19th c. A.D. by F. Ginzel and R. Schram [153], [194].

It is strange that Christmas should be regarded by traditional history as of Roman origin [224], [234]. Astronomically, the longitude where the Crucifixion took place is that of Rome. The oldest representation of Jesus' trial is the 6th-c. mosaic in Ravenna ([13], V. 1, p. 93). Of certain interest are stories in the menology (*ibid.*, pp. 118–154). Opening the collection, we see on the first page: "January 1: St. Basil the Great". But "*basilikos*" in Greek means "royal" (*basileus*), i.e., the Christian era started with a holy Great King. Who was he? Why was he so important? Why is he the "great Father of the Church" [220]? He was born in 333 A.D.

Much material demonstrating that the legends of Jesus (1st c. A.D.) and of the Great King Basil are practically identical (4th c. A.D.) was gathered in [13], V. 1. Here, we omit all the parallels, and refer the reader to N. A. Morozov. Note that these almost identical "biographies" are made coincident by the 333-year shift.

We do not assert that Basil the Great and Jesus are the same person. We only stress the far-reaching parallel between the legends of these two personalities, even when comparing explicitly fantastic ones. It is probable that they were copied from another source (Hildebrand?). Note that no other saint but Basil the Great in the menology is supplied with a detailed "biography" that is nearly identical with that of Jesus.

It was conjectured *ibid.* that the Crucifixion of the Great King (Jesus) was carried out due to the religious cult identifying the volcano (Vesuvius) and its smoke column (*stauros*). According to the volcanic cult mentioned in the Bible (see Part 1), the criminals were probably executed by being fastened near the volcano's *stauros*', i.e., crater, after which the God Volcano had to decide whether to chastise the criminal with stones, smoke, fire, etc., or pardon him. The Great King was probably crucified just in this manner. Since the biblical "Mt. Sinai", "Horeb", is most probably identified with Vesuvius, the Crucifixion occurred in Italy, not far from Rome, to which the above observation leads, in particular since the accompanying lunar eclipse satisfies all the conditions of the problem only for Rome's longitude, i.e., where Vesuvius is situated. It is hardly an accidental coincidence. The image of the "cross" to which Jesus was nailed could also have been derived from the stylized representation of the same smoke column (*stauros*) over Vesuvius; as a matter of fact, the column rising to great heights then starts spreading and forms a gigantic letter T, or a cross (see the photograph in [13], V. 1).

4.5. The Third Roman Empire and the Holy Roman Empire. The 720-year chronological shift as the difference between the first and second basic chronological shifts. The Trojan war, Gothic war and Italian war in the 13th c. A.D.

Since we do not have the space here, we omit the comparison of the enquête-codes of the Second Roman Empire and the Roman Empire in the 10–13th cc. A.D. Note that, since the Second and Third Roman Empires are parallel, there must be an isomorphism between the Third and 10–13th-c. Roman Empires. Such an isomorphism is, in fact, there (see Table 5, Figs. 45, 46). We now dwell on the last stage, viz., the parallel between the events of the 13th and 6th cc. A.D. in Italy. Being the difference of the two principal shifts, it is 720 years long (1053 − 333 = 720 years).

Third Roman Empire in the 3rd–6th cc. A.D.	Roman Empire in the 10–13th cc. A.D.
1a. Fierce fighting, anarchy. Large group of emperors ruling for a short time: Severus, Ricimer, Petronius. Shift precisely by 720 years [44]	1b. Fierce fighting, anarchy, group of emperors ruling for a short time: Subur (Severus?), Rainerius (Ricimer?), Petrus (Petronius?) Names are clearly close
2a. Odoacer = Odo + CR (*kaiser*) = Otto + Kaiser (?), ruling for 17 years in 476–493 A.D. in Rome	2b. Otto IV. According to F. Gregorovius, he was crowned (1201 A.D.) and ruled for 17 years in Rome (1210–1218 A.D.)

The durations and the time intervals of the rules themselves are remarkably consistent under the 720-year shift. See the data in [44], [74], [128], [134].

3a. Animosity between Odoacer and Theodoric. Odoacer was older. They actually co-ruled for some time. Theodoric came to power in 493 A.D. and defeated Odoacer in battle	3b. Animosity between Otto IV and Frederick II. Otto IV was older. They co-ruled. Frederick came to power in 1218 after Otto's death. Otto IV was defeated in battle by Frederick II

The dates are practically coincident under the 720-year shift (1218 − 493 = 725 years). The names "Theodoric" and "Frederick" are nearly identical.

4a. Death of Boëthius who became victim of Theodoric's suspiciousness [44]. Names are close	4b. Death of Peter de Vineis who became victim of Frederick's suspiciousness

The parallel was noted by F. Gregorovius himself:

"The fall of Peter de Vineis ... fell like a shadow across the life of the Great Emperor (Frederick—A. F.), in the same ways that the death of Boëthius overshadowed the life of Theodoric the Great. The two German kings resembled one another in the last stage of their career ..." ([44], V. 5, p. 263).

5a.	Theodoric died natural death. Fall of Gothic (TRQN) dynasty in Italy. Sixth-c. war overlaps with biblical war with Pharaoh	5b.	Frederick died natural death. Fall of Hohenstaufen dynasty in Italy. Accounts of 13th c. called Frederick II "Pharaoh" ([44], V. 5)
6a.	Theodoric of Ostrogoths	6b.	Frederick II (Hohenstaufen)
6.1.	Dynasty of Goths: Amalaric, Athalaric, Theodahad, Vitiges, his nephew, Gothic ruler from Ravenna (Uraja, Ildibald), in 526–541 A.D., figuring under the name of one king, Tarquinius Superbus (according to Livy)	6.1.	Conrad IV
6.2a.	Totila	6.2b.	Manfred
6.3a.	Roman emperor Justinian	6.3b.	Pope Innocent, Roman ruler
6.4a.	Tejas	6.4b.	Conradin
6.5a.	Narses (Belisarius)	6.5b.	Charles of Anjou

This is the short scheme. Because we do not have the space here, we cannot give a detailed comparison of the "biographies", and only confine ourselves to the extremely vivid example. F. Gregorovius absolutely correctly indicates the following parallel:

The gloomy Charles of Anjou stepped into the arena of ancient battles between the Roman and German peoples as Narses (!—A. F.), and Manfred assumed Totila's tragic mien (!—A. F.); for, though the balance of forces was different, the *situation was essentially the same*. The pope invited foreign aggressors to the country to liberate it from the Germans. The Swabian dynasty fell as the Gothic (!—A. F.) once did. The stunning destruction of both powers and their heroes embellished history with a double tragedy on the same classical stage, the latter tragedy seeming to be only the exact reproduction of the former (!—A. F.) ([44], V. 5), ([44*], V. 5, p. 287).

The overlapping of Charles of Anjou and Narses is also confirmed by the phonetic parallel. "Charles" meant simply "king" in antiquity. In the 13th c. A.D., coins often contained the inscriptions *Karolus* and also *CAROLVS* ([44], V. 5, P. II, p. 369, Note 2). Therefore, "Charles of Anjou" means "Anjou king". In other words, this is Anjou Caesar, CAESAR OF ANJOU, or CESAR AN in abbreviated form. Read from right to left, it sounds like NARASEC, i.e., NRSC, which is practically identical with "Narses". Arabs and Jews read from right to left which turns CESAR AN into Narses.

The culmination point of the war of the 13th c. is the well-known battle of Benevento and the taking of Naples (!), the analogue of the battle of Troy and its capture (according to the Trojan version), or capturing Naples (according to the 6th-c. Gothic version). It is remarkable that Benevento is situated near the medieval Troy built by the Greeks (!) in the Middle Ages ([44], V. 4, p. 29). Thus, Troy, the war near it and its fall appear in the war of the 13th c. A.D. "in an identical manner".

Trojan version	Gothic version	Events in the 13th c. A.D.
1a. Battle of Troy	1b. Battle of Naples	1c. Battle of Benevento, near Troy, and Naples
2a. Taking Troy	2b. Taking Naples. Totila's death	2c. Taking Benevento and Naples. Manfred's death

Here is what actually occurred in the 13th c. A.D. See also the fall of Constantinople (= Troy?) in 1204 A.D.

"The celebrated battle of Benevento was fought with scarcely 25,000 men on each side. The long and terrible war between Church and Empire, between Romans and Germans, was brought to a close on a narrow field of battle, in the course of a few hours" ([44], V. 5, P. II, p. 390).

And again, as F. Gregorovius absolutely correctly stresses, we cite the parallel with the 6th c. Gothic war:

"The valiant Germans (Manfred's army—A. F.) fought and fell like ancient Goths with the courage of heroes ..." ([44], V. 5, P. II, p. 390).

"Manfred was only 34 years of age at the time of his fall (Totila also died young—A. F.), and, like Totila (!—A. F.) was glorious both in life and death. And ... as the Gothic hero ... restored the empire of Theodoric, so Manfred raised Frederick's empire ..." ([44], V. 5, P. II, p. 394).

The fall of Benevento, Naples and Troy was accompanied by terrible slaughter both in the Gothic and Trojan versions (*ibid.*, p. 397).

End of the Gothic war in the 6th c. A.D.	End of the war in the middle of the 13th c. A.D.
Tejas, last king of Goths (TRQN dynasty). Ruled for 1 or 2 years in 552–553 A.D. His extreme youth. His defeat in battle with Narses. He was beheaded. Died in battle of Naples	Conradin, last king of Hohenstaufen dynasty. Ruled for 2 years in 1266–1268 A.D. His extreme youth. Defeated in battle with Charles of Anjou (Narses' analogue). He was beheaded in Naples

Recall that the well-known Trojan horse erected in the square in Troy is the symbol of the Trojan war. It is curious that the history of the 13th-c. war contains a strange legend of the well-known horse statue erected in Naples (Troy's analogue).

In particular, the Neapolitans hated Conrad IV "since he ordered to bridle the horse whose statue was erected in the city square, and revered *as 'politically' sacred*" [274].

Accounting for the events occurring during the 13th c. A.D., the Byzantine historian Pachymeres employed the terminology and images inspired by the Trojan war (in particular, by Helen = Manfred's wife). Recall that Ramon Muntaner, a 13th-c. Catalonian historian and Dante's contemporary, thought of Homer's Menelaus as a duke of Athens! It was he who was telling about one of the Trojan frontier posts near the island of Tenedos in Atracia (= TRC) in Asia Minor. "Once, when Helen was going there for worship, accompanied by hundreds of knights, she was seen by the Trojan king's son Paris, who killed her entire suite and abducted the beauty duchess" [45]. This story of Muntaner is given in 13th-c. terms and taken as a *medieval* event.

5. The Parallel between the Western Third Roman Empire and the Biblical Kings of Israel. Enquête-Codes of the Historical Periods of the 9–5th cc. B.C. and the 3rd–6th cc. A.D.

5.1. The complete table of both streams

The term "Israel" means "God-contending" ([13], V. 1, pp. 416, 437), the word "Judaean" means "God-praising" (*ibid.*). We do not give any details of the translation, because they are unimportant.

According to the Bible, the God-contending and God-praising kingdoms are two parts of a single state split into two factions, similar to the decomposition of the formerly united Roman Empire into Eastern and Western Empires. The first three kings Saul, David and Solomon still ruled one state; the secession occurred after Solomon: Jeroboam I was the first God-contending king who seceded, and Rehoboam the first God-praising king who seceded. Saul, David and Solomon are regarded to be legendary figures.

The Bible contains information regarding the duration of the reigns of all God-contending and God-praising kings. We have compited the complete table of both streams, thoroughly examining all related biblical data and figures (see below). (Fig. 89.)

(1) Jeroboam I reigned for 22 years = Constantine I for 24 years in 313–337 A.D. after the victory over Maxentius; (2) Nadab for 2 years = Constantine II for 3 years in 337–340 A.D.; (3) Baasha for 24 years = Constantine II for 21 years in 340–361 A.D.; (4) Elah for 2 years = Julian for 2 years in 361–363 A.D.; (5) Zimri for less than 1 year = Jovian for less than 1 year, too, in 363 A.D.; (6) Omri for 12 years = Valentinian for 11 years in 363–375 A.D.; (7) Ahab (the prophet Elijah along with him) for 22 years = Valens (Saint Basil the Great along with him) for 14 years in 363–378 A.D.; (8) Ahaziah for 2 years = Gratian for 4 years in 379–383 A.D.; (9) Jehoroam God-contending for 12 years = Valentinian II for 13 years in 379–392 A.D.; (10) Jehu and the prophet Elisha for 28 years = (–) or Alaric and John Crysostom for 25 years in 378–403 A.D. or 32 years in 378–410 A.D.);

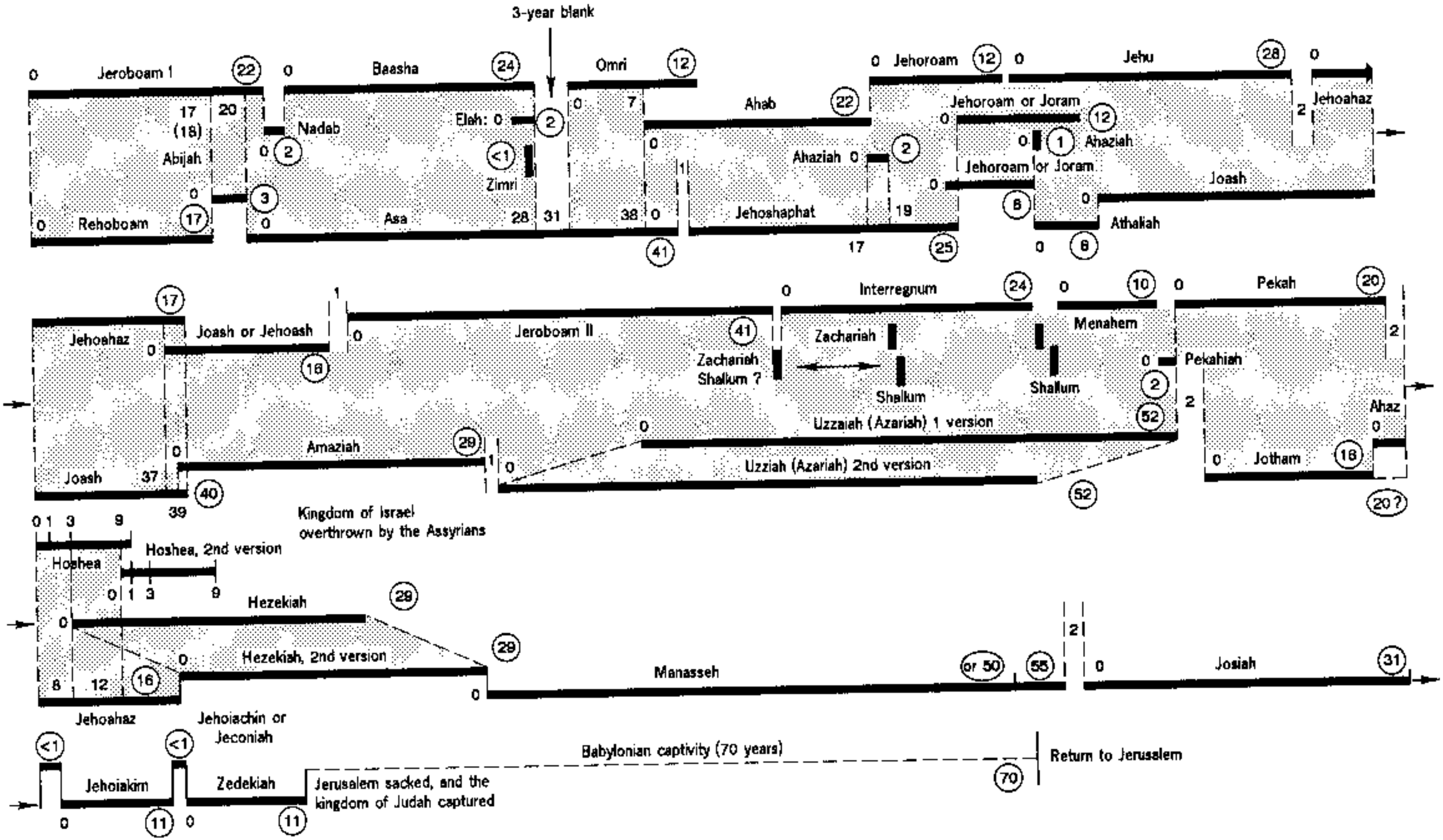

Figure 89. Comparative chronological diagram for the Kings of Judah and Israel (complete table)

(11) Jehoahaz for 17 years = Theodosius for 16 years in 379–395 A.D.; (12) Joash (or Jehoash) God-contending for 16 years = Arcadius for 13 years in 395–408 A.D.; (13) Jeroboam II for 41 years = Honorius for 28 years in 395–423 A.D.; (14) Zachariah for less than 1 year (viz., 6 months) = Constans III for less than 1 year (viz., 7 months) in 423 A.D.; (15) Shallum for less than 1 year (viz., 1 month) = John for less than 1 year (viz., 2 months); (16) Interregnum for 24 years = interregnum or custody for 21 years in 423–444 A.D.; (17) Menahem for 10 years = Valentinian III for 11 years in 444–455 A.D.; (18) Pekahiah for 2 years = Petronius Maximus for 1 year in 455–456 A.D.; (19) Pekah for 20 years = Ricimer for 16 years in 456–472 A.D.; (20) Anarchy for 2, or 6, or 9 years = anarchy lasting for 3 years in 472–475 A.D.; (21) Hoshea (until he was captured by Shalmaneser) for 1 year or 3 years = Romulus Augustulus (until he was captured by Odoacer) for 1 year in 475–476 A.D.

The above stream in the Third Empire is localized mostly in Rome (i.e., in the Western Empire). Those emperors from the jet, whose residence was Constantinople, were so influential that they also dominated Rome, sometimes even with a co-ruler. It is important that the whole stream of the God-contending kingdom is included in the parallel.

Both streams start with great political and religious figures, viz., Jeroboam I, founder or initiator of the so-called Jeroboam's heresy, and Constantine I Augustus, under whom Arianism was introduced and strengthened (analogue of Jeroboam's heresy). Jeroboam fought Rehoboam, who was alienated from him, whereas Constantine I fought with Licinius, who also seceded. Both under Jeroboam I (when the unique kingdom split into God-contending and God-praising parts), and Constantine I (who transferred the capital from Rome to Constantinople), the empires were divided into the Western and Eastern Empires (it was united under Aurelian = Sulla, Diocletian = Pompey, Constantius I Chlorus = Julius Caesar, i.e., Saul's, David's and Solomon's analogues). According to the Bible, the God-contending people was divided into twelve tribes. Similarly, under Constantine I, the Empire was separated into the 12 dioceses (analogues of the tribes). Moreover, in the God-contending kingdom, another was added to the twelve tribes (Dinah's children). Similarly, in the Roman Empire, another was added to the above twelve dioceses under Constantius II, son of Constantine I ([13], V. 7).

Both streams had two rulers empowered by a "foreign" king. Thus, Hoshea was dominated by Shalmaneser, and Romulus Augustulus by Odoacer. Meanwhile, Shalmaneser was an Assyrian king, whereas Odoacer was Germanic, which precisely corresponds to the identification of the biblical "Assyrian kingdom" with Germany, carried out by N. A. Morozov on the basis of quite a different argument (*ibid.*). Both theocratic streams end their independent existence with these two rulers. The two last emperors of the Third Empire, Odoacer and Theodoric, are no longer Roman theocrats (or Romans), but profess a "foreign" religion, which was also reflected in the writing of the Bible.

The anarchy and interregnum periods in both streams coincide relative to their position and duration.

The "biographies" of the God-contending kings and the corresponding Roman emperors (if they are made coincident in the chronological sequence) contain a large number of identifications and parallels (see some examples below).

We have carried out all those formal investigations which were performed for the Second and Third Empires for this pair of jets, too. It turned out that all the conclusions regarding the Second and Third Empires were also valid here (we omit the details).

5.2. The remarkable biographical parallel

Enquête-codes. Biographical parallel (translation of the biblical names follows N. A. Morozov)

Biblical Kings of Israel	Western Third Roman Empire
1a. Jeroboam I (people-increasing)	1b. Constantine I Augustus
1.1. Name "Jeroboam" may mean "sacred call" in Greek pronunciation ([13], V. 7, p. 338)	1.1. Name "Augustus" means "majestic"
1.2. Jeroboam I becomes sole ruler along with Rehoboam (1K, 11:43; 12:2–3, 19–20); they shared God-contending and God-praising kingdoms between them	1.2. Constantine I became sole ruler along with Licinius; they shared Western and Eastern Empires between them ([134], p. 429)
1.3. Jeroboam I seceded from Rehoboam in first year of his reign (1K 12:19–29)	1.3. Constantine I broke his relations with Licinius in very first year of his rule after victory over Maxentius in 313 A.D., which caused war (*ibid.*)
1.4. "There was continual fighting between him (Rehoboam—A. F.) and Jeroboam" (1K 14:30)	1.4. As early as 314 A.D., Licinius was attacked by his co-ruler Constantine I (*ibid.*), who was always fighting Licinius ([134])
1.5. Under Jeroboam, "the whole of Israel has been in rebellion against the house of David" (1K 12:19–20). Jeroboam I transferred capital to Shechem (1K 12:23)	1.5. Constantine I transferred capital of Empire from Italian Rome to New Rome on Bosphorus *c.* 330 A.D., which started dissolution
1.6. Jeroboam I was unique God-contending king, who transferred capital due to foundation of new kingdom	1.6. Constantine I was unique ruler of Third Empire, who transferred capital due to foundation of new empire
1.7. In order not to restore Rehoboam to power, Jeroboam I also seceded religiously, started so-called Jeroboam's heresy (1K 12:28, 31),	1.7. Christian accounts characterized Constantine I (who was, by the way, made saint) as "founder" of Orthodox Church. Of all these

and all subsequent God-contending kings followed in his footsteps. This "sin" played important role in history of all God-contenders	legends of Constantine I, modern historians acknowledge only that he was founder of certain cult, heresy (?) (that he was Christian is often contended). It was just under Constantine I that Arius (founder of Arianism) came out with his teaching [146]. Arianism was prominent Christian "heresy" which played important role in history of Roman Empire
1.8. Jeroboam I reigned for 22 years (1 K 19:20)	1.8. Constantine I reigned for 24 years from 313 to 337 A.D., i.e., from start of his co-reign and struggle with Licinius (Rehoboam's analogue) after Maxentius' defeat (see other two variants for Constantine I above, viz., 31 and 13 years)

2a. Nadab ("liberal")	2b. Constantine II
2.1. Son of Jeroboam I	2.1. Son of Constantine I (Jeroboam's analogue) [134]
2.2. Came to power immediately after father's death (1K 15:25)	2.2. Came to power after father's death (*ibid.*)
2.3. Followed in his father's footsteps, repeating the "sin" (1K 15:26)	2.3. Continued his father's religious policy (*ibid.*)
2.4. Was slain by Baasha, who usurped throne (1K 15:28)	2.4. Constantine II started war with his brother Constantine and was killed in action ([134], p. 438)
2.5. Baasha, Nadab's murderer, became God-contending king (*ibid.*)	2.5. Constans, Constantine's murder, became Roman emperor, sharing power with third brother Constantius II (*ibid.*), which occurred immediately after death of Constantine II in 340 A.D. ([128], p. 468). All three brothers co-reigned since 337 A.D.
2.6. Nadab reigned for 2 years (1K 15:25)	2.6. Constantine II reigned for 3 years in 337–340 A.D. ([128], [134], p. 792)

2.7. Nadab was killed "in the third year of Asa the king of Judah" (1K 15:28)	2.7. Constantine II was killed either in 5th or 7th year of Great King (Basil the Great), legends of whom overlapped with those of Jesus (= Asa). There are two versions for date of birth of Basil the Great, viz., 333 (most widespread variant) and 335 A.D. (rare version)

3a. Baasha ("creator")	3b. Constantius II
3.1. Murderer of his predecessor Nadab, came to power	3.1. Came to power as murderer of his predecessor Constantine II
3.2. "... followed in Jeroboam's footsteps, repeating the sin ..." (1K 15:34)	3.2. United entire country under his leadership. Resolved religious disputes [146]
3.3. "as soon as he (Baasha—A. F.) became king, he struck down all the family of Jeroboam, destroying every soul and leaving not one survivor" (1K 15:29)	3.3. Destroyed Constantine's (analogue of Jeroboam) relatives, massacring families of Constantine's half-brothers ([134], p. 438)
3.4. Baasha selected Tirzah as capital (1K 15:33). Cf. "Turkey" in right column	3.4. Had Constantinople as residence and lived in Asian provinces (Turkey) long after 335 A.D. (*ibid.*)
3.5. Reigned 24 years (1K 15:33)	3.5. Ruled for 21 years in 340–361 A.D. (after Constantine's death) or 24 years in 337–361 A.D. (since his co-reign with Constantine II (*ibid.*). Here, we fix 21 years, though second version, 24 years, is more suitable

4a. Elah ("Sun God")	4b. Julian (God)
4.1. Baasha's son (1K 16:8). It should be noted that biblical "son" implies religious succession rather than actual relation	4.1. Cousin of Constantius II (Baasha's analogue), who had no sons
4.2. Called "God". Name "Elah" is well consistent with name "Julian"	4.2. Was deified still in his lifetime and known as outstanding religious reformer (*ibid.*)
4.3. In spite of such great name, Bible reports almost nothing of him, which is especially well demonstrated if we compare other "biographies" of God-contending kings with much	4.3. Julian ("God") entered church history under name of "Apostate". Orthodoxically, he is regarded as enemy of Christianity and re-introducer of paganism; Christian

more "modest" names. Recall that Bible is religiously tinged account that pays most serious attention to religious policy	sources speak of him in extremely scanty and denouncing terms, whereas secular Roman historian Marcellinus and others devote to Julian the Apostate great panegyrics
4.4. Was assassinated by his army commander Zimri (1K 16:10)	4.4. Was killed during "Eastern expedition", and Jovian became emperor (*ibid.*)
4.5. Reigned 2 years (1K 16:8)	4.5. Reigned 2 years in 361–363 A.D. ([128], p. 793, 134, 146)

5a. Zimri ("singer of hymns")	5b. Jovian
5.1. Was commanding half of clariots of his predecessor Elah (1K 16:8–10, 15)	5.1. Was army commander in his predecessor Julian's army and took part in Julian's Persian expedition [146]
5.2. Assassinated Elah (1K 16:9–10, 15)	5.2. No precise data exists about Julian's murder, which is enshrouded in legends. At any rate, Jovian became Julian's successor. One of traditions states that Julian became victim of conspiracy
5.3. Came to power in twenty-seventh year of God-praising king Asa (1K 16:9–10, 15)	5.3. Came to power in 30th year of Basil the Great (Jesus = Asa) in 363 A.D. (Basil was born in 333 A.D.)
5.4. Zimri "was following in the footsteps of Jeroboam, repeating the sin" (1K 16:19)	5.4. Jovian was Christian (*ibid.*)
5.5. "... Zimri reigned in Tirzah for seven days ..." (1K 16:15)	5.5. Jovian started his reign in East, on expedition, near Turkey
5.6. Reigned for 7 days (1K 16:15)	5.6. Reigned for less than 1 year ([74], [128], p. 793, 134). This short time interval was spent returning to capital, which he did not reach according to some sources

6a. Omri ("head")	6b. Valentinian I
6.1. N. A. Morozov translated "Omri" also as "Umbrian", i.e., inhabitant of Northern Italy ([13], V. 7, p. 341)	6.1. No precise information regarding Valentinian's descent. Meanwhile, he reigned in West, i.e., Italy [134]
6.2. Succeeding Zimri on throne, Omri was army commander in his predecessor's army (1K 16:16)	6.2. Succeeding Jovian to throne, was army commander in his predecessor's (analogue of Zimri) army ([134], p. 441)

6.3. Came to power in 31st year of God-praising king Asa (1K 16:23)	6.3. Came to power in 31st year of Basil the Great (Jesus = Asa) in 364 A.D. (Basil was born in 333 A.D.) [128], [134]
6.4. Was engaged in hard war with Tibni, determined to become king (1K 16:21–22)	6.4. Was engaged in hard war with Procopius (Julian's relative), claiming throne ("Procopius' uprise")
6.5. Omri held victory (1K 16:21–22)	6.5. Valentinian I held victory (*ibid.*)
6.6. Pretender Tibni lost his life (*ibid.*)	6.6. Pretender Procopius was killed ([134], p. 442)
6.7. Omri transferred his residence to Samaria located on hill (or not far from some hill) (1K 16:25)	6.7. Valentinian I transferred his residence to West, Rome, near well-known mountain Vesuvius
6.8. Omri was wicked and "did what was wrong in the eyes of the Lord; he outdid all his predecessors in wickedness" (1K 16:25–26)	6.8. Valentinian I was suspicious and cruel, creating tense atmosphere in Empire along with brother Valens, especially after Procopius' defeat, executing large numbers of people (*ibid.*)
6.9. Omri was not killed, but "rested" calmly with his forefathers (*ibid.*)	6.9. Apparently, Valentinian was not killed, but deceased in his residence; however, his "sudden death" was reported (*ibid.*)
6.10. Reigned 12 years (1K 16:23)	6.10. Ruled for 11 years in 364–375 A.D. [74], [128], [134]

7a. Ahab (and great prophet Elijah; Ahab = "father's brother")	7b. Valens (and great prophet and saint Basil the Great).
7.1. Bible pays much attention to Ahab who was one of most prominent biblical kings and, in particular, one of most wicked rulers (1K:22)	7.1. One of most prominent emperors; in particular, one of most cruel rulers (besides, his analogue in Second Empire was Nero)
7.2. Characterized as particularly impious king: He not only followed in Jeroboam's footsteps, but also worshipped Baal (1K 21:28, 29, 31)	7.2. Characterized by Christian sources with sharply negative attitude: he was an "ardent Arian"
7.3. Prophet Elijah started under Ahab (1K:21)	7.3. Basil the Great started under Valens [128], [134]
7.4. Name "Elijah" means "God" [13]	7.4. Legends of Basil were identified with those of "God" Jesus (= Asa) (see below)

7.5. Struggle between them grew into open confrontation (1K:21–23)	7.5. Struggle between them grew into open confrontation (see above)
7.6. Ahab's "biography" is represented in Bible as history of his relationship with Elijah (1K:21). Bible is religiously tinged source (1K:21)	7.6. Valens' "biography" was given in menology (from this religious source's standpoint) as immediate consequence of events related to Basil the Great
7.7. Was terrified of Elijah	7.7. Was "terrified by Basil"
7.8. Ahab fought with king of Syria (1K 22)	7.8. Valens fought with Goths [134]
7.9. Ahab's armies were defeated (1K 22:34)	7.9. Valens' armies were defeated (*ibid.*)
7.10. Ahab was mortally wounded when fleeing battlefield, and soon died (1K 22:37–38)	7.10. Valens died when fleeing battlefield (his analogue in Second Empire, Nero, died under similar circumstances) [128], [134]
7.11. Bible represented Ahab's wife, Jezebel, in a quite deprecatory manner: "... Jezebel shall be eaten by dogs ..." (1K 21:24)	7.11. Due to overlapping of legends of Basil and those of Jesus (see below). Valens also overlapped with king Herod, with latter's wife Herodias also being characterized by Bible deprecatingly. Wife of Valens' brother Valentinian identified with infamous debauchee Messalina, when Third Empire overlaps with Second (see above)
7.12. Reigned 22 years (1K 16:28–29, 31)	7.12. Ruled for 14 years in 364–378 A.D. (*ibid.*). If we consider pair Valens–Valentinian I, then total duration is 14 + 11 = 25 years; however, we do not take this version into account, regarding it as artificial

8.a. Ahaziah ("grasped by God")	8b. Gratian
8.1. Started to reign after Ahab (1K 22:51)	8.1. After Valens' death in 378 A.D., his co-ruler Gratian remained in Western part of empire (until his death in 383 A.D.) [128], [134]
8.2. Reigned in Samaria (1K 22:51)	8.2. Reigned in Rome (established earlier to be overlapping with "Samaria")
8.3. Reigned 2 years (1K 22:51)	8.3. Ruled for 4 years in 379–383 or 5 years in 378–383 A.D.

To 8.3b: Though formally Gratian remained unique ruler in 378 A.D., the whole of

378 A.D. was a period of confusion (after Valens' death), and it was only in 379 A.D. (end of the confusion period and civil war) that the stable co-rule of Gratian and Theodosius started ([134], p. 444).

8.4. According to Bible, Ahab was "father's brother" ([13], Morozov's translation)	8.4. Valens was Gratian's (Ahaziah's analogue) uncle

9a. Jehoram ("God's archer")	9b. Valentinian II
9.1. Reigned 12 years (2K 3:1)	9.1. Ruled for 13 years in 379–392 A.D. (after Valens' death and confusion of 379 A.D.) ([128], p. 793)

10a. Jehu and prophet Elisha	10b. —

Here, the isomorphism is not valid, since Jehu's analogue cannot be found among the Roman emperors. At the same time, if we take the data already known to us, then this gap can be filled immediately.

10a. Jehu and prophet Elisha	10b. Alaric and prophet John Crysostom
10.1a. Turbulent time in history of God-contending kingdom: Jehu's invasion	10.1b. Turbulent time in Empire's history: Alaric's invasion
10.2a. Prophet Elisha was successor to prophet Elijah's (Basil's analogue; see above) religious power (2K 2:9)	10.2b. John Crysostom was successor to religious power of Basil the Great (see above)
10.3a. Elisha was well-known biblical prophet who organized and inspired great religious stir in God-contending state	10.3b. John Crysostom was well-known prophet and religious figure who organized and inspired great religious stir in Empire (see history of Revelation of John in [13])
10.4a. Jehu was army general and contemporary of Elisha (2K 9)	10.4b. Army commander Alaric was the contemporary of John Crysostom [134]
10.5a. In N. A. Morozov's opinion, name "Jehu" is distorted form of Yahweh ([13], p. 344)	10.5b. Tradition preserved medieval Alaric's nickname "God's anger"; his invasion was regarded as coming of Yahweh himself, infuriated by people's sins ([13], V. 7, p. 345; [255])

10.6a. Jehu's invasion and his uprise is described in Bible as barbaric deed, because Jehu does not belong to ruling God-contending dynasty of kings, and was taken to country by Elisha (2K 9)	10.6b. Alaric's invasion and his revolt was barbaric deed. Alaric was empire's army commander (as well as Jehu), and was not formally empire's ruler [134]
10.7a. Elisha and Jehu ruled God-contending kingdom (2K 9, 10)	10.7b. John Crysostom was actual empire's "inspirer" *c.* 399–400 A.D. (see [13]), since emperor Arcadius carried out all his directives during "apocalyptic rise"
10.8a. Elisha accused and destroyed Jezebel at army general Jehu's hands (2K 9, 10). Jezebel was murdered	10.8b. John Crysostom accused and destroyed "Jezebel" (= state church?), during his political rise (in particular, at army commander Alaric's hands; see above)
10.9a. Jezebel was king's daughter (2K 9, 10)	10.9b. Identification of church with "wife" was repeatedly observed by Christian authors (e.g., Eusebius; see above)
10.10a. According to Bible, Jehu reigned over Israel (2K 10:36), annointed by Elisha (2K 9:6, 7)	10.10b. Alaric's invasion shook entire empire; he took Rome in 410 A.D., and was Goths' king since 396 A.D. [134], p. 446)
10.11a. Under Elisha, pagan Baal cult was overthrown (2K 10:26–28). "... and brought out the sacred pole from the temple of Baal and burnt it; and they pulled down the sacred pillar of Baal and the temple itself and made a privy of it—as it is today" (2K 10:26–28). Bible bans and imprecates Baal cult	10.11b. Under John Crysostom, pagan cult was eliminated in 391 A.D. by emperor's edict banning sacrifices. In 393 A.D., Olympic games were held last, Olympic temples destroyed, etc. ([134], pp. 444–445). Zeus' statue was taken to Constantinople, and pagan cults banned (*ibid.*)
10.12a. Jehu was not impartial to religious struggle, and persecuted Baal cult	10.12b. Alaric was not impartial to religious struggle and cruelly persecuted orthodox Christians, being Arian (*ibid.*)
10.13a. Jehu reigned 28 years (2K 10:36)	10.13b. Alaric's and John's "rule" lasted for either 25 or 32 years (see below)

To 10.13b: John Crysostom started his activity in 378 A.D. (year of the death of Valens and Basil the Great, the prophet Elijah's analogue); that was the year

when the Goths rose up in arms ([134], p. 443). John Crysostom died in 407 A.D., Alaric became famous in 385 A.D. and king of the Goths since 396 A.D. ([134], p. 446), died in 410 or 411 A.D. Thus, we obtain 25 years for Alaric, who ruled in 396–411 A.D.; 32 years for the Goths' revolt and Alaric in 378–410 A.D.; 29 years for John Crysostom, who ruled in 378–410 A.D. and Alaric; and 30 years for John Crysostom, who ruled in 378–407 A.D. We fix 25 and 32 years, though 29 and 30 years are more suitable, but more formal.

11a. Jehoahaz ("grasped by God")	11b. Theodosius I
11.1a. Followed in Jeroboam's footsteps (2K 13), and he is no different from previous kings except Jehu	11.1b. Was ardent Christian ([134], p. 444)
11.2a. Being "grasped by God" he was God's (Yahweh's = Jehu's) son	11.2b. Could also be regarded as God's "property" by church chronicler, since it was he on whom Goths stormed during their first revolt in 378 A.D., and it was under him that comet appeared (in 390 A.D.; God's = Yahweh's sign)
11.3a. Jehoahaz's reign was marked by single, but very hard war with Hazael, king of Syria (2K 13:3)	11.3b. Theodosius' rule was marked by long and hard war with Goths (*ibid.*)
11.4a. Bible described Hazael's invasion just as barbaric (2K 13)	11.4b. Goths' invasion was barbaric from stand-point of empire's chronicles
11.5a. Jehoahaz lost, but came to terms with Hazael (2K 13)	11.5b. Theodosius I succeeded in concluding (temporary) agreement with Goths in 386 A.D. [128, 134]
11.6a. Reigned 17 years (2K 13:1)	11.6b. Ruled for 16 years in 379–395 A.D. ([128], p. 793)

12a. Jehoash or Joash ("given by God")	12b. Arcadius
12.1a. Jehoash was Jehoahaz's son (2K 13:10–11)	12.1b. Arcadius was Theodosius' son ([134], p. 445)
12.2a. Jehoash was accompanied by powerful prophed Elisha, whose orders were at one time laws for Jehoash (2K 13)	12.2b. Arcadius was accompanied by powerful prophet John Crysostom, whose orders were laws for Arcadius in 400–401 A.D.
12.3a. "Then Elisha died ... Year after year Moabite raiders used to invade the land" (2K 13:20–21)	12.3b. John Crysostom died in 407 A.D., and the following (!) year, 408 A.D., Alaric again invaded empire (*ibid.*)

12.4a. Jehoash made wars with two kings Hazael and Ben-hadad (2K 13)	12.4b. Arcadius made wars with two kings Alaric and Radagaisius, who were Goths' and Germans' leaders, respectively (*ibid.*)
12.5a. Bible called Hazael (Ben-hadad being his son) king of "Syria" (2K 13)	12.5b. We have repeatedly mentioned overlapping of "Germans" (and Goths) and "Syrians" or "Assyrians"
12.6a. Jehoash was always against God-praising (Judaean) king, who co-ruled in God-praising kingdom (2K 13)	12.6b. Arcadius was always against his co-ruler Honorius; in particular, Honorius' personal army commander Stilicho ([134], pp. 446–447)
12.7a. War between God-contending Jehoash and his God-praising co-ruler (2K 13:12)	12.7b. War between Western and Eastern Roman Empires under co-rulers Arcadius and Honorius [146]
12.8a. Jehoash did not defeat Hazael completely (2K 13:19)	12.8b. Arcadius did not defeat Alaric completely ([134], p. 447)
12.9a. Died in capital, and not in battlefield. Reigned 16 years (2K 13:10–11)	12.9b. Died in capital, and not in battlefield. Ruled for 13 years in 395–408 A.D. (*ibid.*)

13a. Jeroboam II ("increasing the people")	13b. Honorius
13.1a. Reigned in Samaria (2K 14:23–24)	13.1b. Ruled in Rome (overlapping with Samaria) [134]
13.2a. Jeroboam II always fought with "Syrians" attacking state (2K 14)	13.2b. Honorius always made wars with Goths and Germans (as did his co-ruler Arcadius) (*ibid.*)
13.3a. Jeroboam II succeeded in achieving armistice in this long military invasion (2K 14:25–27)	13.3b. Honorius succeeded in achieving armistice in this long military invasion, and concluded temporary peace agreement with Alaric (Hazael's analogue; see above) [74], [128], [134]
13.4a. "He (Jeroboam II—A. F.) re-established the frontiers of Israel ..." (2K 14:25–27)	13.4b. In spite of short duration of agreement, it led to empire's extension: Honorius' army commander Stilicho drove Goths to empire's original frontiers ([134], pp. 446–447)

13.5a. Hazael's and Ben-hadad's defeat was probably described by: "Therefore will I send fire upon the house of Hazael, fire that shall eat Ben-hadad's palaces ..." (Am 1:4)	13.5b. Honorius again defeated Alaric in 402 A.D. with Stilicho's armies, and killed Radagaisius in 405 A.D., which was temporary defeat for Alaric (= Hazael) and final for Radagaisius (Ben-hadad) (*ibid.*)
13.6a. Hazael the "Syrian" was mentioned in Jeroboam's "biography", though, according to 2K 13:24, Hazael died still under God-contending Jehoash, Jeroboam's predecessor (see above). It probably indicates that Jeroboam II and God-praising Jehoash were co-rulers	13.6b. Honorius (Jeroboam's analogue) and Arcadius (Jehoash's analogue) were, in fact, co-rulers [128], [134], [146]
13.7a. Prophet Jonah was active under Jeroboam II, and sent by God to liberate country from enemy (2K 14). N. A. Morozov believed that Jonah was distorted form of "John" ([13], p. 353)	13.7b. John Crysostom sent by God, was active under Honorius and his co-ruler Arcadius. Since Ben-hadad = Radagaisius died in 405 A.D. and Alaric = Hazael in 410 A.D. (both in time of Honorius = Jeroboam II), end of activity of John Crysostom (John!) in 407 A.D., in fact, coincides with end of this powerful barbarian invasion [74], [134]
13.8a. Another prophet, Amos, was active under Jeroboam II (Am 1:4; 2:2)	13.8b. Since Honorius (Jeroboam's analogue) ruled in 395–423 A.D., "prophet Amos" falls into 395–423 A.D.
13.9a. Reigned 41 years (2K 14:23–24)	13.9b. Ruled for 28 years in 395–423 A.D.
14a. Zachariah ("remembered by God")	14b. Constantius III
14.1a. Little known. Reigned 6 months (2K 15:8)	14.1b. Little known. Ruled for 7 months ([128], p. 793). Was declared *augustus* in 421 A.D. (co-ruled with Honorius)
15a. Shallum ("peaceful")	15b. John
15.1a. Little known. Reigned 1 month (2K 15:10, 13)	15.1b. Little known. Ruled for 2 months [146]

The sources supply incomplete and contradictory accounts of the period of the fall of the Western Roman Empire. This led to confusion also in the modern monographs. For example, [128] supplies 423–425 A.D. for John without any comment. Therefore, we have made use of the shorter, but more complete account of [146], where the events of this period are described (though very briefly), and John is given a two-month rule (see also [74]).

16a. Interregnum in the God-contending kingdom	16b. "Interregnum" in the Western Third Empire
16.1a. Confusion period started after death of Jeroboam II (see below), and lasted for 24 years	16.1b. As noted above, 423–444 A.D. was time of interregnum (custody): young Valentinian III was in charge of Placidia and Aetius ([124], p. 33) for 21 years

To 16.1a: Menahem came to power under contradicting circumstances. It is said in 2K 15:17 that he came to power in the thirty-ninth year of Azariah from the God-praising kingdom, and reigned ten years. On the other hand, Menahem "attacked Shallum, son of Jahesh ..." (2K 15:14), i.e., he succeeded Shallum (see above) who reigned 1 month, whereas his predecessor Zechariah reigned only 6 months (see below). Thus, Menahem started to reign 7 months after his co-ruler (or predecessor) Zechariah = Jeroboam II, and between these three rulers there were no breaks. But Jeroboam II died in the fourteenth year of that very Azariah (2K 15:1), reigning 41 years (see above). Thus, between the end of Shallum's rule and the start of Menahem's reign, 24 years disappeared, which was noted by traditional history long ago and was called "interregnum".

17a. Menahem ("consoler")	17b. Valentinian III
17.1a. Rule characterized by important event: invasion of "Pul king of Assyria" (2K 15:19–20)	17.1b. Rule characterized by important event, invasion of Attila's armies [124]
17.2a. Invasion occurred at end of Menahem's reign (2K 15)	17.2b. Invasion occurred at end of Valentinian's rule in 452 A.D., whose rule started in 444 A.D., and ended in 455 A.D.
17.3a. Taking into account frequent assimilation of "P" and "T", king Pul can be king "Tul"	17.3b. Name "Attila" is close to "Tul", which is TL (or TTL) if freed of vowels
17.4a. Pul was king of Assyria	17.4b. Attila was king of Huns, and invaded Italy from North

Each time the Bible speaks of a "Syrian" or "Assyrian" invasion, either a Germanic or Gothic one, or, more generally, an invasion from the North, of Italy occurs in the Roman Empire.

17.5a. Under threat of complete defeat, Menahem "... gave him (Pul—A. F.) a thousand talents of silver ... Menachem laid a levy on all the men of wealth in Israel, and each had to give the king of Assyria ... Then the king Assyria withdrew without occupying the country" (2K 15:19–21)	17.5b. Under threat of complete defeat, Valentinian III paid off Attila with large sum of money, agreeing to pay annual contribution. Attila then left Italy in 452 A.D. ([124], p. 37)
17.6a. Reigned 10 years (2K 15:17)	17.6b. Ruled for 11 years in 444–455 A.D. (see above)

"Assyrian" means "leader" or "tutor" ([13], pp. 371–372). A-USAR means "to walk upright" or "to lead others", which is similar to the German "Führer", meaning "leader". "Assyrians" are characterized by the Bible as warmongers, which corresponds to the overlappings of the "Assyrians" and the Germans, or Goths, and sometimes, probably, the Huns.

18a. Pekahiah ("who opens the eyes of God")	18b. Petronius Maximus
18.1a. Succeeded Menahem, and was killed by his lieutenants in conspiracy (2K 15:25)	18.1b. Succeeded Valentinian III, and was killed, while fleeing, by his own courtiers [146]
18.2a. Reigned 2 years (2K 15:23)	18.2b. Ruled for less than 1 year (*ibid.*)
18.3a. Ruled in Samaria (2K 15:25)	18.3b. Ruled in Rome (overlapping with Samaria) (*ibid.*)

19a. Pekah ("who opens the eyes of God")	19b. Ricimer
19.1a. God-contending state was seized by Barbarians' king Tiglath-pileser (2K 15:29)	19.1b. Empire was invaded by Gaiseric, Barbarians' leader [146], pp. 487–488
19.2a. Tiglath-pileser king of Assyria (2K 15:29)	19.2b. Gaiseric invaded empire from North (*ibid.*)
19.3a. Name "Tiglath-pileser" means "migrating monster" ([13], p. 356)	19.3b. Gaiseric's invasion is usually regarded as start of so-called great migration of peoples (*ibid.*)
19.4a. Reigned in Samaria (2K 15:27)	19.4b. Ruled in Rome (overlapping with Samaria)
19.5a. Reigned 20 years (2K 15:27)	19.5b. Ruled for 16 years in 456–472 A.D.

To 19b: Ricimer was the actual ruler succeeding several "emperors" that reigned for a short time (see above).

To 19.3b.: In several years, a second king, "migrating monster" Theodoric, will be ruling in the empire, also deporting many people, and mixing the Italian population with the Goths and Germans, which will also be reflected in the Bible by the activity of Theodoric's analogue nicknamed "Tiglath-pileser".

20a. Anarchy in the God-contending kingdom	20b. Anarchy in the Western Third Empire
20.1a. Anarchy's duration is estimated by certain historians to be 6–9 years ([13], V. 7, p. 303, Table XVII). However, my analysis led to 2 and 9 years (2K 15:30). We fix 2, 6 and 9 years (see table)	20.1b. Ricimer died in 472 A.D. when anarchy started, lasting until 475 A.D.; patrician Orestes enthroning his son Romulus Augustulus ([146], p. 490)

21a. Hoshea ("saved by God")	21b. Romulus Augustulus
21.1a. Hoshea was enthroned in Samaria after anarchy. Title "saved by God" can be applied to Hoshea only in derision, since almost with start of his rule he became tributary to foreign king Shalmaneser ("breaking peace") without real power (2K 17:1–4)	21.1b. 15-year-old Romulus Augustulus, whose name "Augustulus" was derived from name Augustus, was enthroned in Rome after anarchy (again Rome overlaps with Samaria). "The population of Italy gave the teenage 'emperor' mocking nickname 'Augustul', i.e., little Augustus" ([134], p. 450)
21.2a. Reigned no more than 1 year as independent king (2K 17)	21.2b. Ruled for 1 year as independent king in 475–476 A.D. [146]
21.3a. Practically after Hoshea's rule, state was attacked by Shalmaneser, "and Hoshea became tributary to him" (2K 17:3–4)	21.3b. In 476 A.D., Odoacer defeated Roman army commanded by Orestes, became Roman king, succeeding Romulus Augustulus, and ending "purely Roman" dynastic stream in Western Empire (*ibid.*)
21.4a. Shalmaneser was "king of Assyria" (2K 17:1–4)	21.4b. Odoacer was German army commander (*ibid.*)
21.5a. Shalmaneser "... arrested him (Hoshea—A. F.) and put him in prison" (2K 17:5)	21.5b. Odoacer sent Romulus Augustulus to his estate in Campania, where he ended his lifetime in custody (*ibid.*)

21.6a. Shalmaneser deported large masses of God-contending people (2K 17:6). Bible then described sharp changes not only in state institutions of God-contending kingdom (which was empowered by foreign king), but also radical changes in religious life, etc. (2K). According to Bible, Hoshea's "reign" was end of independent God-contending kingdom; Hoshea was last God-contending king, and further God-contenders continued already within state system foreign to them	21.6b. Odoacer deported many people in Italy: German mercenaries settled throughout of Italy; he conceded 1/3 of all land. Roman Empire still existed in West under 2 foreign kings (conquerors), viz., Odoacer and Theodoric, but, already being introduced to new customs, religion, etc., Romulus Augustulus' rule ended independent "purely Roman" Western Empire

Thus, ended the biblical history of the God-contending kingdom and of the "purely Roman" Western Third Empire. The German–Gothic kingdom arose in Italy.

6. The Parallel between the Eastern Third Roman Empire and the Biblical Kingdom of Judah

6.1. The complete table of both streams

The Bible not only directly lists the God-contending and God-praising kings, but also specifies the reigns with respect to another kingdom: The God-contending kings are related to the God-praising ones, and, vice versa, it is indicated when a God-contending king was enthroned (Fig. 89).

This comparison of the Second Book of Kings with the lineage of Jesus Christ, given in the Gospel according to Matthew makes it possible to discover an insertion in the God-praising stream, viz., between Jehoram and Uzziah, four kings were inserted (see 2K): Ahaziah, Athaliah, Jehoash and Amaziah (the indicated four kings are absent in Mt 1:8–9). The Gospel according to Matthew cannot contain a mistake, since it further indicates the sum of the generations from David until the arrival in Babylon, viz., 14 generations, and not 17, as is seen from the Second Book of Kings and Second Book of the Chronicles (for the reason of showing the insertion, see below).

Since the God-contending kingdom has overlapped with the Western Empire in 306–476 A.D., it may be supposed that the God-praising kingdom when separated from the God-contending one could overlap with the Eastern, which seceded from the Western.

This conjecture is very well confirmed by the dynastic parallel method. Omitting the details, we specify the complete God-praising kingdom stream and the parallel (isomorphic) jet from the Eastern Empire, discovered by us (see Fig. 59, Table 13), and which is different from that suggested by N. A. Morozov. The Eastern Empire stream includes Arius of Alexandria (well-known founder of Arianism) and Basil the Great (great king).

(1) Rehoboam reigning for 17 years = Licinius for 16 years or 11 years in 308–324 A.D. or 313–324 A.D.; (2) Abijah for 3 years = Arius for 3 years or 5 (8) years in 330–333 (see above); (3) Asa (= Jesus?) for 41 or 46 years = Basil the Great for 45 years in 333–378 A.D. (4) Jehoshaphat for 25 years = Theodosius I for 16 years in 379–395 A.D.; (5) Jehoroam and the so-called "separation of Edom" lasting for 8 years = Arcadius and the separation of the Western Empire from the Eastern, lasting for 13 years in 395–408 A.D.

Then we have an insertion of 76 years in the God-praising stream, viz., 4 kings (we shall take it into account below; see No 12); (6) Uzziah reigning for 52 years = Theodosius II and Marcianus for 49 years in 408–450 A.D. and 450–457 A.D.; (7) Interregnum lasting for 2 years = anarchy, Attila's invasion for 2 years in 451–453 A.D.; (8) Jotham reigning for 16 years = Leo I for 17 years in 457–474 A.D.; (9) Ahaz for 16 years = Zeno for 17 years in 474–491 years A.D.; (10) Hezekiah for 29 years = Anastasius for 27 years in 491–518 A.D.; (11) Manasseh for 50 or 55 years = "two Justins": Justin I and Justinian I for 47 years in 518–527–565; (12) 76-year insertion (4 God-praising kings), king Amon reigning for 2 years (78 = 76 + 2) = 76-year-long interval filled by 5 Byzantine emperors Justin II, Tiberius, Mauritius, Phocas, Heraclius in 565–641 A.D.; (13) Josiah reigning for 31 years = Constans II (= Constans III) for 26 years in 642–668 A.D.; (14) Jehoahaz for less than 1 year = Constantine II for 1 year in 641–642 A.D.; (15) Jehoiakim for 11 years = Constantine IV the Pagan for 17 years in 668–685 A.D.; (16) Jeconiah for less than 1 year = Heraclion I for 1 year in 641–642 A.D.; (17) Zedekiah for 11 years = Justinian II for 10 years in 685–695 A.D. (his first rule), $\lambda(M, H) = 1.4 \times 10^{-12}$.

The characteristic properties of the streams. Since the basic statements are analogous to the corresponding ones in the previous two pairs (Second and Third Empires, Western Third Empire and God-contending kingdom), we only confine ourselves to a brief survey.

The indicated jet in the Eastern Roman Empire in 306–695 A.D. is basically localized in the East. It is important that both jets have exhausted the complete streams. The full durations of the God-praising kingdom of 396 years (see the above durations and their sum) is well consistent with the Byzantine stream of 389 years in 306–695 A.D. (or 395 years if we count it from a round figure, viz., 300 A.D.). It was shown above that the count from 300 A.D. is caused by the existence of a global isomorphism in Roman history.

6.2. A remarkable biographical parallel

Biblical Kingdom of Judah	Third Eastern Roman Empire
1a. Rehoboam ("who enlarges the people")	1b. Licinius

1.1a. Rehoboam and Jeroboam I divided kingdom between themselves (1K 14)	1.1b. Licinius and Constantine I (Jeroboam's analogue) divided Roman Empire between themselves. In 308 A.D., title of "*augustus*" was conferred on Licinius ([128], p. 792; [134], p. 426)
1.2a. Rehoboam reigned in God-praising kingdom with capital in Jerusalem (1K 11:43)	1.2b. Licinius ruled in Western Empire (*ibid.*)
1.3a. "In the fifth year of Rehoboam's reign Shishak king of Egypt attacked Jerusalem" (1K 14:25–26). The Jewish original mentions *misraim* (see below)	1.3b. In fifth year (!) of his rule, i.e., in 313 A.D., Licinius was forced to fight Maximinus, who invaded empire from Asia Minor ([128], p. 792)
1.4a. "There was continual fighting between him (Rehoboam—A. F.) and Jeroboam" (1K 14:30–31)	1.4b. In 314 A.D., Licinius was attacked by Constantine I, which led to long struggle between them, and ended only after Licinius' death in 324 A.D., defeated by Constantine I ([134], p. 429)
1.5a. Rehoboam reigned 17 years (1K 14:21)	1.5b. Licinius ruled for 16 years in 308–324 A.D. (If we count from 313 A.D. when Licinius defeated Maximinus, then we obtain 11 years, but this is not principal version.)

To 1.2a. "Jerusalem" means "the City of Holy Conciliation (Peace)", "foundation of the God" ([13], V. 7). Therefore, the term is meaningful and could be applied to different cities (see below).

To 1.3a.: The term *misraim* ("Egypt" according to the synodal translation) in N. A. Morozov's opinion does not only mean Egypt (and not so much Egypt), but the whole of the Roman Empire, which is also confirmed by the form RM present in MSRM. Further, under the subsequent overlappings, Judaea will constantly overlap with the Eastern Empire (i.e., situated east of the Italian Rome).

2a. Abijah ("God is father")	2b. Arius
2.1a. Strange name: "God is father". As we shall see below, Bible's attitude to God-praising kings is warm (in contrast to God-contending ones, whom it charges with "following in Jeroboam's footsteps"), but attitude towards "fathered by God" is critical: "All the sins that his	2.1b. Arius was greatest religious leader, who founded most influential theology Arianism fought with for centuries, and identified above with Jeroboam's heresy. Arius proclaimed Father superiority ([134], p. 434). This teaching caused fierce confrontation within Church

	father had committed ... nor has he been faithful to the Lord his God ..." (1K 15:3–4). Hence, since Jeroboam's heresy earlier overlapped with Arianism, "fathered by God" must be closely related to it, which is fully confirmed by right column		in times of Constantine I (*ibid.*). Formally, Arius was not king, but, after return from exile, and allegedly supported by Constantine I, acquired great influence in Eastern Empire. "Religious" king (*ibid.*) (remember that Bible is religiously-tinged source)
2.2a.	Reigned 3 years (1K 15:1–4, 7)	2.2b.	"Ruled" for 8 years or 5, or 3 years in 325 – 333 A.D., 328–333 A.D., or 330–333 A.D., principal version being 3 years (see below)
2.3a.	"Fathered by God" must, in turn, father God. In fact, a *bîyah* (Abijah) fathered Asa (1K 15:8)	2.3b.	In 333 A.D., Basil the Great (Jesus' analogue) was born. Name "Jesus" is close to "Asa"

To 2.3b.: Since the "birth" of Basil the Great (as well as of Jesus) was regarded as the greatest religious event, the religious power came down from Arius (= "fathered by God") to the newborn "God" Basil (= Asa = Jesus). Recall that, according to the orthodox point of view, Jesus was "God" from his very birth; therefore, from his stand-point of the religious chronicler, Arius' power "ended" in 333 A.D.

To 2.2b.: Since the God-praising stream (also including Arius) overlaps with the Eastern Empire, it is natural to reckon Arius' "rule" in the East since 330 A.D. when the capital was transferred from Rome to New Rome (Constantinople), and then we obtain precisely 3 years for Arius' "rule", which is just what is given in the Bible.

3a.	Asa ("savior")	3b.	Basil the Great
3.1a.	Name "Asa" is close to "Jesus", meaning "savior", i.e., same as "Jesus"	3.1b.	Isomorphism between legends of Jesus and Basil the Great was exhibited above [13]
3.2a.	Asa became king of Judah in the twentieth year of Jeroboam I (1K 15:8–12, 14)	3.2b.	Since Jeroboam I is analogue of Constantine I, twentieth year of Constantine's reign, reckoning from 313 A.D. when he and Licinius started co-ruling, occurs in 333 A.D., viz., precisely "birth" of Basil the Great (Great King)
3.3a.	As was discovered earlier, God-contending king Omri overlapped with Valentinian in 364–375 A.D.; it was said in Bible that Omri became king in thirty-first year of Asa's reign (1K 15:23–24)	3.3b.	Valentinian, in fact, was enthroned in thirty-first year of Basil (= Jesus), viz., 333 + 31 = 364 A.D., year of his enthronement

3.4a. Asa "reigned" 41 years (reckoned directly) (1K 15:8–12, 14). Subsequent computations yield somewhat different figure, viz., 46 years (we omit details) (1K 15–16; see also above table and [13], V. 7, p. 311)	3.4b. Basil the Great died in 378 A.D. in his forty-fifth year (see above). Figures 46 and 45 are very close
3.5a. Asa was great religious reformer: "Asa did what was right in the eyes of the Lord ... He expelled from the land the male prostitutes ... and did away with all the idols ... Asa himself remained faithful to the Lord all his life" (1K 15:8–12, 14–15). "He even deprived his own grandmother Maacah of her rank as queen mother because she had an obscene object made for the worship of Asherah; Asa cut it down and burnt it ... He brought into the house of the Lord all his father's votive offerings ..." (1K 15:13–15)	3.5b. As was noted above, Basil was great religious reformer, which was especially stressed if we take into account Basil–Jesus isomorphism. He founded principally new religious cult and, in particular, modern Divine Service (see above; cf. also Gospel, e.g., driving sellers, "male prostitutes", etc., out of temple by Jesus)
3.6a. Made war with God-contending king Baasha (1K 15:22–23), who previously overlapped with Constantius II	3.6b. Constantius II was contemporary of Basil the Great (= Asa = Jesus) in 340–361 A.D. (for his struggle with "Asa", see below)
3.7a. Bible remains silent as to details of Asa's death, and a parallel with Basil (= Jesus) cannot be established at this point. Asa's "biography" contains no "Crucifixion"	3.7b. Basil's "biography" contains legend of Jesus' suffering (see above), though in milder form than in Gospel. No "Crucifixion" either
3.8a. Bible regarded Asa as authentic king (1K)	3.8b. Basil the Great means "Great King". Jesus was also called "king" by Gospel
3.9a. Asa was king of Judah (i.e., God-praising)	3.9b. Jesus is called "king of Judah" in Gospel
3.10a. Asa built many cities, which is especially stressed by Bible (1K 15:22–23)	3.10b. Jesus was called *tēktōn* in Gospel, i.e., carpenter, city builder (?) ([13], V. 1)
4a. Jehoshaphat ("God's judge")	4b. Theodosius I the Great
4.1a. Reigned 25 years (1K 22:41–43, 46)	4.1b. Ruled for 16 years in 379–395 A.D. (see above)

4.2a. Recall that authors of Books of Kings treat Abijah (= Arius) and "Jeroboam's heresy" with hostility. "But he did away with such of the male prostitutes attached to the shrines as were still left over from the days of Asa his father" (1K 22:41–43, 46)	4.2b. Regarded as ardent Christian. Arians and other sects were gradually shifted into background, remains of pagan cult subject to energetic persecution [146]
4.3a. Moabites' and Ammonites' invasion and their defeat by Jehoshaphat (2Ch 20). We saw above that Moabites often appeared from North (together with "Assyrians")	4.3b. Goths' revolt on Balkans under Theodosius I. Bribing Gothic army commanders, Theodosius I succeeded in drawing revolters apart, and came to terms with them (*ibid.*)
4.4a. Jehoshaphat built ships for regular communication with Tarshish (2Ch 20:36), town in Spain	4.4b. Theodosius I was Spaniard, and took part in long Spanish wars. Theodosius' father, also Theodosius, was well-known army commander. Biblical chronicler probably added years of father's rule to those of son's, and obtained 25 instead of 16. However, we retain traditional figure, viz., 16 years

Theodosius I has already been occurred as Jehoahaz.

It is possible that there existed separate chronicles subsequently combined into the Books of Kings, which is confirmed, e.g., by repeated references in the Bible to the *The Book of the Kings of Judah and Israel*. Therefore, the same historical figure could appear in the Books of Kings twice. This is a rare phenomenon: Only Theodosius I and Arcadius were reflected in both chronicles, which is not surprising due to their considerable role in the empire's history (cf. Theodosius I the Great). Comparing the attitude of the author of a God-praising chronicle towards Theodosius I (= Jehoshaphat) with the Byzantine sources makes it possible to suggest that the God-praising author was an orthodox Athanasian (presuming favourable attitude towards Jehoshaphat).

5a. Jehoram ("God's archer")	5b. Arcadius
5.1a. God-praising king, i.e., ruled in Judah (2K 8)	5.1b. Ruled in Eastern Empire [128]
5.2a. Of all God-praising kings, Bible pays much attention only to Jehoram's wife, stressing her "wrongness" (2K 8:17–18)	5.2b. Of all Byzantine emperors until 526 A.D., chronicles draw especially much attention only to emperor Arcadius' wife, Eudoxia, a powerful and energetic woman strongly influencing her husband (see history of John Crysostom)

5.3a. Great event ocurred in Jehoram's times, viz., "separation of Edom". "So Edom has remained independent of Judah (i.e., God-praising kingdom—A.F.) to this day; Libnah also revolted at the same time" (2K 8:22)	5.3b. Any textbook in empire's history informs that, e.g., "the year 395 (i.e., first year of Arcadius' rule—A.F.) was when the Roman Empire separated into Eastern and Western empires" ([128], p. 799). 395 A.D., year of official decomposition of empire, is one of greatest milestones in rather long process of empire's dissolution. It was with Arcadius that Western and Eastern emperors started to be reckoned separately ([128], p. 793)
5.4a. Edom's separation was peaceful, and the Second Book of Kings and the Chronicles only sadly state fact of separation	5.4b. "The declaration of the formal separation of the unique Roman Empire into two passed unnoticed ..." ([134], p. 445)
5.5a. Reigned 8 years (2K 8:17–18)	5.5b. Ruled for 13 years in 395–408 A.D.

We then have a 76-year-long insertion (4 kings) in the God-praising stream, and omit it, indicating the true position further. Since we do not have the space here, we briefly refer to the next parallel.

6a. Uzziah ("my strength is God")	6b. Theodosius II + Marcianus
6.1a. Identical to Azariah according to [13]. Came to throne when he was 16 (2K 15:2). Reigned 52 years (2K 15:1–2), fortified Jerusalem, built towers from which to sling stones (2Ch 26:9–10,15), took part in some fierce church controversy, insulted God, for which he was punished with leprosy, and damned	6.1b. Came to throne when he was still teenager [146]. Theodosius II and Marcianus together ruled for 49 years in 408–450 A.D. and 450–457 A.D., respectively ([128], p. 793). Theodosius II ordered the construction of powerful fortification belt [70]. Observe Constantinople's (New Rome's) overlapping with Jerusalem. Well-known (subsequently condemned) council at Ephesus was called under Theodosius II ([121], p. 195). Theodosius II suddenly died following year

7a. Interregnum, anarchy	7b. Attila's invasion, anarchy
7.1a. Cross examination discovers 2-year gap. Bible is silent about events of these years (Fig. 89)	7.1b. In 451 A.D., Attila invaded Gaul, marauded Italy, and died in 453 A.D., his invasion lasting for 2 years

8a. Jotham ("God is perfect")	8b. Leo I
8.1a. Reigned 16 years (2Ch 27:1). "He declared war on the king of the Ammonites and defeated him ... the Ammonites gave him a hundred talents of silver, ten thousand kor of wheat and ten thousand of barley" (2Ch 27:25)	8.1b. Ruled for 17 years in 457–475 A.D. [146]. Made war with Huns, and defeated them ([124], p. 202)

9a. Ahaz ("grasped by God")	9b. Zeno
9.1a. Ahaz was attacked by Rezin king of Syria and Pekah king of Israel, besieging Ahaz, but being unable to take Jerusalem. Ahaz then asked Tiglath-pileser for help, who supported him, and Rezin's and Pekah's expedition failed (2K 16:2–5, 7, 9)	9.1b. In God-contending kingdom, Pekah overlapped with Ricimer. Then Rezin "king of Syria" overlaps with German king Odoacer (and again "Syrians" are identified with Germans). God-praising king Ahaz overlaps with Byzantine emperor Zeno in 474–491 A.D. [146]. Then Tiglath-pileser automatically overlaps with Theodoric
9.2a. (1) Rezin of Syria, (2) Pekah God-contending, (3) Ahaz God-praising, (4) Jerusalem, capital under attack, (5) Tiglath-pileser's support of Ahaz	9.2b. (1) Odoacer, German, (2) Ricimer, Western emperor, (3) Zeno, Byzantine, (4) Constantinople, capital under attack, (5) Theodoric, "monster deporter", support of Zeno (Ahaz's analogue) [146]
9.3a. Attack by Rezin and Pekah of Jerusalem failed	9.3b. Constantinople was attacked by Illa, Odoacer's associate (i.e., biblical Rezin) in 484 A.D., who was close to Ricimer in time, and, probably identified with him from biblical chronicler's stand-point (*ibid.*). Ricimer overlapped with Pekah. Revolt failed
9.4a. Name "Rezin" close to "Ricimer"	9.4b. Name "Ricimer", 2 years before Byzantine Zeno's (= Ahaz's) rule, transferred by God-praising chronicle to Odoacer, Zeno's co-ruler
9.5a. God-praising Ahaz offered Tiglath-pileser help in his war against Rezin and Pekah	9.5b. Byzantine Zeno offered Theodoric ("monster deporter") to move with Goths to Italy, and become her ruler in place of Odoacer (= Rezin) ([128], p. 204)

9.6a. Rezin's and Pekah's attack on Jerusalem failed	9.6b. Theodoric's attack on Constantinople in 486 A.D. failed
9.7a. Tiglath-pileser defeated Rezin and killed Pekah (2K 16:9)	9.7b. Theodoric defeated Odoacer and killed him (= Rezin) in 472 A.D. [128], [146]
9.8a. Tiglath-pileser, "monster deporter", moved people to Kir (?) (2K 16:9)	9.8b. Theodoric, "monster deporter", organized mass deportations of empire's population. Gothic tribes were conceded 1/3 of Italian territory (*ibid.*)
9.9a. In spite of "monster deporter's" support of Ahaz, their relations became strained: "... Tiglath-pileser ... marched against him (Ahaz—A. F.) and far from assisting him, pressed him hard" (2Ch 28:20–21)	9.9b. In spite of Theodoric's support of Zeno, their relations became strained: In 486 A.D., Theodoric and Goths attacked Zeno (see above), though unsuccessfully ([121], p. 204), and their reconciliation followed ([121], p. 204)
9.10a. Bible judges Ahaz harshly, he was even stripped of suffix "iah" (pertaining to God) present in names of most God-praising kings. "He did not do what was right in the eyes of Lord ... He even passed his son through the fire adopting the abominable practice ..." (2K 16:2–3). All of second half of Ahaz's "biography" is devoted to his initiating new custom of sacrificing to Gods of Damascus (2Ch 28)	9.10b. Zeno is well known in empire's history as initiator of new religious customs stirring many religious factions. In 482 A.D., he published so-called *Henoticon* along with Acacius, in which he tried to reconcile hostile factions. Without satisfying anybody, *Henoticon* started off religious protests ([121], pp. 207–208)
9.11a. Reigned 16 years (2K 16:2–4)	9.11b. Ruled for 17 years in 474–491 A.D. ([121], p. 203)

10a. Hezekiah ("strengthened by God")	10b. Anastasius
10.1a. Hezekiah "rebelled against the king of Assyria and was no longer subject to him" (2K 18:7)	10.1b. Anastasius "rebelled" against Theodoric, Gothic king in Rome, and stood in opposition to him [146]
10.2a. Military confrontation with Assyrian king's associates, but not with king himself. Sole war mentioned in Hezekiah's times (2K 18)	10.2b. Confrontation with Gothic king Theodoric's associates, but not with king himself. Sole war during Anastasius' rule (*ibid.*)
10.3a. King of Assyria sent his officers Tartan, Rab-saris and Rab-shakeh to Judaea	10.3b. Theodoric sent his associate Vitalian to Constantinople ([121], p. 215–216; [146])

10.4a. First Rab-shakeh's expedition failed, and armistice followed (2K 18)	10.4b. First Vitalian's expedition failed, and armistice followed ([121], pp. 215–216)
10.5a. Armistice turned out to be short-lived, and king of Assyria sent him armies again (2K 18)	10.5b. Armistice was short-lived, and Vitalian again rebelled (*ibid.*)
10.6a. Assyrians were crushed (2K 19:35)	10.6b. Vitalian was crushed and fled ([121], p. 216)
10.7a. Bible characterized Hezekiah as reasonable ruler (2K), treating him favourably	10.7b. Anastasius "turned out to be a clever and generous ruler ... who made the country the gift of long-lasting peace" ([121], pp. 214–215)
10.8a. Bible praises Hezekiah for his religious policy (2K 18:3–5, 7)	10.8b. Anastasius openly supported Monophysites (*ibid.*)

Whenever a Byzantine emperor supported the Monophysites, the Bible almost always commended his God-praising analogue. Vice versa, the Byzantine anti-Monophysite policy precisely corresponds to the biblical imprecations of the associated God-praising duplicate.

10.9a. Reigned 29 years (2K 18:1–2)	10.9b. Ruled for 27 years in 491–518 A.D.
11a. Manasseh ("supreme ruler")	11b. Justin I + Justinian I (or one Justinian I)
11.1a. Reigned 55 years (2K 21:1)	11.1b. These two ruled from 518 to 565 A.D. for 47 years. From Justin's very start, Justinian I assisted him and was invested with actual rule ([70], pp. 29–30)
11.2a. One of most popular kings mentioned in Bible many times. Nevertheless, his biography is given quite short account, which is strange due to such long duration and such great importance attributed to him	11.2b. One of most popular Byzantine emperors. "Since 518 A.D., he actually ruled on behalf of Justin ... For half a century, Justinian was controlling the fates of the Eastern Empire; he left a deep impression on the epoch ..." (*ibid.*)
11.3a. Bible's attitude towards Manasseh is very negative. It damns him almost in every verse (2K 21:2–7, 9)	11.3b. As expected, Justinian I persecuted Monophysites, believing them to be heretics ([121], pp. 279–280)
11.4a. Bible charged Manasseh with some massive massacre and cruelty. "Moreover Manasseh shed much innocent blood, till he had filled	11.4b. Justinian I suppressed well-known Nika riot in Constantinople, driving large numbers of unarmed people to capital's hippodrome, and by

Jerusalem from one end to another" (2K 21:16), clearly meaning to suppress some mutiny in capital	massive massacre ([121], pp. 282–297). Mutiny was suppressed by massive massacre with extreme cruelty (note overlapping of Jerusalem and New Rome, i.e., Constantinople, again)
11.5a. It is reported at end of Manasseh's biography that he was captured by Assyrians, repented, and died virtuous (2Ch 33:10–16). This resembles "moral"	11.5b. Justinian's biography was possibly completed with fragments from that of Justinian II, who was, in fact, taken prisoner (see similarity between biographies of Justinian I and Justinian II below)
12a. Amon and 76-years insertion containing 4 kings: Ahaziah, Athaliah, Joash and Amaziah	12b. Five emperors: Justin II, Tiberius II, Maurice, Phocas and Heraclius altogether ruling for 76 years
12.1a. Five God-praising kings (including Amon) altogether ruling for 78 years: Amon for 2, and insertion lasting for 76 years	12.1b. Five Byzantine emperors altogether reigning 76 years in 565–641 A.D. [70], [121]
12.2a. Bible treated Amon harshly, charging him with continuation of Manasseh's policy (2K 21:19–24)	12.2b. Possibly all of them, except Heraclius, continued Justinian's policy of persecuting Monophysites ([121], p. 363)
12.3a. Athaliah was usurper included in group of four kings (2K)	12.3b. Phocas was usurper included in group of four emperors ([121], pp. 355–363)
12.4a. Amon's and 4 kings' rule described as confusion (conspiracies, overthrows, etc., mentioned) (2K)	12.4b. Five emperors' rule was confusion period. Throne usurped by Phocas, Maurice's murderer, etc. (*ibid.*)
12.5a. Athaliah was usurper replaced by Joash ruling for 40 years (2K 11:20–21, 12:1). Bible treated him quite favourably (2K 12:2). It should be expected that his Byzantine analogue favoured Monophysites	12.5b. Phocas was usurper and replaced by Heraclius, who ruled in 610–641 A.D. for 31 years. "Being unable to suppress the separatists' movement by force, it being related to the Monophysites, the Byzantine government had to seek reconciliation with the former" ([121], p. 369)

We now enter the final phase of the parallel, and are going to consider the three great God-praising kings Josiah, Jehoiakim, Zedekiah and three great Byzantine emperors Constans II, Constantine IV, Justinian II.

13a.	Josiah ("May Yahweh give")	13b.	Constans II (also called Constantine III)
13.1a.	Reigned 31 years (2K 22:1–2). Starting with him, hard times in God-praising kingdom invaded by Pharaoh Necho, king Nebuchadnezzar, and ended in wars and slavery	13.1b.	Ruled for 26 years in 642–668 A.D. From Constans II, hard times in Byzantine Empire, until crisis at end of 7th c. A.D. when Arabic hordes invaded. "The 7th c. A.D. in the history of Byzantine is one of the gloomiest periods ..." ([70], pp. 46–47)
13.2a.	Pharaoh Necho came with war, and killed Josiah (2K 23:29). Bible spoke of God's banishing Israel (2K 23:26–27) attacked by two enemies, Pharaoh Necho and Nebuchadnezzar	13.2b.	Byzantine armies were defeated by Arabs *c.* 641 A.D. ([121], p. 367). Empire lost provinces after it was attacked by two enemies, Arabs and Bulgars, who eventually established themselves on Balkans in 679 A.D. ([121], p. 368; [124])
14a.	Jehoahaz ("grasped by God")	14b.	Constantine II
14.1a.	Reigned less than 1 year (2K 23:31). Little known. Made war with Pharaoh, was deposed, and died in prison (2K 23)	14.1b.	Ruled for less than 1 year in 641–642 A.D. [70]. Little known. Made war with Arabs without success. Circumstances of his overthrow and death are unknown
15a.	Jehoiakim ("may God rise up")	15b.	Constantine IV
15.1a.	Reigned 11 years (2K 23:36). All his rule was spent in wars with Nebuchadnezzar and Necho (2K 24)	15.1b.	Ruled for 17 years in 668–685 A.D. (*ibid.*). According to another version, ruled until 679 A.D., which makes 11 years. Name: "standing firm". All his rule was spent in wars with Arabs and Bulgars ([121], pp. 372–373)
15.2a.	Fall of Jerusalem was described, as well as defeat of God-praising armies and crushing "temple", capturing all Jerusalem's citizens (2K)	15.2b.	"The long 7th-c. wars led to the formerly multi-national Eastern Roman Empire ceasing to exist" ([121], p. 373)
16a.	Jehoiachin ("may God establish")	16b.	Heracleon
16.1a.	Reigned less than 1 year (2K 24:8–9). Little known. His "biography" is practically identical with that of Jehoahaz (see above)	16.1b.	Ruled for less than 1 year in 641–642 A.D. His rule practically unknown. Co-ruled with Constantine II (= Jehoahaz), which possibly accounts for similarity of biographies (see left column)

17a. Zedekiah ("righteous")	17b. Justinian II
17.1a. Reigned 11 years (2K 24:18). Fall of God-praising kingdom. Zedekiah's armies defeated by Nebuchadnezzar, God-praising ones taken into Babylonian captivity, events being close to those of Jehoiakim's epoch (see above)	17.1b. Ruled for 10 years in 685–695 A.D. in his first rule. Crisis of empire: loss of provinces, so-called "Dark Age". Change of dynasties, Justinian II was principal historical personage of this period as well as Nebuchadnezzar (see left column)

The God-praising kingdom ended just when the dissolution of the Byzantine Empire started, traditionally believed to be the late 7th c. The parallel ends here.

The three parallels above are not basic in the GCD, because they are consequences of other, more fundamental parallels shown. The above dynastic jets are themselves "reflections" of empires of later origin (Roman–German Empire in 10–13th cc. A.D. and Third Byzantine Empire in 1204–1453 A.D.).

7. The Medieval Song of Roland and the Biblical Book of Joshua

7.1. History of the poem "Song of Roland"

The basic parallel making the biblical events coincident with the European ones is generated by the shift by c. 1,800 years (see the GCD). Since we do not have the space here, we are not able to give its full account. However, we illustrate it by one of the overlappings that occur.

The following isomorphism I discovered while analyzing the medieval European literature devoted to the description of Charlemagne's Empire is very important. Described in a nutshell, it can be summed up by stating that the well-known European *Song of Roland* supplies the account of the same events as Chapters 7–10 of the Book of Joshua. This isomorphism remarkably confirms my Global Chronological Diagram (Figs. 65, 66).

"Several editions of the poem have been preserved until today ... The most important of them is the so-called Oxford transcript dating from the mid-12th c. A.D. (a very late copy!—A. F.), regarded if not as just a recension, then, at any rate, very close to it. The incentive for creating the epic poem derived from the faraway events of 778 A.D. when Charlemagne involved himself in the interstine strife in Muslim Spain, along with and at the request of the friends of the Baghdad caliph Abdur Rahman, who decided to detach himself from the Abbasid caliphate and create an independent power. Having taken several cities, Charlemagne besieged Saragossa; however, he was forced to lift the siege after several weeks and to return across the Pyrenees because of internal trouble. Supported by the Moors, the Basques attacked the rear of Charlemagne's army and slaughtered the retreating Franks in the Roncesvalles pass" ([285], p. 19; see also the Russian edition).

"The preserved chronicles of that time had long ignored (?!—A. F.) these events first reported by a chronicle in 829 A.D. ..., i.e., fifty years afterwards. It is quite obvious (as it seems to the commentators—A. F.) that official chroniclers could be in no way interested in these so unpleasant confessions. It is also logical to suggest that the tales' event should have been retained fast in people's memory (?—A. F.), and the chroniclers could no more ignore the 'people's voice' ..." ([285*], pp. 19–20).

Modern commentators are forced to somehow interpret and explain the observed chronological gaps, though, insignificant in our case, being only half a century.

"The event fixed by history given in songs (as well as Homer's poems allegedly written only several centuries later—A. F.), and confirmed by Spanish chroniclers and Arabic historians, made up the basis for the *Song of Roland* preserved as a mid-12th-c. transcript whose unique authorship is ... ascribed to a certain fantastic Turoldus. *All the evidence of the legend appeared later than the Oxford copy* (12th c. A.D.!—A.F.) ... The spirit piercing the *Song of Roland* can be possibly explained, in the opinion of Bedier, *only by the atmosphere of the Crusades*, starting with the end of the 11th c. A.D. (whereas the Oxford transcript appeared in the 12th c. A.D., which is well consistent with this version—A. F.) ... ([285*], p. 20).

All the above-said ideally corresponds to the GCD, according to which the bulk of the information regarding "Charlemagne's Empire" came "from above", the 10–13th-c. empire shifted downwards by 333 years. Due to the isomorphism below, the original of "Joshua's expeditions" therefore also arises from the epoch of the Crusade or even later.

"According to Bedier, Charlemagne was Christians' defendant and the spirit of the Crusades in person ..." (*ibid.*).

The clearly evangelical tone of the *Song of Roland* shows that the text was already made after Hildebrand's epoch, where the bulk of evangelical legends of Jesus Christ originated.

Certainly, traditional historians prefer the point of view that the described events occurred in the 9th c. A.D., and that all the "Crusade analogues" are "later insertions". We quote:

"The remoteness of the Oxford edition from the recension surely makes the reading of the *Song of Roland* quite difficult ... ([285*], p. 22).

"When the partisans of 'traditionalism' fought with Bedier's ideas, they seemed not to deny at all certain very clever observations regarding the intrusion into the poem of designs and spirit *of the early 11th and late 12th cc. A.D.* ... The most obvious proof of the influence of the ideology of the Crusades is the verbose episode with Baligant, the triumph of the Cross over the Crescent. The scene itself is clearly a later insertion (?—A. F.) contradicting the general scheme and stylistics of the poem" (*ibid.*).

It is important that

"Of all national eposes of the feudal Middle Ages, the most blooming and multiform is that of France (about 90 poems are preserved), the oldest dating from the 12th c. (i.e., transcripts of a very late origin!—A. F.), whereas the latest are dated by the 14th c. A.D. ... The *Song of Roland*, the most famous of heroic French medieval poems, was preserved only in a few copies, and the following are the most important:

1. Oxford copy. "This manuscript ... was made c. mid-12th c. A.D. ..." (*ibid.*).

2. Venetian manuscript of the 14th c. A.D. (*ibid.*).

3. All the other manuscripts are of later origin ([285*], pp. 587–588).

"After oblivion having lasted for many centuries (!—A. F.), the *Song of Roland* was 'discovered' anew *in the late 19th c. A.D.* (!—A. F.), the epoch of Romanticism ... characteristically interested in everything medieval ..." ([285*], p. 588).

The first edition of the poem was made in 1837 (*ibid.*).

We now come to the description of the isomorphism.

7.2. The parallel between the medieval poem and the ancient chronicle. Table of the isomorphisms

The Book of Joshua	The Song of Roland
1a. Joshua's and his army commanders' wars were described, all of them aggressive	1b. Charlemagne's and his army commanders' wars were described, all of them being mostly aggressive
2a. Crossing Jordan river, Israelites invaded foreign possessions, conquering new lands. Parallel to Roland's retreat, Book of Joshua described events occurring during Israelites' conquest of city Ai (Jos 7). Like Charlemagne, Joshua separated only small part of his main army for capturing Ai. "They (Joshua's men—A.F.) returned to Joshua and reported that there was no need for the whole army to move: 'Let two or three thousand men go forward to attack Ai. Do not make the whole army toil up there; the population is small' " (Jos. 7:3)	2b. Charlemagne retreated from Spain, rear guard with Roland in command. It was not fleeing, but tactical manoeuvre of army chief temporally forced to stop invasion. Charlemagne's wars described as invasions. He came to foreign country, having left his own empire and made war on foreign soil, trying to join it to his own possessions. He separated part (rear) of his army and retreated. Roland headed 20,000 men ([285], LXIII), difference with left column being 1 order
3a. Detachment sent to capture Ai was defeated. "... the men of Ai, who killed some thirty-six of them; they chased (!—A.F.) them all the way from the gate to the Quarries and killed them on the pass. At this the courage of the people melted and flowed away like water" (Jos. 7:5)	3b. Army's rear guard was defeated: all (or almost all) knights perished in battle with enemy, who pursued (!) army's rear guard

4a. "Joshua and the elders of Israel tore their clothes and flung themselves face downwards to the ground; they lay before the Ark of the Lord till evening ..." (Jos 7:6)

4b. Charlemagne's mourning after news about Roland's defeat.

"Charles lies awake and weeps for Roland's plight.
For Oliver he weeps with all his might.
Weeps for his Twelve Peers, his French folk left behind in fight"
([285], 184, p. 147)

5a. Defeat of men sent to take Ai was direct consequence of "betrayal". Jericho had been taken before Ai; Joshua demanded that "the city shall be under solemn ban", especially that valuables should be given to Lord. "... All the silver and gold, all the vessels of copper and iron, shall be holy; they belong to the Lord and they must go into the Lord's treasury" (Jos. 6:19). "But the Israelites defied the ban: Achan son of Carmi, son of Zabdi, son of Zerah, of the tribe of Judah, took some of the forbidden things, and the Lord was angry with the Israelites" (Jos 7:1). Infuriated, God allowed Ai's inhabitants to destroy Joshua's party (see above)

5b. Defeat of Roland's corps and army's rear guard was direct consequence of treachery: Count Ganelon (Guènes) came to terms with enemy and arranged for Charlemagne's leaving army's rear guard (insignificant in number) headed by best army commander, with Moors covertly attacking and killing Charlemagne's "Army Commander No. 1". In both columns, catastrophe must be blamed on one man, a "traitor"

6a. "Traitor" violating Joshua's ban was Achan (= KN if freed of vowels; possibly, part of "Ganelon")

6b. Traitor was Ganelon

7a. As can be gathered from Bible, Achan did not take part in party sent to take Ai. At any rate, Bible mentioned no word about it

7b. Ganelon did not take part in rear guard's battle with Moors, and was placed near Charlemagne in his principal force

8a. "Traitor's" death: Tried for defeat at Ai, Achan was executed (Jos 7:17–18, 25–26)

8b. Traitor's death: Charlemagne suspected Ganelon of being traitor and executed him ([285], 287)

9a. All Achan's relatives were executed, too. "Then Joshua took Achan ... together with his sons and daughters ... and everything he had ... up to the Vale of Achor ... Then all the Israelites stoned him to death; and they raised a great pile of stones over him ... (Jos 7:24–26)	9b. Thirty of Ganelon's associates were executed, too, trying to defend him against Charlemagne. "A hundred servants hale away the whole crew; Each of the thirty is hanged up in a noose. Threason destroys itself and others too" ([285], 288, p. 201)
10a. God told Joshua "they (people—A. F.) must hallow themselves for tomorrow. Tell them (These are the words of the Lord, the God of Israel): You have forbidden things (valuables stolen—A. F.) among you, Israel ... In the morning come forward tribe by tribe, and the tribe which the Lord chooses shall come forward family by family; and the family which the Lord chooses shall come forward man by man" (Jos 7:13–14). "... and Achan ... was chosen" (Jos 7:18)	10b. Traitor was discovered by God's intervention, who indicated him. To divert suspicion, Charlemagne ordered to fight two warriors, Charlemagne's and by name of Ganelon. Trial was held by God. "... Thierry lets drive a blow at Pinabel With that great stroke he wins and makes an end. The Franks all cry: 'God's might is manifest' Justice demands the rope for Guènes's (Ganelon's—A. F.) neck, And for his kinsmen who set their lives in pledge!' " ([285], 286, p. 200) Both texts on right and left ascribe traitor's discovery to God and not to accident
11a. Joshua's principal forces approached Ai, and took it. "When the Israelites had cut down to the last man all the citizens of Ai who were in the open country or in the wilderness to which they had pursued them, and the massacre was complete, they all returned back to Ai and put it to the sword" (Jos 8:24)	11b. Charlemagne's principal forces returned back and destroyed Moors' army, avenging them for destruction of army's rear guard ([285], 178–180). This battle with Moors was described as massacre in which Franks destroyed demoralized and fleeing Moors completely
12a. Joshua took Ai after this battle in open country and in wilderness (Jos 8:24–28)	12b. Charlemagne took Saragossa after this battle and the one with Baligant

13a. During Joshua's battle with the group of kings rising against him after fall of Ai (which was described in subsequent 2 chapters), well-known biblical episode of Joshua's stopping sun in order that it should shine on battle and let destroy enemy completely	13b. During Charlemagne's battle with Moors (already after Roland's defeat), well-known episode in Frankish history: Charlemagne's stopping sun in order that it should shine on battle and let destroy enemy completely

Here are the descriptions of these two famous episodes:

"On that day when the Lord delivered the Amorites into the hands of Israel, Joshua spoke with the Lord, and he said in the presence of Israel: Stand still, O Sun, in Gibeon; Stand, Moon, in the Vale of Aijalon. So the sun stood still and the moon halted until a nation had taken vengeance on its enemies, as indeed is written in the Book of Jashar. The sun stayed in mid heaven and made no haste to set for almost all day. Never before or since has there been such a day as this day on which the Lord listened to the voice of a man ..." (Jos 10:12–14)	"In a green meadow he lights down on the sward, Kneels on the ground and prays to God Our Lord For Love of him to hold back the sun's course, Prolong the day and bid the dark withdraw. Straightway an angel with whom he wont to talk Comes, with this summons in answer to his call! 'Ride, Carlon, ride; the light shall not come short! The flower of France is fallen; God knows all; Thou shalt have vengeance upon the heathen horde' When this he hears, the Emperor gets to horse. For Charlemayn God wrought a wondrous token: The Paynims flee, the French pursue them closely. They overtake them in Vale of Tenebrosa. Towards Saragossa they drive and beat them broken... Charles sees all the Paynims dead ..." ([285], 179–181, pp. 145–146)

14a. Sun was stopped during battle which Bible presents as "Joshua's vengeance" (see above) for defeat of part of his army	14b. Sun was stopped during battle which primary source presents as "Charlemagne's vengeance" for defeat of part of his army

15a. Whole Bible including both Old and New Testament has only one episode of "stopping sun"	15b. As far as I know, this well-known episode is unique in Franks' history and in all medieval "knight-hood" literature

Thus, perfectly corresponding to the GCD, the two unique descriptions in the two chronological streams, viz., the European and biblical, were made coincident.

16a. After defeat of armies of Joshua's enemies, they all fled. "The five kings fled and hid themselves in a cave at Makkedah, and Joshua was told that they had been found in this cave" (Jos 10:16–17). Joshua's army captured this territory, cave was opened, kings let out. "And Joshua ... struck down the kings and slew them: then he hung their bodies on five trees ..." (Jos 10:26)	16b. After Saracen's (Moors') defeat, they fled, with strange episode of "grotto" occurring. Namely, "Marsile has fled to Saragossa town ... Queen Bramimond his spouse, Wails and laments and utters dismal sounds. By twenty thousand his followers stand around; They curse fair France and Carlon they denounce. Apollyon's grotto they make for it in a rout, With ugly insults they threaten him and shout: 'Aha! vile God, why must thou shame us now? Why let disaster befall this king of ours? ... They snatch away his sceptre and his crown, By his hands hang him upon a column bound, And with thick cudgels belabour him and pound; Then with their feet trample him on the ground. ... Into a ditch they boot away Mahoud ..." ([285], 187, pp. 149–150)
17a. Book of Joshua no longer speaks of any cave or grotto	17b. Song of Roland no longer speaks of any cave or grotto
18a. After these events, Book of Joshua described series of Joshua's battles with other kings, and Joshua's armies capturing many towns and regions, so-called Promised Land	18b. Song of Roland described series of Charlemagne's grandiose battles in which he conquered many kings, and captured many towns and regions

19a. Detail of composition and style: Bible listed kings and tribes destroyed by Joshua (Jos 12)	19b. Detail of composition and style: *Song of Roland* listed kings and tribes making war against Charlemagne ([285], p. 122 et seq.)
20a. Among Joshua's adversaries, Bible called people of Jericho. Legend of taking Jericho is one of most popular contained in Bible (Jos 5–6)	20b. Among Charlemagne's adversaries, Song of Roland mentioned "people of Jericho" (*ibid.*, CCXXXI)
21a. Joshua's adversaries were from many tribes (see their list in Jos 12 et seq.)	21b. Charlemagne's adversaries were from many tribes (see their list *ibid.*)
22a. Bible listed tribes enslaved by Joshua, naming 35 of them (sometimes, tribe was indicated by its king's name) (Jos 10–12). Tribes enslaved after principal battle when sun was stopped until Joshua's old age were counted (Jos 10:20–Jos 12:24)	22b. *Song of Roland* listed adversaries (made into regiments) opposing Charlemagne and destroyed by him, altogether 30 tribes, each being one regiment (*ibid.*, CCXXXI–CCXXXII). 30 and 35 (in left column) are well consistent

8. The 1,800-year Third Basic Rigid Shift in Ancient Chronology. The Gothic = Trojan = Tarquins' War (= GTR war) and Its Chronological Duplicates in the Different Epochs of Traditional History

8.1. The Trojan war and the Gothic and Tarquinian wars

1. The Medieval Trojan cycle. Homer, Dares and Dictys. We now come to the third basic rigid shift of c. 1,800 years, which we call Greco-biblical, because of its close relation to the history of Greece and the Bible.

It is assumed that Troy fell in 1225 B.C. [39]. The first author, whose work was preserved after numerous copies, and who described the fall of Troy, was Homer, but his poems were completed (by copyists) only in the 8–7th cc., B.C. However, both of Homer's poems *only surfaced in the late 14th c. A.D.* [257]. Neverthless, "... by the 14th c. A.D., the diaries of the "participants of the Trojan war, Dictys and Dares, were put into wide circulation" ([250], p. 5).

They are regarded as false participants because of *their own evidence* being in sharp contrast with traditional chronology, thereby indicating that the Trojan war had once been referred (erroneously, as we take it today) to the 3rd–4th cc. A.D.

The Greek texts of Dares and Dictys were lost [107]. The first text (Latin) describing the Trojan war dates from the 6th c. A.D.: Some ignorant scribbler made up a dry and monotone account of the siege; *it was very popular in the Middle Ages* ([85], pp. 85–86).

In this paragraph, we exhibit the evidence in support of the identification of the

Trojan war with the 6th-c. war (cf. Gothic and Tarquinian wars). The shift is by c. 1,800 years.

Trojan war	Gothic and Tarquinian wars
1a. Greatest event in Greek history: Victors destroyed Trojan kingdom (see below)	1b. Greatest event in Greco-Roman history: Greeks (Romaic) destroyed Third Roman Empire and its last phase, Ostrogoths' kingdom
2a. First preserved medieval text describing war dates from 6th c. A.D. (though ascribed to 3rd–4th cc. A.D.)	2b. Took place in mid-6th c. A.D. (at any rate, not earlier than 6th c. A.D.)

The historians' attitude towards Dares' and Dictys' texts is negative. e.g.,

"Two newly discovered 'genuine eye-witnesses' of the Trojan war *were regarded as more important* (in the Middle Ages—A. F.) than 'Homer's fabulous poem' (known only in 'fragments'—A. F.)" ([251], p. 45).

"Many 19th-c. scientists denied the existence of the Greek manuscript (Dictys'—A. F.), and believed that Lucius Septimius was the author of this famous falsification ... However, a fragment of Dictys' diary was discovered in Egyptian papyri in 1907 ..." (*ibid.*).

It turns out that

"Thucydides regarded the very *Iliad* as unreliable ..." (*ibid.*).

The language of the Phrygian Dares' Latin texts ... "makes the classical philologists indignant ... the Greek original ... was not preserved" ([251], p. 45).

The above texts, and, especially, that of the 6th c. A.D., generated very large numbers of works on the Trojan war (the so-called "Trojan cycle"). Note that the well-known 8–9th-c. poet Angilbert, also bearing the name of Homer, was working in Charlemagne's court (see above). It is important that the "classical" Homer, author of the *Iliad* and *Odyssey*, did mention Dares in his poems (at the beginning of Sec. V). Furthermore, Homer mentioned the Cretan king Idomeneus whose fellow fighter in the Trojan expedition was Dictys (*ibid.*). Dares was also mentioned in Virgil's *Aeneid* ([251], pp. 45–46). Following the traditional historians logic, we should make the conclusion that the "classical" Homer was writing not earlier than the 6th c. A.D. (because he was aware of Dares and Dictys); the same should be applied to Virgil, too.

"For one thousand years until the very 17th c. A.D., Dares' and Dictys' fame elipsed that of Homer. Isidore of Seville regarded Dares as the first historian after Moses, and Herodotus' forerunner. In the 12th c. A.D., Dares, the Phrygian, became one of the most famous writers of antiquity (the "falsification" theory was advanced only in the 19th c. A.D.—A. F.)" ([251], p. 47).

We constructed a graph demonstrating the distribution in time of the works of the Trojan cycle; it starts with the 6th c. (the century of the first preserved original text), and possesses an explicit maximum in the 12–13th cc. A.D. when especially many "Trojan legends" were written. We took the data from [107], [251]. As early as the 13th c., having retold the Trojan war according to Dares and Dictys, Joseph of Exeter insisted that

…"he had described authentic events, for Dares and Dictys had been their eyewitnesses" ([251], pp. 47–48).

From the late 12th c. and early 13th c. A.D., French poetry highly extolled the eternally glorious names of Ilium, Hector and Alexander. The trouvères of the cycle first of all took up the Trojan war; *it was almost a national plot for them*. In the 7th c. A.D., Fredegarius Scholasticus called Franceon, son of Priam, the first duke of the Franks [107]. This statement of a medieval author (and not only his) places the well-known king Priam (and the Trojan war in Priam's times) in the Middle Ages.

For a detailed analysis of the medieval Trojan cycle, we made use of one of the oldest and most popular primary sources of the 13th c. A.D. by Guido delle Colonne in the Russian translation of the early 16th c. A.D. *Historia destructionis Troiae* and *Historia trojana* [250]. They are actually identical with Homer's work, and differ only in providing less embellishment of the account, involvement of Gods in military action, moralistic fragments and less literary skill, with the medieval texts and especially those closer to the 6th c. A.D. being characterized by greater temperance and dryness.

Thus, there existed tradition referring the Trojan war to the 3rd–4th cc. ("imaginary" war), and the date of the first surviving description of the war to the 6th c. A.D. Then Homer (= Angilbert?) appeared, and subsequently a multitude of novels "about Troy" followed, the most famous of which became the *Iliad and the Odyssey* in the 14–15th cc. A.D., ascribed to Homer.

The belief that the Franks had originated from Troy was widespread in the Middle Ages ([251], p. 45).

Homer's as well as Moses' and Solomon's times were spoken of. However, neither opponents nor fans read the work, the complete text appearing only in the 14th c. A.D. All that was known from the original *Iliad* was a short contraction ascribed to another person. But the works ascribed to Dares and Dictys were regarded as even better [107].

2. A rough comparison

1a. Trojan war (TR-war in the following) was greatest event in Greek history	1b. Gothic-Tarquinian war (GTR-war in the following) was greatest event in Greco-Roman (Romaic) history
2a. There existed a Trojan kingdom ([250], p. 70)	2b. There existed a Roman kingdom (e.g., described by Livy)
3a. Troy was capital city (*ibid.*)	3b. Rome was capital city, and Naples big centre (also, Ravenna)
4a. Trojan kingdom was sacked in greatest war by Greek invaders (*ibid.*)	4b. Roman kingdom (Livy's "regal Rome") was destroyed by Greek Romaic invaders in greatest GTR-war
5a. Various indirect data refer TR-war to the Middle Ages (see above)	5b. Date for GTR-war is 6th c. A.D. (see above)

6a. There existed tradition to refer TR-war to 3rd–4th cc. A.D. ("imaginary" war; see above)	6b. There existed tradition to refer GTR-war to 3rd c. A.D., it being copy of Gothic war, placed at end of Second Empire, i.e., before Third Empire (see above)
7a. Trojan kingdom is "covered" by 7 kings succeeding each other. First king founded City (Troy) and state (*ibid.*)	7b. Roman kingdom is "covered" by 7 kings succeeding each other in Western Empire in Italy (according to Livy). First king founded City (Rome) and state (see above)
8a. Sack of City and state took place under seventh king, kingdom was not restored any more ([250], p. 70; 198)	8b. City's destruction took place under last, seventh, king, and kingdom was not restored any more (see above)

To 8: Livy indicated the rule durations for 7 kings; the legends of the Trojan kingdom do not report the rule durations, only listing the rulers' names ([250], p. 70 and comm.).

9a. TR-war lasted for 10 or 11 years ([250], pp. 136)	9b. War with Tarquins lasted for 12 years (according to Livy, Bk. 2, 20), whereas Gothic war lasted for 16 years from 534 (or 536) to 552 A.D.

The two oldest versions, Trojan and Roman (according to Livy), are well consistent with each other, being 10 (or 11) and 12 years.

10a. Ilus was second Trojan king ([250], p. 198, Comm. 4). Ilus is the part of "Pomp–Ilus"	10b. Numa Pompilius was second king in Livy's "regal" Rome; he overlaps with Julius (see above)

The names Ilus and Julius are very close.

11a. King Dardanus is regarded as founder of Troy and dynasty (kingdom) according to certain data (*ibid.*)	11b. Foundation in 330 A.D. of city New Rome (Constantinople), on Bosphorus, with Dardanelles nearby, took place at start of "regal" Rome, i.e., Third Empire

To 11: the foundation of the two Romes, in Italy and New Rome in 330 A.D., is placed at the start of "regal" Rome according to traditional chronology (Livy also spoke of the foundation of the two capitals by Romulus and Remus in Bk. 1 of his *History of Rome*). It is assumed by Greek mythology that the Dardanelles' name originated just from the king Dardanus.

12a. Certain chronicles called king Dardanus founder of kingdom and City, whereas others attributed this to king Pridesh. Thus, at beginning of Trojan kingdom, there is confusion between two founders (of two cities?)	12b. Speaking of foundation of kingdom and city, Livy also mentioned two founders of two cities, Romulus and Remus, each of whom founded one capital city, but then Romulus killed Remus and destroyed his capital. Thus there are two founders of two cities in Livy's regal Rome
13a. Kingdom and city created were called by founders name (king Pridesh according to certain chronicles) (*ibid.*)	13b. Kingdom created bore name of city's and state's founder Romulus, being Roman one

To 13a: "The king liked this spot, and he founded here a city, calling it by his own name" ([250], p. 70).

This name is not at all Troy (see below). We will speak of the First Kingdom (Dardanus' or Pridesh's), which was destroyed when sacked for the first time (see below).

14a. In Trojan kingdom's history, so-called first sack of Troy under Laomedon, king Priam's father, was fixed along with last and principal sack, which we will call second ([250], p. 89)	14b. In Roman kingdom's Western Third Empire's history, destruction under Romulus Augustulus was fixed along with last and major destruction, which we will call second (see below)

To 14b: We mean the fall of the "purely Roman" kingdom under Romulus Augustulus (Italy's capture by Odoacer), it being the first destruction, whereas the second took place already after the Gothic war.

15a. These are only two major sacks, second being final, fixed in Trojan kingdom's history (*ibid.*)	15b. These are only two major destructions, second being final, fixed in Empire's history (see above)
16a. First sack marked that of so-called 1st Trojan kingdom (Dardanus' or Pridesh's; see above) (*ibid.*), after which so-called Second Trojan kingdom under king Priam arose for short time, around one generation (*ibid.*)	16b. First destruction marked that of "purely Roman" Western Third Empire, its last kings Odoacer and Theodoric not being Roman (see above), after which Second kingdom, of Ostrogoths under Theodoric, arose for short time, around one generation
17a. Invaders who destroyed First Trojan kingdom came from West. "The invaders from the West took ... the city" (*ibid.*)	17b. Invaders who destroyed first "purely Roman kingdom" came to Italy from northwest
18a. There were two invaders: Jason and Hercules (*ibid.*)	18b. There were two invaders: Odoacer and Theodoric (see above)

19a. Kingdom changed its name after first sack ([250], p. 70)	19b. Western Empire changed its name after first destruction; kingdom of Ostrogoths was founded (see above)
20a. At end of kingdom, its name was replaced by new one, related to term "Trojan" (= TRN if freed of vowels; *ibid.*; cf. Franks = TRN)	20b. At end of Western Third Empire, term "Tarquin" (= TRQN if freed of vowels) appeared (according to Livy)
21a. Term "Trojan" is related to new king Troilus' name, who "built in the city more than others, and gives it his name Troy" (*ibid.*)	21b. Term Tarquins (= TRQN) is related to new king Tarquinius' name (see overlapping above: Tarquinius Priscus = Valentinian III and Ricimer, whereas Tarquinius the Proud = Goths)
22a. King Troilus was sixth among Trojan kings according to Trojan legends (according to other data, it was Laomedon) (*ibid.*)	22b. Servius Tullius, Odoacer's and Theodoric's analogue, was Livy's sixth king in "regal" Rome
23a. King Troilus (or Laomedon) founded kingdom with new name "Trojan". First invasion took place during his rule (*ibid. et seq.*)	23b. Servius Tullius (= Odoacer and Theodoric) founded new German Gothic kingdom in 476–552 A.D. (see above). It was Odoacer (and Theodoric) who headed first invasion destroying 1st, purely Roman, "kingdom"
24a. New term "Trojan" appeared at end of TR-kingdom (see above), being very close to Trajan	24b. New name; Emperor Trajan ruling in 98–117 A.D. appeared at end of Second Empire, isomorphic to end of Third Empire (see above)

To 24b: Trajan was a well-known ruler of the Second Empire, overlapping with Arcadius under the isomorphism of the Second and Third Empires in 395–408 A.D. Arcadius' (= Trajan's) rule is placed in immediate vicinity of Tarquinius Superbus reigning in 437–472 (see above). Thus, the terms "Trajan" and "Tarquin" are practically overlapping under the isomorphisms known to us earlier, viz., Second Empire = Third Empire = Livy's "regal" Rome, which indicates that the "Trojans" and "Tarquins" are identified.

25a. So-called "Trojan" period in Trojan kingdom's history	25b. So-called "Tarquinian" period in Roman kingdom's history (in Italy)

These two time intervals are well consistent. The consistency will become ideal if we assume that the term "Tarquinius Superbus" = Trajan should be applied to Odoacer = Theodoric, and not to Valentinian III = Ricimer. It is possible that Livy interchanged the names of two neighbouring kings.

26a. Adjective "Trojan" when applied to Trojan war, in Greek, has forms TRN, TRK (or TRKV), TRV if freed of vowels	26b. "Tarquin" has form TRQN if freed of vowels, whereas term "Franks" is TRNK

Collecting all the left Greek terms freed of vowels together, we obtain TRKVN, a collective term precisely coinciding with the TRQN (= Tarquins), which is not accidental.

To 26a: *τρὸιανος, τρὸακος, τρὸιεὺς*.

Recall that, according to the medieval Franks, they originate from Troy, though, in modern traditional history, the attitude towards this medieval point of view is negative, with this legend now being regarded as prestigiously nationalistic. Taking into account the earlier-known identifications, we cannot but pay attention to the Franks' origin from the Trojans, as pointed out also by their name TRNK ("F" is often transformed into "T"); therefore, the Franks = TRNK, and the Trojans = TRN, TRK (i.e., TRNK, TRQN) are, in fact, denoted by almost identical terms.

27a. TRKVN (= Trojans) lost in TR-war	27b. TRQN (= Tarquins) lost in GTR-war

We conjecture that the Goths = Tarquins = Trojans spread in all directions, driven from Italy by the piston of the GTR-war after they had been driven out of Italy in the 6th c. A.D. One wave of the fugitives came after some time to the Bosphorus, founding there New Rome instead of the "old" Italian Rome, another branch went to Asia Minor where they founded New Jerusalem at El Kuds, "dragging" along their old geographic maps and names, and still another branch came to the Crimea and founded T'ma-Tarakan' there.

28a. Second and last sack of kingdom was carried out by invading Greeks at end of TRKVN-period in kingdom's history	28b. Second and last destruction of Western Third Empire was carried out by invading Greeks (Romaic) at end of TRQN-period in kingdom's history
29a. Chronicles noted great fleet on which Greek conquerors arrived in Trojan kingdom. Even number of ships was indicated ([250], p. 95 *et seq*)	29b. Chronicles noted great fleet on which (Romaic) Greek conquerors arrived in Roman kingdom of Tarquins in 535 A.D. [44]
30a. During second invasion, conquerors' fleet arrived from Greece [250]	30b. During second invasion, conquerors' fleet arrived from Byzantine Empire (Greece) (*ibid.*)
31a. Troy is seaside city ([250], p. 70)	31b. Rome and Naples were seaside cities
32a. River flowed through Troy, TRKVN-kingdom's capital (see above) [250]	32b. River Tiber flowed through Rome, TRQN-kingdom's capital

33a. TR-war was characterized by extensive operations, extreme cruelty and large number of battles [250]	33b. GTR-war is characterized by extensive military operations, extreme cruelty and numerous battles (*ibid.*)
34a. "Trojan cycle" paid, for some reason, especial attention to numerous windmills on bank of river on which Troy stood ([250], p. 90)	34b. 6th-c. historians (e.g., Procopius) paid especially much attention to windmills on Tiber's bank, river flowing through Rome ([44], [44*], V. 1, pp. 355–356)

To 34b.: These windmills played a great role in the 6th-c. GTR-war, the battles between the Goths and Romans and the Romaic Greeks repeatedly taking place around them [44]. Procopius paid these "windmill battles" much attention [109]. No other descriptions of wars by the Third Empire contain mentions of the Tiber's windmills.

35a. Troy was Trojan kingdom's capital. King Troilus (giving Troy his name) was identified with emperor Trajan (see above). Second Trojan kingdom's army consisted of "Trojans"	35b. Many spots in Rome and around it, capital of TRQN-kingdom, are related to emperor Trajan's name, who built well-known harbours and ports, and also canal. Bodyguard Trajan (= TRN) served in Belisarius' army [109]
36a. In Troy's centre, "king Priam built an enormous and marvellous palace on a hillock [250]	36b. In Rome's centre, well-known complex of palaces dating from Third Empire is situated on Capitoline
37a. According to "Trojan cycle", Trojan kingdom was situated either in Phrygia, making up only part of it or directly abutting on it (see below). Phrygia = Friesland?	37b. During Gothic war, Roman kingdom was German-Gothic, abutted on Germany, and even was part of union of Germanic Gothic tribes. Germans were called Frisians, and Germany Friesland ([250], p. 216)

To 37a: Before the first invasion of Troy, Jason and Hercules "moored to the shores of the Phrygian land, Trojan kingdom" ([250], p. 79).

According to the commentators,

"... the Trojan kingdom abutted on the Phrygian land" ([250], p. 209).

(The proximity of Troy and Phrygia or Troy's being positioned in the Phrygian region is mentioned [250], pp. 101, 100.) The author of the popular book about Troy (see above), Dares of Phrygia, participant in the war, bore the name of a Phrygian. "Furthermore, the medieval authors regarded Phrygia as a land in which the Trojan kingdom was situated" ([250], p. 214, Comm. 71).

According to the modern map, Phrygia is a region in Asia Minor. But the medieval authors localized it differently.

To 37b:

"Apparently, the reading of certain transcripts by Guido delle Colonne (of the 13th c. A.D.—A. F.) where Friesland was mentioned is more correct. The tribes inhabiting the northwest of Germany have been called Frisians since the start of the Christian era" ([250], p. 216, Comm. 99).

This automatically places the Trojan kingdom into Italy.

38a.	"The Phrygians (Frisians—A. F.) were the Trojans' allies (in the Trojan war—A. F.)" ([250], p. 216, Comm. 99). Due to medieval data, Germans were Trojans' allies (see above)	38b.	During GTR-war with Romans = (Romaic) Greeks, both Goths and Germanic tribes (= TRQN) took part in GTR-war; Odoacer was German, and Theodoric Goth. They were allies: Frisians and Trojans (= TRQN). Recall that Tarquinius the Proud (Goths' analogue) was invader, and Tarquins were "people from Northern Land"

Homer called Dares a priest in Troy (Ilium), which again indicates that Dares the Phrygian, who took part in the war, was Trojan's ally (V, 9–11).

It is probable that after the "exodus" of the Goths = Tarquins = Trojans from Italy, the geographic names were also "transferred". The fugitives who came to the Near East and founded New Jerusalem in place of the old one in Italy (Pompeii or Rome, or New Rome) "dragged" also Friesland = Germany along with them, which automatically overlapped with modern Phrygia in Asia Minor when the map was shifted east. Therefore, Troy, which H. Schliemann was looking for here, also "went" to Asia Minor. This process of transferring geographic names from the West to the East could have occurred during the Crusades when the Europeans moved east. That Dares was Phrygian (see above) means that the first surviving legends of the fall of Troy were written in the 6th c. A.D. by the Germans and Goths = Trojans who took part in the war. Thus, we lift the charge of falsifying Dares from Phrygia (and also Dictys).

The modern historians protest against the medieval authors' directly calling the Frisians (Germans) the participants in the Trojan war: "without doubt, the Frisians could not have taken part in the Trojan war" ([250], p. 216, Comm. 99).

39a.	A Mt. Ida is situated near Troy [140]; ([250], p. 198). Term "Ida" is close to "Judaean"	39b.	Mt. Vesuvius is situated near Naples (and not far from Rome). Due to dynastic isomorphisms (see above), this is Judaean, or God-praising, mountain

40a. "Trojan cycle" (in particular, Homer's) often mentions "crest" of Ida "Zeus of Ida", "Ida's forest". (Besides, Minor India is situated near Mt. Ida.) ([140]; [250], p. 93, p. 212, Comm. 50)	40b. Since Third Empire's history is also reflected in Judaean chronicles, all terms in left column are associated with "Judaean mountain crest", "Zeus Judaean", "Judaean forest", etc. It is possible that Judaea (as well as Israel) was originally placed in Italy, and "moved" to the East only after Goths' "exodus" from Italy

To 40b: It is possible that the name "Ravenna" originated from "Rabbi", meaning Rabbi's city and, possibly, indicating that Israel and Judaea were originally placed near each other, as is described in the Bible, in Italy, with Judaea being east of Israel.

According to the Trojan chronicles, Mt. Ida (as well as Vesuvius) turns out to be a centre of religious worship (e.g., the so-called Paris' judgement). Finding himself in "Ida's forest", Paris solves the dispute between three goddesses, handing the prize Aphrodite, the goddess of love ([250], p. 93). Since the Bible often identifies "wives" with religions, the choice of a bacchanalian religion probably is meant here, it being consecrated by Vesuvius' volcanic cult as the Trojans' state religion (recall that Paris was a Trojan king's son; see also above where we pointed out the bacchanalian Christian Roman cult prior to Hildebrand = Jesus).

After the fall of Troy, Trojans go "west of the sun", and found the city Venetia ([250], p. 147). Probably, this means the foundation of Venice, which again places the Trojan kingdom into Italy. Recall that Venice = Venetia (= ancient Phoenicia).

41a. According to traditional chronology, Troy fell in 1255 B.C. [39]. Capital of Hittite country fell approximately at that moment, as well as Babylon	41b. Previous investigations identify Hittite kingdom with country of Goths, and Babylon with Rome (at least, in certain chronicles)

To 41: Thus, in traditional chronology, the fall of Troy, of Babylon (= Rome) and of Hattusas (capital of Hittites = Goths) overlap, which is fully consistent with new chronology and earlier identifications.

42a. War in Trojan kingdom began because of a woman, and "Helen's insult" was reason for it [250]	42b. War in Roman (Gothic–Tarquinian) kingdom began because of a woman, "and Lucretia (= Amalasuntha) was reason for it (see above)

These two legends of "insulting a woman" are practically identical (see below).

43a. "Trojan cycle" distinguishes 11 great battles separated into large number of smaller military conflicts	43b. Describing GTR-war, Procopius counted tens of battles. Livy also described large number of battles grouped into two large episodes
44a. TR-war ended in fall and sack of capital. Winners' atrocities and "sack of the city up to the foundation" were mentioned (*ibid.*)	44b. GTR-war led to marauding of Rome and Naples, and its citizens were massacred [44], ([44*], V. 1, p. 326)
45a. Greeks were responsible for sack of Troy, and put whole town to fire (*ibid.*)	45b. Medieval authors supply different replies to question of who was responsible for sacking Rome and Naples, most authoritative version putting responsibility on Greeks (*ibid.*)

To 45b: According to F. Gregorovius, Rome fell victim to the siege and Greek usury ... The whole of Italy was covered with dead bodies and ruins of buildings from the Alps to Tarentum; hunger and plague followed the war and turned the country into a desert. At least one-third of the population died. The ancient forms of life both in Rome and the whole of Italy were destroyed by the Gothic war forever. The night of barbarism clothed the destroyed Latin world in darkness ([44], V. 1).

3. The "legend of a woman" and the start of war

46a. Helen (Trojan version)	46b. Lucretia (Tullia, Amalasuntha, Julia Maesa). Tarquins' version
46.1a. Dispute over which of goddesses is best ([250], p. 71)	46.1b. Dispute over which of wives is better ([174], Bk. 1, 57)
46.2a. Principal participant (judge) was Paris (Trojan = TRKVN) (*ibid.*)	46.2b. Principal participant (judge) was Sextus Tarquinius (=TRQN) (*ibid.*)
46.3a. Special contest between goddesses was arranged (*ibid.*)	46.3b. Special contest of wives was arranged (*ibid.*)
46.4a. Venus, goddess of love, held victory (*ibid.*)	46.4b. Lucretia held victory (*ibid.*)
46.5a. Paris was inflamed by Helen. Venus, goddness of love, promised "to give him queen Helen as wife ...", because of Paris' preference (*ibid.*)	46.5b. Sextus was inflamed by Lucretia, and decided to violate her against her will (*ibid.*)
46.6a. Helen was Menelaus' wife (*ibid.*)	46.6b. Lucretia was Collatinus' wife (*ibid.*)
46.7a. Paris came to Menelaus' house, and was cordially received ([250], pp. 71–72)	46.7b. Without Collatinus' (Menelaus' analogue—A. F.) knowledge, Sextus came to Collatinus' house. He was received cordially (*ibid.*, 58)

46.8a. Paris abducted Helen (*ibid.*). Event occurred at night [250]	46.8b. Sextus raped Lucretia in her bedchamber (*ibid.*)

To 46.8a: Different versions of the "Trojan cycle" treat the abduction of Helen somewhat differently. According to some, she gave herself to Paris willingly, and, according to the others, reluctantly ([250], p. 72).

"Paris himself grabbed queen Helen ... leaving her guarded on the ship" ([250], p. 96).

To 46.8b: Amalasuntha (= Lucretia) was taken to the island reluctantly (see above).

46.9a. Helen's murder (according to certain versions of "Trojan cycle"; see below)	46.9b. Lucretia's suicide. Amalasuntha and Julia Maesa murdered (see above)

To 46.9a: Helen's death had already occurred after the fall of Troy:

"... and ordered to behead Helen and Farizh (= Paris—A. F.)" ([250], p. 76).

"The tale of Helen's and Paris' execution ordered by Menelaus diverges from the so-called ancient version" ([250], p. 207).

46.10a. Attempts to "rehabilitate" Helen in old sources: Allegedly, according to certain versions, Helen did not betray Menelaus, and Paris abduced only her spirit ([250], p. 207)	46.10b. Livy's "rehabilitation" of Lucretia: her passionate speech before stabbing herself, she sets example for Roman women, clearing herself of "disgrace" ([174], Bk. 1)
46.11a. Paris, Helen's violator, murdered ([250], pp. 76, 129)	46.11b. Sextus, Lucretia's ravisher, murdered (*ibid.*, 60)
46.12a. Helen's rape caused Trojan war, "vengeance for Helen" official slogan of TR-war (*ibid.*)	46.12b. Lucretia's rape caused war with Tarquins, "vengeance for Lucretia" ([174], Bk. 2, 1–2), official pretext for GTR-war according to Livy

Because of the isomorphism: Lucretia = Amalasuntha (see above), we could also investigate the isomorphism Helen = Amalasuntha. Briefly, Amalasuntha was killed (like Helen); she was possibly taken to an island (like Helen) into a "strong fortification" ([109], Bk. V, 14–15), analogue of "fortified Troy". It was just Amalasuntha's death that had caused the Gothis war (*ibid.*). Amalasuntha's "violator" Theodahad was soon killed (like Paris, Helen's "violator").

47a. Greeks' talks with Trojans about Helen's fate, and Trojans' refusal to give Helen back [250]. Greeks declared war	47b. (Romaic) Greeks' talks with Goths (= TRQN) about Amalasuntha's fate (who was carried away to island; see above). Amalasuntha's murder by Goths. Greeks declared war [44]
48a. Greek fleet commanded by Achilles arrived at Trojan kingdom's shore ([250], p. 72)	48b. Greek fleet commanded by Belisarius arrived at Italian shore at end of 535 A.D. (*ibid.*)
49a. Chronicle especially distinguishes Achilles, most famous Greek army commander, hero of this war, among numerous heroes of Greek army	49b. "To carry out this plan of driving Goths out, fate made Justinian gift of one of greatest army commanders, Belisarius" (*ibid.*)
50a. Two "principal" kings Agamemnon and Menelaus, Helen's husband, arrived at Trojan kingdom together with Achilles, who was appointed commander of whole army (*ibid.*)	50b. Belisarius was appointed army commander by emperor Justinian, "principal" Greek king ([44])
51a. "Principal" kings Agamemnon and Menelaus took insignificant part in military action compared with Achilles shouldering all responsibility, and being subordinate to them ([250], p. 72, *et seq.*)	51b. "Principal" king Justinian did not take direct part in military action, staying far from war theatre (*ibid.*). Subordinate Belisarius shouldered whole burden
52a. Arriving at Trojan kingdom's shore, Greek fleet took island Tenedos (which was in Trojans' hands ([250], p. 100)	52b. Arriving at Italian shore, Greek fleet captured island Sicily at end of 535 A.D. [44], which was in Goths' (= TRQN) hands
53a. Suppressing Trojans' resistance, Greeks occupied Tenedos, thus invading Trojan kingdom (*ibid.*)	53b. Suppressing Goths' resistance, Greeks occupied Sicily, thus invading Italy (*ibid.*)
54a. For several months, Greeks stayed in captured Tenedos ([250], pp. 101–103)	54b. For several months, from end of 535 to summer of 536 A.D., Greeks stayed in captured Sicily (*ibid.*)

To 54a: For these several months, the Greeks exchanged ambassadors with Troy, sent part of their army to the adjacent country for bread with which they provided themselves in fighting; suppressing the enemy, they returned to Tenedos ([250], pp. 101–103).

55a. Then Greeks came to Trojan kingdom (mainland) and started besieging Troy. This is title of section in medieval chronicle: "How the Greeks left the island of Tenedos, and started besieging Troy" ([250], pp. 103–104)	55b. Then Greeks came to Italy, and Belisarius' land forces and fleet moved along shore to be soon contained by Naples' heroic resistance [44], [109]
56a. Troy's siege started. All chronicles in "Trojan cycle" characterized Troy as extremely powerful fortress situated at seaside. Legends circulated about Troy's impregnability; in particular, Gods themselves defended Troy against enemy. "And God ordered to encircle the city with powerful walls as high as two hundred cubits ([250], p. 90)	56b. Naples' siege started. Sixth-c. historians described it as extremely powerful seaside fortress. Legends were made about Naples' impregnability; Gods themselves allegedly chose rocky foundation, with no chance of undermining its powerful walls, and Naples was situated at seaside ([44*], p. 326, *et seq.*)
57a. We have listed all principal events at beginning of war. Then Troy's siege and fall	57b. We have listed all principal events at start of war. Naple's siege and fall

The difference between the fall of Troy in the "Trojan cycle" and the Gothic version is that the former was referred to at the very end of the war, whereas, in the latter, it occurred at the beginning. At the same time, the Trojan kingdom's fall coincides with that of the Romans. The description of the Gothic version is more particular, with Naples' and Rome's sieges being different, while the Trojan version combined them into one siege of Troy. Transferring Naples' fall to the end of the war leads to a 9- or 10-year-long difference, which is negligibly small, compared with the general antiquity of the events.

4. The fall of Naples and Troy

58a. Troy's fall	58b. Naples' fall
58.1a. Unsuccessful siege preceded. Several attacks failed. Greek army commanded by Achilles was defeated ([250], p. 70 et seq.)	58.1b. Unsuccessful siege preceded. Several attacks failed. Greek army commanded by Belisarius was defeated. Greeks were even going to leave Naples [44]
58.2a. During Troy's siege, conspiracy aimed at opening city to Greeks was organized, its leaders being Trojans Aeneas and Antenor ([250], p. 131)	58.2b. During Naple's (or Rome's) siege, conspiracy aimed at opening city to Greeks arose, its leader being a Neapolitan Stephan. Great conspiracy in Rome during its siege was described by Procopius (*ibid.*)

58.3a.	Conspirators' personal talks with Greeks and their embassy (*ibid.*). Title of one of sections of "Trojan cycle" was: "On the peace talks and betrayal in Troy" ([250], p. 132). Greeks' promise to Trojan traitors that their houses "will be spared" (*ibid.*). Troy's capture not related to this conspiracy (according to certain versions)	58.3b.	Gothic version spoke of conspiracy in more vague terms; however, Roman conspiracy during its siege was described in more detail (*ibid.*). Neapolitan Stephan also allegedly held long personal talks with Greeks with no definite result. Naples captured with no relation to this plot

5. The Greeks' Trojan horse and the Latins' aqueduct of Naples

58.4a.	For taking Troy, non-trivial trick was employed (*ibid.*)	58.4b.	For taking Naples, non-trivial trick was employed (*ibid.*)
58.5a.	"A sort of grey horse" was used ([250], p. 76)	58.5b.	Aqueduct, sort of "grey horse", was used (*ibid.*)

To 58.b: Belisarius applied the cunning lucky trick that had accidentally occurred to him; it turned out that an enormous pipe (precisely a pipe, and not a chute) penetrated into Naples, starting outside the city and leading to it through the powerful fortress walls on an old, half-destroyed aqueduct with an opening on the wall level covered with a stone having a small hole to let water out. A special detachment of Belisarius' warriors comprising several hundred men penetrated into the pipe, destroyed the cover, and succeeded to be in Naples at night. Early in the morning, the soldiers came out of the aqueduct, signalled the principal troops outside, opened the gate, and Belisarius' armies stormed into the city. Procopius (see [109]) described the aqueduct as an enormous pipe in which a man could stand undisturbed, and which was supported by heavy legs [44], [109].

To 58a (see [250]):

"And the Magi announced that it was impossible to occupy Troy in fight, and it could only be done by trickery. And then the Greeks built a wooden horse (?—A. F.) of unheard-of size (cf. aqueduct—A. F.), and hid the brave warriors in its maw ... The Trojans decided to drag the horse into the city (?—A. F.) ... having dragged the horse along, they indulged in sumptuous feasts ... and then went to sleep. The warriors hidden in the horse, however, covertly came out, and started putting the Trojans' houses on fire ... Through the gate opened by the Greeks already in Troy, ... innumerable Greek soldiers rushed. Thus fell the strong-towered Troy. And it was said in other books that a sort of grey horse (i.e., not a horse, but only its "similarity" (!) possibly, meaning a grey stone aqueduct—A. F.) was erected of glass, copper and wax (later authors' fantasy—A. F.), inside which three hundred armed knights had been hidden" ([250], p. 76).

Another version:

"And they (Greeks—A. F.) erected an enormous copper horse in whose maw up to one thousand warriors could be placed. Secret doors were made in its side" ([250], pp. 132–133).

58.6a. "Sort of grey horse" (only "similarity" to horse!) was made use of ([250], p. 76). Enormous size "similar" to horse was stressed. Several hundred warriors could be placed inside. Horse stood on enormous legs. According to certain versions, "horse was wooden, and allegedly came into the city" (was "dragged") (*ibid.*)	58.6b. Half-destroyed aqueduct, enormous pipe on leg supports was mentioned (Fig. 106); (see photographs of preserved ancient Italian aqueducts in [44]). Ancient authors could have also compared aqueduct with enormous horselike animal which, "striding" on its supports, came into city to supply water. It is not accidental that supports of modern bridges across rivers are sometimes called piers, probably, echoing ancient idea of "striding" aqueducts. Since aqueduct was half-destroyed, its similarity to animal could become especially enhanced
58.7a. Idea to resort to "similarity" of horse to capture Troy was expressed by "Greek Ulysses" (who was identified with Odysseus), probably being the very Achilles (Ulysses being another form of "Achilles" due to phonetic analogy of names) (*ibid.*)	58.7b. Idea to resort to aqueduct for capturing Naples was realized by Belisarius (*ibid.*). Due to previous isomorphisms, Belisarius coincides with Achilles (= Ulysses), this identification of legends of Belisarius and Achilles will essentially be completed below
58.8a. "Breakthrough" group was hidden inside "sort of grey horse" (*ibid.*), operation carried out secretly and kept from Trojans	58.8b. "Breakthrough" group was hidden inside aqueduct – water pipe ([44], [109]), operation kept secret from Neapolitans (= Goths); moreover, it was also kept secret from Belisarius' main forces [109]
58.9a. "Breakthrough" group made up of 300 or 1,000 people (see various versions above and *ibid.*) came into "sort of horse" beyond city walls (entrance to "horse" was outside Troy) (*ibid.*)	58.9b. "Breakthrough" group comprising 400 men came into aqueduct through hole placed outside city walls ([44], [109]). According to certain legends, they came with horses, which gives us once again "aqueduct" with "horse"

58.10a. "Breakthrough" group's commander was called Sinon (or Zeno) ([250], pp. 132–133). He was "... given the keys by the Greeks, and ordered to open the secret exit out of the horse's maw at the stipulated moment" (*ibid.*)	58.10b. Zeno, Belisarius' cavalry commander, could be leader of "breakthrough" group (again "Zeno" appears in relation to "horse"), whereas its commanders were called Magnus and Enn [44], [109]

To 58.10b: Sinon (in the form of Zeno) was one of the most important participants in the Gothic war, commander of Belisarius' cavalry along with Magnus ([109], II (V), 5, 2; 6, 13), i.e., Sinon–Zeno could, and even had to, take part in the attack on Naples. The historian V. D. Ivanov, who studied the Gothic war directly, pointed out that the man discovering the pass in the aqueduct as was Zeno. Unfortunately, we could not find any ancient chronicles with precise data. Besides, the authors of the "Trojan cycle" sometimes replaced "g" by "s" (cf. Phrygia–Friesland), and then "Magnus" (breakthrough group's commander) could become "Masnus", which is, possibly, somehow related to "Zeno" (= ZN). Though, it is possible that Procopius' Enn, a second breakthrough group's commander, just was Sinon (= SNN). We stress once again that the participation in the breakthrough group of a commander of the cavalry could also prompt the comparison of the aqueduct to a horse.

58.11a. Sinon (or Zeno) thereby "found himself" in Troy, penetrating it some time before general attack [250]	58.11b. Gothic "Zeno" also was in Naples long before general attack on city, but only as hostage ([109], II (VI), 7, 13)
58.12a. Trojan fortress' wall was destroyed due to necessity of "dragging sort of grey horse" inside (*ibid.*). All Trojan chronicles unanimously spoke of some destruction just when "sort of horse came into the city"	58.12b. Naples' city wall was destroyed inside aqueduct to let warriors into city. Belisarius' warriors chipped off stone cover of tunnel's entrace to Naples, placed at wall level, thereby destroying wall ([41], [109], p. 368; see also Appendix 1, Fig. 96)

To 58.12a: This "destruction of the wall" was described by different authors differently, with some speaking of "dismantling the gate" ([250], p. 76), and others of "... necessity to destroy part of the wall, thus making it possible for the Greeks who returned to Troy to storm into the city" ([250], pp. 206–207, Comm. 53).

Still others speak of "a sort of horse" with one ear having been chopped off (?). Another version: "to let the horse into the city", "the stone crowning the gate was thrown off" (*ibid.*). We believe that all the versions echo the episode when Belisarius' men hidden in the aqueduct pipe gauged the stone stopper [109].

58.13a. "Breakthrough" group came out of "sort of grey horse" through secret entrance in horse's maw ([250], p. 132)	58.13b. "Breakthrough" group came out of aqueduct, already inside Naples, through secret opening, breach in aqueduct not visible from ground [109]
58.14a. "Breakthrough" group came out of "sort of horse" late at night ([250], p. 133)	58.14b. Breakthrough group came out of aqueduct late at night (*ibid.*)
58.15a. General attack and Troy's fall occurred early in morning, mainly due to support of "breakthrough" group (*ibid.*)	58.15b. General attack and Naples' fall occurred early in morning, mainly due to breakthrough group from inside (*ibid.*)
58.16a. "Horse" in Latin is *equa*, *equus*	58.16b. "Water" in Latin is *aqua*

To 58.16: Thus, "water" and "horse" are written almost identically (recall that the events occurred in Italy near Rome). Furthermore, "aqueduct" in Latin is *aquae ductus*, which is almost identical to the term "horse conducting", in Latin *equiductus*. The words are written and sound (!) almost identically, the difference being only in one vowel. "Water-pipe ward" and "horseman" are also almost identical (cf. also *aqualiculus* meaning stomach, belly, abdominal cavity, maw). Recall the warriors in the Trojan horse's maw. It is probable that the Trojan version is later than the Roman; therefore, the "water-pipe" was turned into the "horse" by foreign authors who mixed up one vowel, which generated the legend of "an enormous similarity to a grey horse". A certain ancient version of "the horse legend", by the way, spoke of the "horse" having been dragged nowhere, which is natural due to the stability of the aqueduct, and of the warriors "coming out secretly".

These transformations of words are not surprising. The "*Literaturnaya gazeta*" in its October 20 and December 8, 1982, issues published some articles demonstrating how strongly the names of our contemporaries, and different terms can be distorted when translating them into foreign languages. And this occurs in an age of widespread dictionaries, etc.! What can be expected of ancient chroniclers infinitely confused by the spellings of unknown words, names!

6. Achilles and Patroclus = Valerius and Brutus

59a. Achilles was principal commander of Greek armies, and one of most popular heroes of old Greek epos. His name contains combination LS	59b. Belisarius was principal commander of Greek troops, and one of most popular heroes of ancient Roman and Greek epos. His name contains combination LS

To 59b: This siege is one of the most remarkable in history and resembles a heroic epic.

"Procopius (without our prompting—A. F.) has borrowed the colours of the *Iliad* to describe the first furious struggle before the walls of Rome. He shows us Belisarius

... foremost in the fight (similar to Homer's Achilles—A. F.)" ([44], p. 377).

60a. Achilles was not "principal" king, but appointed to army commander's post by two "great kings" Agamemnon and Menelaus, who started Trojan war [250]	60b. Belisarius was not emperor and unique ruler, but appointed to army commander's post by "great king" Justinian, who started Gothic war [109]
61a. Greek army commander Achilles was closest comrade-in-arms and friend of Patroclus (= PTRCL = BRT)	61b. Belisarius–Valerius (= Valerius; cf. GTR-war), who commanded Greco-Roman army, had closest comrade-in-arms and friend Brutus (= Proectus = PRCT = BRT)

The names BRT on the left and right coincide.

To 61a: "Patroclus" = PTRCL if freed of vowels. Along with the form "Patroclus", the Trojan chroniclers often used the form *Partasis* ([250], p. 143), i.e., PRTS, or BRTS, but the latter can as well take the form "Brutus", if supplied with vowels, i.e., just what was employed by Livy (see above).

To 61b: Cf. Brutus being placed over Proectus under the isomorphism "Gothic-Tarquinian war".

62a. These two brothers-in-arms were engaged in war from its very beginning [250]	62b. These two brothers-in-arms Belisarius–Valerius and Brutus were engaged in GTR-war from its very beginning [174]
63a. Patroclus (= BRT, Brutus) had been killed earlier than Achilles died ([250], pp. 108–111), and was second most important after Achilles in Greek army ([250], p. 108)	63b. Brutus (= BRT = Proectus) had been killed earlier than Valerius (= Belisarius, Achilles' analogue) died. Brutus (= BRT) was "second most important hero" after Valerius in Roman army in first phase of war [109], [174]
64a. Patroclus (= BRT) was killed in cavalry battle (fell off horse, struck down with sword) (*ibid.*)	64b. Brutus (= BRT = Proectus) was killed in cavalry battle, fell off horse, pierced with lance (*ibid.*)
65a. "The episode of Patroclus' single combat (and his death—A. F.) ... is one of central ones in Homer's *Iliad*" (*ibid.*). Other Trojan chronicles consider "Patroclus death" as important	65b. Brutus' single combat with Proectus and his death was one of central episodes in Livy
66a. Patroclus (= BRT) broke shield of king's son, who attacked him from Trojans' (= TRKVN) camp (*ibid.*)	66b. Brutus (= BRT = Proectus) broke shield of king's son, who attacked him from TRQN camp with his lance

67a. Patroclus' (= BRT) murderer was Trojan Hector, son of "principal Trojan king" Priam ([250], p. 73, 108)	67b. Brutus' (= BRT = Proectus') murderer was Aruns, son of "Tarquins' principal king" Tarquin the Proud
68a. Patroclus' (= BRT) murderer was also killed some time after his death ([250], p. 119), pierced by lance, and falling from horseback in single combat	68b. Brutus' (= BRT = Proectus') murderer was also killed, but in same battle as BRT (they killed each other), pierced with lance, and falling from horseback in single combat (*ibid.*)
69a. Trojan version spoke of strongly mourned Patroclus (= BRT), with commander Achilles' and whole army's mourning ([250], pp. 111–112)	69b. Gothic-Tarquinian' version spoke of strongly mourned Brutus (= BRT), with Rome's and army's general mourning (*ibid.*)
70a. According to Trojan version, Patroclus' (= BRT) and Hector's single combat occurred before general cavalry's battle (*ibid.*, p. 108)	70b. According to Livy, Brutus' (= BRT) and Aruns' single combat (Hector's analogue) occurred before general cavalry battle (*ibid.*)
71a. Patroclus' (= BRT) body was buried by army commander Achilles himself (*ibid.*, p. 112)	71b. Brutus' (= BRT) body was buried by army commander Valerius (= Belisarius) himself
72a. Patroclus (= BRT) avenged insulted Helen (*ibid.*)	72b. Brutus (= BRT) avenged insulted Lucretia (*ibid.*)

To 71b: Livy: Valerius buried his friend Brutus with all the solemnity possible for the time. However, much more honourable for the perished was the public mourning, which was especially remarkable, because the matrons were weeping over him as their father for one year, he being so stern an avenger for the insulted honour ([174], Bk. II, 7).

7. Achilles and Hector = Belisarius and Vitiges

73a. First phase of TR-war was characterized by fierce fighting of outstanding principal army commanders, Greek Achilles and Trojan (= TRKVN) Hector [250]	73b. First phase of GTR-war was characterized by fierce fighting between two outstanding principal army commanders, Romaic Greek Valerius (= Belisarius) and Goth (= TRQN) Vitiges = Aruns [109], [174]
74a. Name "Hector" is often used in form of Victor in Trojan cycle ([250], pp. 11, 74; 204, Comm. 38), which is VCTR if freed of vowels	74b. In Goths version, Hector's (= Victor) analogue is Vitiges = VTGS if freed of vowels, which is close to VCTR
75a. Victor (= Hector) was king and son of king (*ibid.*, p. 73)	75b. Vitiges (= Aruns) was king and son of king [109], [174]

To 75: Vitiges was king of the Goths [109].

"King Hector, son of Priam ..." ([250], p. 73).

The formal (principal) king according to the Trojan version was the old Priam, but he did not take part in the battle:

"The ancient sources said nothing of Priam's participation in the battles, he being an old man ..." ([250], p. 217, Comm. 112).

76a. Victor (= Hector) was TRKVN army commander in first phase of war until his death, and Trojans' principal hero who appointed and dismissed army commanders in Trojan army (*ibid.*)	76b. Vitiges (= Aruns) was king and TRQN army commander in first phase of GTR-war until his death, and principal figure who appointed and dismissed Gothic army commanders [44], [109]
77a. Victor (= Hector) was Trojan (TRQN)	77b. Vitiges (= Aruns) was Goth (= Tarquin = TRQN)
78a. Old man Priam's image is, probably, collective. Freed of vowels, PRM = P + RM, which is, probably, P + Rome	78b. Gothic–Tarquin's dynasty TRQN (Trojans' analogue; see above) ruled in Rome = RM. Then formula P + RM (see left column) can mean P. RM, i.e., "public Rome", P = Publius, RM = Rome
79a. Victor (= Hector) had died earlier than Achilles, his principal enemy (*ibid.*)	79b. Vitiges (= Aruns) died earlier than Belisarius, his principal enemy (*ibid.*)
80a. Victor (= Hector) was killed by Achilles (*ibid.*)	80b. Vitiges was taken prisoner by Belisarius and then killed (*ibid.*)
81a. Victor (= Hector) killed Patroclus (= BRT), which, together with accompanying circumstances, is completely isomorphic to "Gothic-Tarquinian version" (see above)	81b. Vitiges (= Aruns) killed Brutus (= BRT = Proectus, Patroclus = *Partasis* = BRT's analogue), which, together with accompanying circumstances, is completely isomorphic to Trojan version
82a. Victor (= Hector) was killed in single combat during cavalry battle, by Achilles (*ibid.*)	82b. Aruns (= Vitiges) was killed in single combat during cavarly battle. According to Gothic version, Vitiges' death was written in more vague terms (allegedly taken prisoner and killed by Belisarius) (*ibid.*)
83a. Victor (= Hector) was killed by spear in chest ([250], p. 119)	83b. Aruns (= Vitiges) was struck by spear in chest ([174], Bk. II, 6)

84a. Victor's (= Hector's) murderer was mortally wounded, and soon died ([250], pp. 127–128)	84b. Vitiges' (Aruns') murderer was also killed (*ibid.*)
85a. Trojan version devoted Victor's (= Hector's) murderer special chapter titled "Hector's and Achilles' single combat" (*ibid.*)	85b. Livy's Tarquinian version devoted Aruns' murderer special chapter (half Ch. VI, Bk. II). Procopius' Gothic version dedicated special legend to this single combat ([109]; see also below)

To 85b: Procopius supplied the "pagan" legend about Vitiges' and Belisarius' single combat: Two cowherds fought during the Gothic war, one representing Vitiges, and the other Belisarius, who overpowered the former and was sentenced to death by hanging (allegedly, "in jest"). However, the "joke" ended tragically, and the cowherd Vitiges died (was "hanged") [44]. The tragic outcome was interpreted by the people as an "omen" of Belisarius' victory [44].

86a. After Victor's (= Hector's) death, his body captured, and given to Trojans only through negotiations	86b. "Gothic version" described Vitiges' captivity and then his death [109]
87a. Sequence of deaths: Patroclus' (= BRT), Victor's (= VCTR = Hector's) and Achilles' death (= LS) [250]	87b. Sequence of deaths: Brutus' (= BRT = Proectus), Vitiges' (= VTGS = Aruns) and Belisarius' (= BLSR) death [109], [174]

The sequence of the deaths is the same in all three versions.

8. Achilles' "betrayal" and Belisarius' "betrayal"

88a. Achilles overpowered Victor (= Hector) [250]	88b. Belisarius (= Valerius) overpowered Vitiges (= Aruns) (*ibid.*)
89a. Immediately after single combat with Victor (= Hector), episode of so-called "Achilles' betrayal" occurred (see below)	89b. Immediately after victory over Vitiges, episode of Belisarius' "betrayal" occurred ([109]; see also above)
90a. After Greeks' victory over Victor (= Hector), armistice followed ([250], pp. 120–121)	90b. After (Romaic) Greeks victory over Vitiges, armistice followed (*ibid.*)
91a. Trojan king (= TRKVN) offered Achilles his daughter and friendship in order to stop confrontation ([250], pp. 120–122)	91b. Gothic (Tarquins = TRQN) king offered Belisarius Italian crown to stop war (*ibid.*)
92a. Achilles' consent	92b. Belisarius' consent

To 90–92:

"And king Priam (P + RM—A. F.) said to Achilles: 'Swear that you will not make war on us, and then ... I shall give you my daughter Polyxena ...', and king Priam was first to swear ... And Achilles bowed, offering his promise" ([250], p. 75).

"Achilles ... was ready ... to conclude a peace treaty with the Trojans" (*ibid.*, p. 205, Comm. 44).

"The armistice was still in force ... Achilles sent his secret envoy to queen Hecuba ... He will make the whole Greek army leave Trojan soil, and go back where they came from" ([250], pp. 120–121).

93a. Achilles' "betrayal" played important role in TR-war. In particular, it led to Achilles' death [250]	93b. Belisarius' "betrayal" played important role in GTR-war. In particular, it led to Belisarius' dismissal so he could not take part in it; he died in disgrace ([109]; see above)
94a. Achilles "betrayal" led to his and Agamemnon's, Greeks' "main" king's, quarrel ([250], pp. 122, 217, Comm. 119)	94b. Belisarius' "betrayal" led to his quarrel with Justinian, Greeks' "principal" king [44]
95a. Because of Achilles' "betrayal" and his quarrel with "principal" king, he did not leave his ship, as if he had been "on house arrest" (*ibid.*)	95b. Because of Belisarius' betrayal and his quarrel with "principal" king, he was arrested and taken prisoner (see above and [124])
96a. In spite of his initial consent to betray Greeks, Achilles then refused to fulfil his promise to withdraw Greek troops (*ibid.*)	96b. In spite of his initial consent to betray Greeks (at least, as stated by Goths; see above), Belisarius then refused to fulfil his promise to withdraw Greek army
97a. Nevertheless, Achilles also rejected active participation in war, "ordered his myrmidons not to be engaged in a battle with the Trojans, and not to dare help the Greeks" ([250], p. 122)	97b. Nevertheless, Justinian recalled Belisarius from Italy, allegedly to another theatre of military action, "Persian" (= PRS) [109]. For several years, Belisarius was absent from Italy
98a. Armistice then ended, and war resumed with prior intensity	98b. Armistice then ended, and war resumed with prior intensity [109]
99a. With Achilles absent, Greek army was heavily defeated; in particular, "... Trojans burned more than five hundred Greek ships" ([250], pp. 122–123)	99b. (Romaic) Greek army was heavily defeated in 540–544 A.D. in Belisarius' absence [44]. Goths again conquered much of Italian territory ([44], [109])

100a. Trojans grabbed Greeks' treasures (*ibid.*)	100b. Goths (= TRQN) captured Rome's, so-called Theodoric's, treasures; no exact data on when it all happened [44]
101a. Further fate of these treasures: They sunk in sea after Greeks had recaptured them. "And then multitude of Greek ships sunk, and all riches amassed by robbery were devoured by the sea" ([250], p. 134), which had occurred already after fall of Troy	101b. Further fate of these treasures: They sunk in lake, thrown there by defeated Goths (= TRQN) at very end of GTR-war ((44), [109])

9. Troilus = Totila; Paris = Porsena

102a. After Victor's (= Hector's) death, Troilus became first important king and Trojans' army commander ("king Troilus"). Chronicles stress that king was young ([250], p. 218, Comm. 124)	102b. After Vitiges' defeat and his captivity, Totila was elected first important king and Goths' (= TRQN) army commander. Chronicles stress that king was young [44]
103a. Name: "Troilus"	103b. Name: "Totila", which is close to "Troilus"
104a. Troilus was relative of "principal" Trojan king Priam, i.e., his son ([250], p. 123)	104b. Totila was relative of previous Gothic king Ildibald, his nephew (*ibid.*)
105a. Trojan version especially stressed Troilus' bravery in quite specific terms. Not every Trojan hero demonstrated "outstanding bravery" according to chronicles. Here is one of chapters: "*On Troilus' remarkable strength ...*" (*ibid.*)	105b. "Gothic version" specifically praised Totila's bravery in quite vivid and individual terms. (Romaic) Greeks were "... startled by the appearance of a new Gothic hero ... A spirit of enthusiasm took possession of the warlike people (the Goths—A. F.) and everything was changed in a moment as by the wand of a magician" ([44], V. 1, pp. 418–419)
106a. Commanded by Troilus, Trojans held series of splendid victories. "How many Greeks perished today under the Trojans' swords (commanded by Troilus—A. F.)" (*ibid.*)	106b. Commanded by Totila, Goths (= TRQN) held series of splendid victories. "A year spent in reduction of several towns ... sufficed to make Totila dreaded ... The terror of his name went before him" (*ibid.*, p. 419)

107a. During Troilus' brilliant successes, Achilles did not take part in TR-war (*ibid.*)	107b. In epoch of Totila's brilliant successes, Belisarius did not take part in GTR-war [109]
108a. King Paris (= PRS) takes active part in battle along with Troilus (*ibid.*, pp. 122–123). Freed of vowels, his name PRS is extremely close to PRSN, and identical with PRS (= "Persians")	108b. King Porsena (= PRSN) took active part in battles together with Totila = Livy's Tarquin. According to "Gothic version", Persians (= PRS) attacked empire simultaneously with Totila, with whom Belisarius had to fight [44]
109a. Though Paris (= PRS) took part in TR-war from its very beginning, his role was especially important during Troilus' "reign" when Paris (PRS) always followed Troilus, and Trojan version spoke of Troilus and Paris ([250], p. 124)	109b. Though "Persians" (according to Gothic version) troubled empire long ago, they were especially troublesome during Totila's reign, making war against empire along with this king. For example, Procopius spoke of pair "Totila-Persians" (= PRS). Livy also spoke of pair "Tarquins-Porsena" (see above) attacking empire [174]
110a. Paris was killed some time after his "enthronement" with Troilus ([250], p. 129)	110b. Livy reported of serious attempt on Porsena's life (see legend of Gaius Mucius Scaevola; *ibid.*). According to "Gothic version", PRS' attack on empire failed
111a. Above isomorphism "Paris = Paris (in France)" points to "Franks", therefore, taking part in TR-war along with Trojans (= TRKVN) under PRS name	111b. We have already associated Porsena and "Persians" above with Franks (= TRNK), who, according to 6th-c. chronicles, did take part in GTR-war along with Goths (= TRQN)

To 111a: "*The tale of creating and capturing Troy ...*" called Paris *Farizh*, (i.e., Paris due to the known assimilation P→F ([250], pp. 70–71). Thus, the chronicle unambiguously points to the origin of king Paris being Paris in France, which is well consistent with the placement of Porsena (= PRS) on the Franks, already known to us; recall also that the capital of France is Paris. Furthermore, Franks = TRKVN are identified with Trojans = TRN in the phonetic analogy, which immediately explains why Paris = PRS was Trojan = TRNK = TRNKV. Thus, the Franks = Frenchmen (or "Gauls") originated from the "Trojans" = TRKVN, which is just what the above medieval point of view stated.

112a. After Troilus' triumph, Achilles returned to battle-field, which sharply changed course of events	112b. After Totila's triumph, Belisarius returned to Italy, which sharply changed course of war [109]
113a. After Achilles' return, Greeks immediately held series of brilliant victories ([250], p. 126)	113b. After Belisarius' return, (Romaic) Greeks immediately held series of brilliant victories, which occured in 544 A.D. [44]
114a. Troilus' army was defeated ([250], p. 127). Paris was defeated, too	114b. Totila's army (as well as Tejas', who replaced him temporarily) was defeated (*ibid.*)
115a. Troilus died in large-scale battle (*ibid.*)	115b. Totila (and Tejas within several months) died in large-scale battle (*ibid.*)
116a. Troilus was surrounded by Greeks, struck by spear, and beheaded (*ibid.*)	116b. Totila (= Tejas); (these two kings were fused into one due to Tejas' short rule lasting only a few months according to Trojan versions) was surrounded by Greeks, stabbed by spear, and beheaded (*ibid.*)
117a. Beheading episode was unique in Trojan version of TR-war (*ibid.*)	117b. Beheading episode was unique in Gothic version" of GTR-war [109]
118a. Troilus' defeat was turning point in TR-war, and Trojans could no longer advance new heroes; Troy was sacked by Greeks (*ibid.*)	118b. "The glorius struggle of the last Goths ... at the foot of Vesuvius ... closes the history of this heroic German race" ([44], V. 1, p. 470)
119a. Troilus' battle and his defeat occurred at Troy's walls (*ibid.*)	119b. Tejas' battle and his defeat occurred at Naples' walls (*ibid.*)

This again places Troy on Naples. Thus, Troy is identified with Naples at the beginning of the GTR-war and at its end. In the middle of the GTR-war, Troy is placed on the pair "Naples–Rome".

120a. After above events, Achilles was killed (*ibid.*)	120b. After above events, Belisarius died (circumstances surrounding his death are not clear) [44], [124]
121a. Achilles' death is related to his "betrayal": Because of promise to marry Polyxena, and to stop war, Hecuba offered him to come to Troy for negotiations. He did come, and was cowardly stabbed in back ([250], pp. 75, 128)	121b. Belisarius' death, his removal from war, arrest and confiscation of property (see above) are all related to his "betrayal", his promise to stop war in Italy and to become its king (*ibid.*)

122a. Achilles' death took place during negotations when he was wounded in "heel" or in back, and not in battle (*ibid.*)	122b. Belisarius' death occurred soon after his release, and not in battle [124]

10. The other Trojan legends. We have seen that the legends of king Tejas were partly included in the "biography" of Troilus = Totila in the Trojan cycle. However, it turns out that Tejas himself (figuring under the same name!) was mentioned in the Trojan legends, too.

123a. Known king *Toas* took part in TR-war ([250], pp. 113, 218, Comm. 126)	123b. Well-known king Tejas took part in GTR-war (see above). Name "Tejas" is practically identical with "*Toas*"
124a. King *Toas* was on Greeks' side, but repeatedly imprisoned by Trojans, who took him to Troy ([250], pp. 113, 125)	124b. King Tejas was Goth (= TRQN), headed group "parallel" to Trojans. According to Trojan version, he was now Greek, then Trojan ("taken prisoner")

It is important that we have exhausted all the principal legends of the Trojan cycle speaking of the Trojan war. Below, we give parallels between the other, less essential legends.

125a. After Troy's fall, Trojans fled from Trojan kingdom, scattering in all directions [250]	125b. After fall of kingdom of Ostrogoths, Goths (= Tarquins = TRQN) fled Italy, scattering in all directions (see above)
126a. Centaurs took part in TR-war on Trojans' side. Name "centaur" = CNTR, i.e., Tarquin ([250], pp. 214–103, 214–215, Comm. 78)	126b. Goths (= Tarquins = TRQN) took part in GTR-war against (Romaic) Greeks. CNTR is different from TRQN only in position of consonants, and Q instead of C
127a. King Remus (founder of Rome?) declared war on Greeks in TR-war on Trojans' (= TRKVN) side ([250], pp. 109, 216, 229, Comm. 96)	127b. City of Rome founded by Remus (and Romulus) made war against Greeks in GTR-war as one of capitals of German Gothic kingdom
128a. King Remus, owner of "horses", on which Troy's fate mystically depended (*ibid.*, p. 216, Comm. 96). Until Remus "owned horses", Troy had not been defeated (*ibid.*)	128b. Rome (= Naples) owned aqueducts = "horses" on which, as we have seen, fate of Trojan Roman state in GTR-war did, in fact, depend. If the aqueduct had not been captured, Naples would not have been defeated

129a. Ulysses (probably, that very Achilles) "stole Remus' horses" (*ibid.*)	129b. Belisarius (= Achilles = Ulysses) captured Naples' aqueduct, "stealing horse" (see details above)
130a. Capturing "Remus' horses" led to Troy's fall (*ibid.*)	130b. Capturing aqueduct (= "horse") led to Naples' (and Rome's) fall (see above)
131a. One of Trojan versions stated that "... if Remus' horses had drunk water from the Scamander (river on which Troy stood: Tiber; see above—A. F.), Troy would not have been taken" (*ibid.*)	131b. Probably, authentic event is meant: If aqueduct had remained there, and not been destroyed, as reported by "Gothic version", i.e., if it had "drunk water as always", supplying it to Naples, then, naturally, it would have been impossible to penetrate into city through it
132a. Apparently, king Remus was killed in TR-war, falling to ground after being struck by spear ([250], p. 109). Another appearance of Remus in episode with Amazons relates it to very start of TR-war (see below), and does not contradict Remus' death because of above confrontation	132b. Remus, Rome's founder, was killed in battle by Romulus, which occurred at start of Third Empire, i.e., end of Second Empire isomorphic to GTR-war (= TR-war; see above)
133a. Amazons took part in war along with Trojans ([250], pp. 74, 129–131). Possibly, name "Amazon" is one of forms generating term "Amalasuntha", or vice versa	133b. Gothic queen Amalasuntha belonged to TRQN group at start of GTR-war, and was opposing (Romaic) Roman Empire
134a. Amazons' queen was killed in TR-war. Her name: Penthesileia (*ibid.*). She was killed by Greeks (*ibid.*)	134b. Goths' queen Amalasuntha (Amazon Penthesileia?) had been killed before GTR-war, allegedly with Greeks' consent (see above)
135a. Legend of "king *Teotrat*" (Teutrat) at start of TR-war ([250], p. 102)	135b. Legend of king Theodahad at start of GTR-war [44]

The names "Teotrat" and "Theodahad" are very close.

136a. King Teotrat was Greeks' enemy. Greeks attacked Teotrat's kingdom ([250], p. 102)	136b. King Theodahad was Greeks' enemy. Greeks attacked Theodahad's kingdom (see above)
137a. Teotrat was killed in battle (*ibid.*)	137b. Theodahad was killed in action (see above)
138a. Teotrat ruled "Phrygian", i.e., "Frisian" land	138b. Theodahad reigned in German Gothic kingdom (see above)

See above for the placing of "Friesland" on Germany or German Gothic kingdom in Italy.

139a. Ulysses' (= Achilles'?) trick led to Troy's fall ("horse" was used)	139b. Belisarius' (Achilles' analogue) trick led to Naples' fall (aqueduct was mentioned)
140a. Ulysses replaced Achilles at end of war, being his "extension". TR-war was ended by Ulysses [250]	140b. Narses replaced Belisarius at end of war, being his "extension". Narses ended GTR-war [44], [109]
141a. Ulysses replaced Achilles for short term (compared with whole of TR-war) (*ibid.*)	141b. Narses replaced Belisarius for short time (compared with duration of whole GTR-war) (*ibid.*)
142a. Ulysses' legendary poverty after TR-war. "Ulysses got to the land of Idomeneus quite a beggar" ([250], p. 136)	142b. Belisarius' (Ulysses' analogue) legendary poverty after GTR-war (see above)

The legend of the poverty of Ulysses = Belisarius = Valerius was unique of this kind in the GTR- and TR-war history.

143a. Ulysses' names: Odysseus, Ureshii, Ureksis, Diseves, Nisiotenin, Ulikses, Ulisan, ([250], pp. 201, 202, Comms. 21, 33)	143b. Belisarius was extended "by Narses". Possibly, this name is close to Ulikes, Ulikses, Ureksis
144a. Thus, at end of TR-war, pair "Achilles–Ulysses" appeared for short time, where "short-time" hero Ulysses continued cause of principal hero Achilles, their names being close, viz., CHLLS = LSSS	144b. Thus, at end of GTR-war, pair "Belisarius–Narses" appeared for short time, where short-time ruler Narses continued cause of principal hero Belisarius, their names being close, viz., BLSR = NRSS
145a. Wandering of martyr Ulysses after TR-war (see Greek cycle of "Odyssey")	145b. Martyr Narses' wandering after GTR-war (see also isomorphic Coriolanus legend)
146a. Certain "biographical" facts pertaining to Achilles and Ulysses are similar (*ibid.*). We omit details	146b. Certain facts of Belisarius' and Narses' "biographies" are close [44], [109]. We omit details
147a. Legend of Achilles as "eunuch", servitor in female chamber, even represented on ancient vases and pictures (see below)	147b. Legend of Narses as "eunuch", servitor in female chamber (see below) [44]

148a. Achilles was "eunuch" before TR-war. Posed as woman, dressed in female clothes and did women's job, being forced by certain queen or king. "And Kharan led him (Achilles—A. F.) in female garments, and made him pose as maiden to Lycomedes the king (i.e., made him serve the king as if he had been a girl—A. F.). And there he had all his age with the girls" ([250], p. 142). Other sources also spoke of service to queen	148b. Narses was eunuch before Italian war (*ibid.*). After GTR-war, he didn't return to Constantinople after being informed about empress Sophya's expression that she would make the eunuch spin flax at female chamber together with her maid-servants. The legend tells that the castrated male had answered that in such a case he would make a thread for her that she would have to untangle all her life
149a. Achilles (= Ulysses) was unique hero of TR-war, said to be "eunuch"	149b. Narses (= Belisarius' continuation) was unique hero in GTR-war with legend of eunuchism
150a. "Eunuch" Achilles served in king's court (see above)	150b. Eunuch Narses served in king's court in New Rome
151a. At beginning of TR-war, Achilles (= Ulysses) ceased being "eunuch" (*ibid.*)	151b. At beginning of GTR-war, Narses (= Belisarius' continuation) ceased his eunuchism (*ibid.*)
152a. After "eunuchism", Achilles went to TR-war. "Whereas Achilles, having heard this, took off maiden's dress, and went to Troy" (*ibid.*)	152b. After eunuchism, Narses went to GTR-war [44]
153a. Great army commander Achilles ended TR-war by defeating TRKVN (under Ulysses' name)	153b. Great army commander Narses (= Belisarius' continuation) ended GTR-war by defeating TRQN
154a. Pestilence during TR-war, unique mention of such sort in TR-war history ([250], p. 73)	154b. Pestilence (fever) during GTR-war, unique mention of such sort in GTR-war history [44]
155a. Siege by Trojans of Greek fortifications (see Homer's *Iliad*)	155b. (Romaic) Greek fortifications besieged by Goths (= TRQN) (*ibid.*)

11. Medieval anachronism in the ancient Trojan cycle

156a. "Roman possessions" around Troy ([250], pp. 210, 121)	156b. "Troy" (= Rome = Naples) was placed in Italy, and was capital of Western Roman Empire
157a. Large number of facts and statements estimated today as "clearly medieval anachronisms" in Trojan cycle by traditional historians (*ibid.*). We omit details	157b. GTR-war took place in 6th c. A.D., being medieval event

To 156a:

"Mentioning the Sparta of the Trojan war epoch as part of the Romanic (i.e., Roman) kingdom is a clear anachronism of a medieval author" ([250], p. 210, Comm. 28).

"Mentioning the Cyclades as 'Roman' is an anachronism: They came under Roman power only in the 2nd c. B.C." ([250], p. 212, Comm. 55).

"Thessaly is sometimes erroneously identified by them (authors of the Trojan cycle—A. F.) with Thessaloniki ... a city which was founded much later, and which became ... one of the most important medieval Byzantine centres" ([250], p. 208, Comm. 2).

"Typically medieval" are also the descriptions of arms used in the TR-war ([250], pp. 210, 214, Comms. 31, 73). Aeneas arrived in Italy after the fall of Troy on board a ship (where his grandson Romulus founded Rome).

"Procopius ... describes one work of antiquity with special minuteness ... This was the fabulous Boat of Aeneas preserved in the Arsenal on the shores of the Tiber ... The credulous Greek has recorded his admiration of this work, 'surpassing all conception', assuring his readers at the same time that the vessel looks as if just fashioned by a carpenter, and it betrays no signs of decay" ([44], V. I, p. 462).

This is not surprising when the TR-war is being placed on the GTR-war in the 6th c. A.D., which is just the time to which "Procopius" description is usually referred.

Trojan version	Gothic version
Centaurs' (= CNTR) participation in Trojan war along with Trojans against Greeks	Tarquins' (= TRQN) war against Greeks in Gothic war
King Remus (founder of Rome?) declared war on Greeks in Trojan war	City of Rome founded by Remus took part in Gothic war against Greeks
King Remus was owner of "horses" on which Troy's fate depended	Rome (= Naples) was "owner" of aqueducts on which Troy's fate depended
Ulysses abducted "Remus' horses"	Belisarius (= Ulysses) took aqueduct(s) in Naples
Capturing "horses" led to Troy's fall	Capturing aqueduct led to Naples' (= Troy's) fall
Apparently, king Remus was killed in action	Rome's founder Remus was killed in action (by Romulus)
Amazons' participation in war on Trojans' side	Gothic queen Amalasuntha reigned before Gothic war
Amazons' queen was killed	Amalasuntha was killed
Legend of king Teotrat (Teutrat) at start of war	Legend of king Theodahad at start of war
Teotrat was enemy of Greeks, and declared war on them	Theodahad was enemy of Greeks, and declared war on them
Teotrat was killed	Theodahad was killed

Teotrat reigned in "Phrygia" (= Friesland)	Theodahad ruled in Gothic kingdom
Ulysses' (Achilles'?) trick led to Troy's (= Naples'?) fall	Belisarius' trick led to Naples' fall
Ulysses ended war	Narses ended war
Legend of Ulysses' poverty after war	Legend of Belisarius' (= Valerius'?) poverty after war
Ulysses' tormented wandering after war	Narses' tormented wandering after war
Achilles = Ulysses	Belisarius = Narses
Legend of "eunuch" Achilles, servitor in female chamber	Legend of eunuch Narses, servitor in female chamber
"Eunuch" Achilles served in king's court	Eunuch Narses served in king's court
Achilles ceased his "eunuchism"	Narses stopped his eunuchism
Achilles went to Trojan war	Narses went to Gothic war
Achilles was great army commander	Narses was great army commander
Pestilence during Trojan war	Pestilence (fever and plague) during Gothic war
Trojans' siege of Greek fortifications	Goths' siege of Greek fortifications
"Roman possessions around Troy"	Troy (= Rome) was placed in Italy, and was capital of Roman Empire

What percentage of the TR-war heroes turned out to be isomorphic to those of the GTR-war? We confine ourselves to the males, each of whom was mentioned in the cycle on not less than 20 pages of the text [250]. We associated each hero with the number of pages on which his name was mentioned. We obtained (in decreasing order): 51 times for Priam, 39 for Achilles, 35 for Agamemnon, 34 for Menelaus, 33 for Hector, 32 for Paris, 23 for Ajax and 22 for Troilus. Of eight heroes, seven were included in the parallel (with the exception being Ajax). Thus, 87 percent of the principal heroes of the TR-version and TR-war turn out to be also mentioned by the GTR-version already in a rough comparison.

We believe that the above data are sufficient to identify the legends and "biographies" of the Trojans and Tarquins–Gothic war, which dates the most ancient events of Greek history to not later than the 6th c. A.D. The so-called "classical" Greece also did not start to develop earlier than the 6th c. A.D., which is well consistent with the data regarding medieval Greece (see above).

12. The Christian dating of the Trojan war. We believe that Christian authors made the same error in dating the Trojan war as that which led to moving back in time the Third Empire and the onset of the Second Empire (see above). Meanwhile, the end of the Second Empire, 234–270 A.D., is isomorphic to that of the Third Empire, 536–552 (or 553) A.D. Thus, the GTR- ("imaginary") war turned out to be in the 3rd c. A.D. Upon analyzing the Tarquins' war, we can complete this isomorphism, viz., the "imaginary" GTR-war of the 3rd c. A.D. is isomorphic to the GTR-war in the 6th c. A.D.

1a. Second Empire is isomorphic to Third Empire	1b. Third Empire (ending in 526 A.D.) is isomorphic to Second Empire
2a. Anarchy. Julia Maesa and her two favourites Heliogabalus and Alexander Severus (217–235 A.D.)	2b. Anarchy. Amalasuntha and her two favourites Amalaric and Athalaric (526–536 A.D.)

These isomorphisms were discussed above.

3a. Civil war in 234–251 A.D.	3b. Civil war in 536–552 (or 553) A.D.
4a. "Imaginary" GTR-war in 234–251 A.D. Being civil, it also was Gothic war. Name "Gothic war" is officially applied to 238–251 A.D. [146*], pp. 439–440	4b. GTR-war in 536–552 A.D., officially called "Gothic war" [44]. Thus, ends of Second and Third Empires are not only isomorphic, but also similarly called "Gothic wars"

5a. Here are names of certain emperors placed near to 3rd-c. "Gothic war" in 238–251 A.D.	5b. GTR-war coincides with Tarquinian war
5.1a. Severus in 222–235 A.D.	5.1b. "Tarquins" are people from Northern land like Goths (see above)
5.2a. Gordian dynasty: Gordian I (238 A.D.), Gordian II (238 A.D.) and Gordian III (238–244 A.D.) Name "Gordian" is clearly related to Slavonic (Russian) *gordy* (proud)	5.2b. Livy called Goths "Tarquin the Proud" (see above), which is clearly analogous to Gordians. Tarquins' dynasty also formed dynasty like Gordians
5.3a. There were three Gordians	5.3b. Livy spoke of three famous Tarquins during GTR-war, i.e., "Tarquin the Proud", viz., Tarquinius Collatinus, Sextus and Lucius
5.4a. Valerian in 253–260 A.D.	5.4b. Valerius (= Belisarius)
5.5a. Balbinus in 238 A.D.	5.5b. Baduila (Totila's second name) (see above)
5.6a. Wife of Gordian III was Furia Tranquillina ([146*], p. 438)	5.6b. Wife of Tarquin the Proud was Tullia, characterized by Livy as "fury", malicious woman hungry for power

The names "Gordian" and "Gordy", "Tranquillina" and "Tarquin" are clearly similar, whereas "Furia" coincides with Livy's characteristic given to Tullia.

6a. Gothic war in mid-3rd c. A.D. lasted for 13 (or 16) years in 238–251 (or 235–251) A.D., first figure being officially recognized ([146*], pp. 439–440), 235 A.D. year of death of Severus, Julia Maesa's favourite	6b. Gothic war in 6th c. A.D. lasted 12 (according to Livy; see above), 16, or 18 years (according to Procopius) in 536–552 (or 535–553) A.D. 12 and 16 are well consistent with 13 and 16 in left column

We have discovered above that the biblical (God-contending and God-praising) chronicles started with Jeroboam I and Rehoboam, who were placed on Constantine I and Licinius. Constantine I (= Jeroboam I) started reigning in 306 A.D. The Bible called the "great triumvirate" Saul, David and Solomon immediate predecessors of Jeroboam I, which dates the legends of them to not earlier than the 3rd–6th cc. A.D. We will speak of where the "originals" of these legends should be placed. According to traditional chronology, this great "triumvirate" reigned in 1020–965 (or 1004) B.C. (Saul), 1004–965 B.C. (David) and 965–928 B.C. (Solomon) ([39], p. 192; [268], pp. 16–22). Placing the end of Solomon's reign onto 306 A.D., i.e., the start of Jeroboam's rule, we obtain 214–230 (or 269) A.D. for Saul, 230–269 for David, and 269–306 A.D. for Solomon. (Real originals should be placed in 10–11th cc, A.D. or in 13th c. A.D.; see GCD.)

It is important that the "imaginary" GTR-war in the 3rd c. (235–251) A.D. practically coincides with David's "reign" in 230–269 A.D., the consequence being that if a Christian historian were going to date the GTR-war in its "imaginary" version (to the 3rd c. A.D.), then he would have to write that "the Trojan war had occurred under the Judaean king David".

It is very important that this is just what was done by the medieval chronicles. Here are the titles of some of them: "*The tale of the founding and capturing of Troy, and of its last sack occurring under David, king of Judaea*", and also "*Thus Troy was sacked under the reign of king David, or in Jerusalem over Israel*" ([250], p.147).

The coincidence is ideal.

8.2. The Reflection of the Trojan war and the GTR-war in the 1st c. B.C. (Sulla, Pompey and Julius Caesar)

1. New parallels in Roman history (the "great Triumvirate": Sulla, Pompey, Julius Caesar and the GTR-war in the 6th c. A.D.). It is hard to find ancient historical heroes more popular from the modern standpoint than Julius Caesar, Pompey or Brutus. We all know from childhood numerous works (historical novels, feature films, etc.) devoted to the legendary history of this epoch.

More unexpected is the fact that the bulk of this time is another "mould" of later (medieval) events, which was pushed back in time due to the above chronological shifts by *c.* 333 and 1,053 years, discovered by means of the GCD. We now describe the intermediate isomorphism between the block T on the line E before the Second Roman Empire and the block T on the line E at the end of the Third Roman Empire, i.e., the Gothic war in the 6th c. A.D. Above, we established the isomorphism between the two "Great Triumvirates", viz., Sulla, Pompey and Julius Caesar in 82–45 B.C. at the start of the Second Roman Empire, and Aurelian, Diocletian and

Constantius I Chlorus in 270–306 A.D. at the start of the Third Roman Empire.

We now give a brief description of the "placement" of the isomorphisms:

Pompey	on	Justinian
Julius Caesar	on	Belisarius
Sulla and Cicero	on	Narses (and Belisarius)

which once again stresses the very important role played by the "Gothic = Trojan = Tarquinian" war (= GTR-war) in the establishment of the global chronology of the ancient and medieval world. We emphasise that, considering the parallel, we do not at all assert that one of the terms of the pair is the original, exhibiting the "original" below. It will be (at least, in its basic characteristics) the Italian war in the 13th c. A.D. and the fall of Constantinople in 1204 A.D.

2. Four statistical duplicates: the Gothic war in the 6th c. A.D. = the Roman war (Julius Caesar) in the 1st c. B.C. = the Trojan war in the 13th c. B.C. and = the Tarquinian war in the 6th c. B.C.

a. Gothic–Roman version of 6th c. A.D.	b. Roman version. Beginning of Second Empire	c. Trojan version. Greco-Phrygian version	d. Tarquins' version. Livy. End of regal Rome
1a. Belisarius, famous army commander of Roman and Eastern Roman Empire	1b. Julius Caesar, famous Roman army commander	1c. Achilles, famous Greek (Eastern Roman Empire?) army commander	1d. Valerius, famous Roman army commander
2a. Belisarius, army commander No.1 in Gothic–Roman war	2b. Julius Caesar, army commander No.1 in civil (and external) war at beginning of Second Empire	2c. Achilles, army commander No.1 in Trojan war	2d. Valerius, army commander No.1 in Tarquinian war
3a. Name: "Belisarius" (=BLSR)	3b. Name: "Julius Caesar" (=LSCSR)	3c. Name: "Achilles" (=CHLLS), Ulysses (=LSS or LLS); see above	3d. Name: "Valerius" (=VLR), "son" of Volusius (=VLS), i.e., VLSR

The explicit phonetic parallel between "Belisarius" and "Julius Caesar" is manifest. Earlier, we have already seen that Valerius (or Volusius) = Belisarius, whereas "Achilles" also contains LS. Now, some words about the analogy between Julius Caesar and Belisarius. As a matter of fact, the majority of the Latin inscriptions were made so that U was written as V (see, e.g., [132], p. 32); therefore, foreigners could as well have read "Jvlius Caesar", i.e., "Belisarius". Besides, "caesar" is close to the Slavonic "tsar" (= TSR) and then "Vliuscaesar" could have been read by foreigners as "Veliuscar", which is close to "Belisarius". It is possible that "Belisarius" is a slightly distorted Slavonic version of "great king" (*veliky tsar'*). Also: Ulysses = VLSS.

4a. Belisarius and Narses are two heroes of Gothic war, forming one "synthetic" army commander, with Narses being "end" of Belisarius (for their identification, see above)	4b. Julius Caesar, Cicero and Sulla are three heroes of civil war (not to be confused with "Great Triumvirate": Julius Caesar, Sulla and Pompey)	4c. Achilles and Ulysses are two heroes of TR-war, forming one "synthetic" army commander, with Ulysses ending Achilles' cause (see for their identification above)	4d. Valerius and Lartius are two heroes of Tarquinian war, earlier placed on Belisarius and Narses. According to Livy, they formally "turned into" three people, viz., Valerius, Lartius and Coriolanus Marcius
5a. Two heroes: Belisarius and Narses	5b. —	5c. Two heroes: Achilles and Ulysses	5d. —
6a. —	6b. Three heroes: Julius Caesar, Cicero and Sulla	6c. —	6d. Three heroes: Valerius, Lartius and Marcius
7a. Name: "Narses" (=NRSS)	7b. Name: "Cicero" (=CCR) is just "Narses" read backwards, viz., RSS. We have stressed this possible confusion above: e.g., Arabs and Jews read from right to left, which turns Narses into Cicero	7c. Narses' analogue was Odysseus= Ulysses=Ureksis (see above)	7d. Name: "Lartius =Marcius" analogous to Narses
8a. —	8b. Name: "Sulla" (=SLL) is different from Ulysses (=LLS) only when read backwards as in Narses = Cicero's case	8c. Name Ulysses (=LLS) coinciding with Sulla (=SLL), if read backwards	8d. —

It is probable that, in the times of Plutarch, the relation of Sulla (= SLL) to Belisarius = Valerius = Caesar had not yet been completely lost. At any rate, Plutarch made Sulla "marry" Valeria at the end of Sulla's life ([268*], V. 2, p. 147). The name "Valeria" is almost identical to "Valerius-Belisarius" (cf. Aurelia, Caesar's mother). All phonetic analogies from which we have begun studying the isomorphism only play the role of prompting hints. We now come around to more essential facts. For the reader, new is the second column in discussing the events at the beginning of the Second Empire, whereas the remaining three have been linked by the isomorphisms earlier.

3. The "principal king": Justinian = Pompey = Agamemnon = Tarquinius the Proud

9a. "Principal king" of war was Eastern Roman Empire's great (Greek) ruler Justinian	9b. "Principal king" was Roman emperor Pompey Magnus [268], ([268*], V. 2, p. 338, No. 7)	9c. "Principal king" of war was Agamemnon, (Eastern Roman Empire's ?) Greek ruler	9d. "Principal king" of war was Tarquinius the Proud, Roman king
10a. —	10b. Name: "Pompey Magnus"	10c. Name: "Agamemnon", which is somewhat similar to "Pompey Magnus"	10d. —
11a. —	11b. Pompey Magnus older than Julius Caesar ([268*], pp.539, 543)	11c. Agamemnon older than Achilles (Julius Caesar's analogue)	11d. Tarquinius the Proud, probably older than Valerius [174]
12a. Belisarius subordinate to Justinian at beginning of war, but then allegedly aspired to regal power in Italy (see above)	12b. At start of his career, Julius Caesar subordinate to Pompey Magnus, who occupied all higher military posts, but then pushed Pompey aside, and eventually defeated him (*ibid.*)	12c. Achilles was subordinate to Agamemnon ("principal king") but then aspired to regal power, and end of war with Troy (cf. "Achilles' "betrayal" above)	12d. Valerius first subordinate to Tarquinius the Proud (as Roman king), but then overthrew him, and took part in war against Tarquinius (*ibid.*)
13a. Originally friendly relations between Belisarius and Justinian	13b. Originally friendly relations between Julius Caesar and Pompey Magnus (*ibid.*)	13c. Originally friendly relations between Achilles and Agamemnon (see above)	13d. Originally non-inimical relations between Valerius and Tarquinius the Proud

14a. Subsequently inimical relations between them	14b. Subsequently inimical relations between them, ending in war (*ibid.*)	14c. Subsequently inimical relations between them, ending in quarrel, rupture and Achilles' "house arrest"	14d. Subsequently inimical relations between them, ending in war (see above)
15a. —	15b. Crassus second-most important king in civil war	15c. Menelaus second-most important king in TR-war	15d. Tarquinius Collatinus second-most important king in Tarquinian war
16a. —	16b. Triumvirate: Pompey Magnus, Crassus and Julius Caesar	16c. Triumvirate: Agamemnon, Menelaus and Achilles	16d. Three figures: Tarquinius the Proud, Tarquinius Collatinus and Valerius (not forming Triumvirate)

To 16b: Pompey and Caesar were accompanied by Crassus, all forming the so-called First Triumvirate. The most important position was occupied by Pompey Magnus (as well as Agamemnon), the leading army commander was Julius Caesar (as well as Achilles), whereas Crassus, being not a professional military specialist but just a rich Roman, joined the two former military men (as well as Menelaus; cf. TR-version). The ranks are the same both in the Roman version referring to the 1st c. B.C. and the TR-version [268]. Note that the second column describing the Roman version of the 1st B.C. is mainly known from Plutarch's account, whereas the third is the Greek TR-war variant; therefore, the parallel between the second and third columns here and the absence of an isomorphism between the first and fourth (Roman–Eastern Roman) columns is not surprising. The Tarquins' version includes all three figures, Pompey's, Crassus' and Caesar's analogues; however, according to Livy, they do not form a Triumvirate. In the following, both "Greek" columns (according to the treatment) will be linked by a stronger parallel than the one linking the second with the remaining ones. We have already discussed the "legend of a woman" in the GTR-war. It turns out that the same legend is also present in the second column. Indeed,

4. The "legend of a woman"

17a. "Legend of woman", its principal heroine being Amalasuntha (Julia Maesa)	17b. "Legend of woman", its principal heroine being Pompeia (and Julia near her)	17c. "Legend of woman", its principal heroine being Helen	17d. "Legend of woman", its principal heroine being Lucretia (Tullia)

To 17b: When the relations of Julius Caesar with Pompey and Crassus were still outwardly good, an unpleasant incident occurred in Caesar's household. There was a certain man from the ancient nobility, known for his riches, but who was also among the first ranks of well-known libertines in his outrage and impudence. He fell in love with Pompeia, Caesar's wife, and enjoyed her favours reciprocally. Caesar's mother Aurelia made the lovers' meetings difficult and dangerous with her constant surveillance of her daughter-in-law [268]. Each year, the Romans celebrated the women's holiday of the "kind" goddess, where only women were allowed. All men were removed from Caesar's home, and the festivities began. Claudius ("Pompeia's lover") secretly penetrated the house, hoping to meet with her, but was discovered by Aurelia's servant and banished from the house in shame (*ibid.*). The next day, the rumour circulated through all of Rome that Claudius had offended the Gods, and was guilty also towards the city and Gods. One of the tribunes publicly charged Claudius with disgrace, and the most influential senators were against him (*ibid.*). Caesar divorced Pompeia. Claudius was soon killed in a fight on the Appian Way in 52 B.C. (*ibid.*).

We now supply a brief analysis.

18a. Offence against this woman started off war (Amalasuntha's arrest and her exile to "faraway" island)	18b. Offence (attempt to arrange for lovers' meeting during holy rituals) before war [268]. Sexual aspect of event stressed	18c. Offence against this woman (taking Helen to Troy against her will) started off war. Sexual aspect of event stressed	18d. Offence (Lucretia's rape) against this woman started off war. Sexual aspect of event stressed
19a. Amalasuntha (=Julia Maesa) queen of Goths (=TRKVN= Tarquins)	19b. Pompeia was relative of "principal king" Pompey (*ibid.*). Julia, Julius Caesar's daughter, and then Pompey' wife (*ibid.*)	19c. Helen was wife of one of two "principal kings", Menelaus, and then became wife of Trojan (=TRKVN) Paris (=TRS); see above	19d. Lucretia was wife of "principal king" Tarquinius Collatinus, whereas Tullia was wife of "principal king" Tarquinius (=TRQN) the Proud ([174], see above)
20a. Amalasuntha, Goths' (=TRKVN) leader ("wife"?) coincident with Julia Maesa. Name: "Julia"	20b. Pompeia and Julia, wives of "principal king" and army commander No.1. Name: "Julia"	20c. Name "Helen" is not associated with "Julia"	20d. Name "Tullia" is very close to "Julia"

21a. Belisarius, Julius Caesar's analogue	21b. Aurelia, Julius Caesar's mother. Name: "Aurelia"	21c. —	21d. Valerius, Julius Caesar's analogue
22a. —	22b. Aurelia was directly related to Pompeia's "offence" (see above)	22c. —	22d. Valerius was directly related to Lucretia's "offence"
23a. Death of Julia Maesa and duplicate Amalasuntha. Both were killed (see above)	23b. Death of Julia. Although the death was accidental, no information on murder is available	23c. Helen's death (see above). She was killed	23d. Lucretia's (= Tullia's) death (*ibid.*)
24a. Beginning of great war following death of Julia Maesa (Amalasuntha). Chronicles associated beginning of war just with death of this woman	24b. Plutarch attributes war to this death	24c. — (Although war broke out just because of Helen, she died only after war)	24d. Start of large-scale war after Lucretia's (= Tullia's) death. According to Livy, death of just this woman started war (*ibid.*; see above)

To 24b: Both Pompey and Caesar were overcome by great mourning after Julia's death (cf. Tarquins' version), while their friends were embarrassed, because the ties of relations broke down, which still supported the peace and consent in the state suffering from discord. In spite of the tribunes' opposition, Julia's body was taken to the Campus Martius [268]. After Julia's death, the relations between Pompey and Julius Caesar worsened sharply, and they "rose against each other" ([268*], V. 2, p. 458, XIII).

25a. Amalasuntha's (=Julia Maesa) "offender" Theodahad was soon killed in action	25b. Claudius, Pompeia's (= Julia's?) "offender", was soon killed in action [268]	25c. Paris, Helen's "offender", was soon killed at end of war (see above)	25d. Lucretia's (= Tullia's?) "offender" Sextus Tarquinius was soon killed in action

26a. Goths' banishment from Rome at start of war, principal initiator being Belisarius (see above)	26b. Pompey's banishment from Rome at start of war, principal initiator being Julius Caesar	26c. —	26d. Tarquins' banishment from Rome when war started, one of two principal initiators being Valerius
27a. Belisarius (and his general John, Brutus' analogue) commanded attack on Goths (see above)	27b. Julius Caesar (and his army commander Brutus) commanded attack on Pompey (*ibid.*; see above)	27c. Achilles (and Patroclus=BTR; see above) commanded attack on Trojans (see above)	27d. Valerius and Brutus commanded attack (uprise) on Tarquins (see above)
28a. As soon as war started, Belisarius was outside Rome, and Goths were led by Theodahad in Rome (see above)	28b. When war started, Julius Caesar was outside Rome, and Pompey in Rome (*ibid.*)	28c. Achilles was outside Troy at start of war, and Trojans (= TRKVN) were in Troy	28d. For Rome, situation was different, viz., Tarquinius the Proud was outside Rome and Valerius in Rome [174]
29a. Belisarius marched on Rome and banished Goths	29b. Julius Caesar marched on Rome, and banished Pompey and his partisans	29c. —	29d. Valerius (and Brutus) banished Tarquins from Rome (*ibid.*). Tarquin marched on Rome

To 28b–29b: According to Plutarch, Caesar had long decided to overthrow Pompey [268]. War broke out: Caesar marched on Rome, crossed the Rubicon and took Ariminum, after which the gates were, figuratively speaking, opened for the war in all the lands and seas, and all the Roman laws (cf. Livy's version) were erased along with the frontier of the province; it seemed that not only men and women were wandering in dismay across Italy, but the towns themselves had risen from their seats and run. In Rome itself, the authorities could not support the order by either persuasion or force. Opposing passions and violent agitation reigned everywhere (*ibid.*). A revolt broke out in Rome, and Pompey left the city. Believing that the war would spread across the whole country, Pompey declared publicly that there was an uprise and no power in Rome, and then left it, ordering the senators and everybody who preferred the fatherland and freedom to tyranny to follow him. The

consuls fled, without committing even the usual sacrifices; most of the senators also hurriedly left. Losing out of fear the power to reason, they let themselves be taken by this stream of general fleeing on the eve of a great storm. No matter how much pain the migration caused, the Romans regarded the land from which they had been banished as their home, and left Rome out of love for Pompey (*ibid.*). This event is precisely analogous to the Tarquins' banishment from Rome by Valerius and that of the Goths by Belisarius. In the TR-version, the kings' "banishment" is referred to the end of the war after Troy had fallen. ([268], "Caesar", XXIX, XXXIII–XXXIV).

30a. Belisarius triumphantly entered Rome left by Goths (see above). He was greeted as liberator. He was Roman army commander in Gothic war	30b. Julius Caesar entered Rome left by Pompey and his partisans. He was appointed dictator, receiving extraordinary powers in this war [268]	30c. Achilles was Greek army commander in TR-war	30d. City liberator, Brutus, Valerius' comrade-in-arms, was gladly received in camp, whereas king's children were banished ([174], II, 60)

The ancient authors themselves associated Pompey Magnus with Agamemnon (placing one on the other automatically arose according to our theory above). Plutarch stated that everybody had charged Pompey with cowardice, and mockingly called him Agamemnon and the King of Kings. According to the Trojan version, Agamemnon had, in fact, been called the King of Kings, heading the Greek hero kings. Unwilling to stop the absolute rule, he allegedly was proud of so many subordinate army commanders asking for his orders in his tent (cf. Agamemnon, [268]).

5. Marcius Junius Brutus and Patroclus

31a. John (= MRC) son of Celeus (= PRCT), liberator of Italy, pontifex, general, Brutus' analogue under Belisarius (see above)	31b. Marcius Junius Brutus, liberator of Roman nation from tyranny [268] (see also Decimus Junius Brutus Albinus)	31c. Patroclus (= BRT) was Helen's liberator, who defended her "honour"	31d. Junius Brutus was liberator of Roman people from tyranny, son of Marcus ([174])

We now compare the second and fourth columns, i.e., the events of the 1st c. B.C. and the Tarquinian war according to Livy.

32b. Decimus Junius Brutus Albinus and Marcus Junius Brutus [268] famous hero of civil war in 1st c. B.C., liberator of Rome from tyrant. Plutarch mixed up these two "Brutuses"; they are, probably, reflections of one figure. Indeed, (1) Name: "Decimus Junius Brutus Albinus" [268] — (1) Name: "Marcus Junius Brutus" [268] (2) Decimus Junius Brutus Albinus served under Julius Caesar in Gaul (*ibid.*) — (2) Marcius Junius Brutus was at first a companion-in-arms of Julius Caesar. It is very probable that he participated in wars together with Julius Caesar (3) Decimus Junius Brutus Albinus participated in anti-Caesar conspiracy (*ibid.*) — (3) Marcius Junius Brutus participated in anti-Caesar conspiracy [268]	32d. Lucius Junius, son of Marcus, Brutus was famous hero of Tarquins' war, who liberated Rome from tyrant. His name is very close to that of Brutus in left column
33b. Marcius Junius Brutus was well-known for liberating Rome from tyrant by having Julius Caesar killed along with other conspirators (official wording according to Plutarch)	33d. (Lucius), son of Marcus, Junius Brutus was well-known for having banished Tarquins from Rome (together with Valerius), and for having killed king's son Aruns, enemy of Rome
34b. Marcus Junius Brutus was then killed. His father, also Brutus (!), was killed by Pompey (*ibid.*). "Principal king" Pompey was earlier placed by us on Tarquins	34d. (Lucius), son of Marcus, Junius Brutus was killed in battle with Tarquins, by Aruns (see left column *ibid.*)

The ancient authors themselves (without our prompting) draw analogies between Marcus Junius Brutus from the 1st c. B.C. and Lucius, son of Marcus, Junius Brutus, hero of the Tarquinian war. Moreover, these two "Brutuses" are probably the unique pair of popular Brutuses in the history of Rome. According to Plutarch, Marcus Brutus' forefather, meaning Marcus Junius Brutus, contemporary of Julius Caesar, was Junius Brutus, hero of the Tarquinian war, whose bronze statue with a sword in the hand was erected on the Capitoline Hill among the statues of kings, for Rome owed him most of all for the fall of the Tarquins [268]. Marcus Junius Brutus had long been called to decisive actions against Julius Ceasar's tyranny. The ancient Brutus' statue to the hero of the Tarquinian war, who had overthrown the kings' power, was criss-crossed with inscriptions such as "O, if you were with us today!" or "If Brutus were alive!". The judges' chair, where Brutus performed his duties as a praetor, once turned out to be showered with tables with the words "Are you sleeping, Brutus?" and "You are not the real Brutus!". The blame for this malice against the dictator (Plutarch meant Julius Caesar, and Livy meant Tarquin the Proud) lay with his flatterers inventing for him still new and hated honours; they reckoned that the people would proclaim Caesar king, but what happened was quite the opposite (*ibid.*).

All the juxtapositions by Plutarch, who had already taken the two Brutuses to be different persons, but was forced to constantly place one on the other, are stipulated by traditional chronology that forcefully separates the same legend of Brutus into two copies, one of which turned out to have lived in the 1st c. B.C., and the other in the 6th c. B.C., during the war with the Tarquins due to which Junius Brutus appeared, son of Marcus and liberator of Rome from the Tarquins tyranny, and also Junius Brutus Marcus, liberator of Rome from Julius Caesar' tyranny. We now come back to the four columns describing the parallel ([268], "Brutus", I, IX).

35a. John's death (possible "continuation" of John MRC, son of PRCT) in action (see above)	35b. Marcus Junius Brutus' death in action and his post-mortem fame [268]	35c. Patroclus' (= BRT) death in action and his post-mortem fame (see above)	35d. Brutus Junius' (son of Marcus) death in action, and his post-mortem fame (see above)
36a. Civil war	36b. Civil war	36c. —	36d. Civil war
37a. External war	37b. External war	37c. External war	37d. External war
38a. Principal adversary: Goths	38b. Principal adversary: Pompey's army	38c. Principal adversary: Trojans	38d. Principal adversary: Tarquins
39a. Second-most important enemy: Franks (= PRS) and also Persians (= PRS)	39b. Second-most important adversary: Gauls (= PRS) and also Persians (= PRS)	39c. Second-most important enemy PRS (= Paris); see above	39d. Second-most important enemy Porsena (= PRS)
40a. Both enemies (Goths and PRS) were defeated	40b. Both adversaries (Pompey's army and PRS) were defeated	40c. Both adversaries (Trojans and PRS) were defeated	40d. Both adversaries (Tarquins and PRS) were defeated

41a. Siege of Naples, well-known fortress. Gothic war	41b. Alesia, well-known fortress. War with Gauls. Siege of Alesia	41c. Siege of Troy, well-known fortress. Trojan war	41d. —
42a. Belisarius' adversaries: Goths, people from "Northern land" (= TRKVN); see above	42b. Julius Caesar's adversaries: "Gauls". Revolt started in land of Arventi and Carnutes [268]. It is possible that RVNT and CRNT are variants of TRKVN	42c. Achilles' adversaries: Trojans (TRKVN)	42d. Valerius' adversaries: Tarquins (TRKVN)

To 42b: Julius Caesar's Gallic war was, according to Plutarch, the greatest and most dangerous war ever waged in Gaul [268]. Its description is one of the central moments in Julius Caesar's "biography" recorded by Plutarch. The culmination was the siege of the strong fortress Alesia. Most of the surviving barbarians hid in the city of Alesia along with their king. During the siege of the city, which seemed impregnable due to its high walls and numerous defenders, Caesar subjected himself to very serious danger, for the best of all the Gauls' tribes arrived at Alesia, whereas the number of those who had locked themselves inside was no less than 170,000 (*ibid.*). The battle of Alesia enjoys well-deserved fame, since no other war gives an example of so many brave and artful deeds [268]. It is possible that the term "Alesia" is a distortion of "Achilles", Julius Caesar's = Belisarius' analogue. This well-known siege and the taking of Alesia were included in the military history textbooks as an example of the ancients' military art (e.g., [278], V. 1), ([268], "Caesar", XXV–XXVII).

6. Vercingetorix and Hector

43a. Events occurred in Italy	43b. Events occurred in Italy [268]	43c. Events occurred near Friesland (= Phrygia); see geographical location of TR-war in Italy above	43d. Events occurred in Italy
44a. Gothic king Vitiges was close in time to Naples' siege (see above)	44b. Vercingetorix, king and Alesia's defence commander, who led RVNT and CRNT	44c. King Hector commanded Troy's defence, and headed TRKVN	44d. Aruns, Hector's analogue (see above)

The explicit phonetic parallel of Vitigeshector and Vercingetorix is manifest, with the latter name probably arising from the fusion of "Vitiges" and "Hector".

45a. Taking Vitiges prisoner, and his death (see details above), winner being Belisarius	45b. Vercingetorix's death after his capture, winner being Julius Caesar	45c. Hector's death and "capturing" his body by Achilles	45d. Death of Aruns in action (see above)

To 45b: Vercingetorix, the commander for the entire war, came out of the gates. He jumped off his horse, stripped off all the armour and, sitting at Caesar' feet, remained there until he was taken in custody to be preserved for the triumph [268]. Caesar did not succeed in obtaining the triumph until six years later. All these years, Vercingetorix was kept in prison, and was killed immediately after the triumph ([268*], V. 2, p. 544).

46a. Naples' siege ended with its fall	46b. Alesia's siege ended with its fall [268]	46c. Troy's siege ended with its fall	46d. Tarquins' defeat (siege was not decribed)
47a. Belisarius' trick leading to Naples' fall (see above)	47b. Julius Caesar's trick leading to Alesia's fall (see below)	47c. Non-trivial trick of Ulysses (= Achilles; see above), leading to Troy's fall	47d. —
48a. Use of enormous building (aqueduct) near Naples' walls	48b. Use of enormous building (double wall) near Alesia's walls	48c. Use of enormous building near Troy's walls ("grey similarity of horse")	48d. —

To 47b–48b: Pressed between such great forces (Gauls = PRS and RVNT = CRNT), Caesar had to erect two walls, one against the city, and the other against the invading Gauls, for it was clear that, if the enemy had united, Romans would have been immediately defeated (how simply the ancient army commanders built powerful walls around cities!—A. F.). But it is still more surprising that Caesar kept it secret (?) after a battle with numerous armies outside the city's walls and its defeat, not only from the besieged, but also from the Romans who guarded the wall facing the city. This immense force was destroyed and scattered instantaneously, and most of the barbarians perished. Finally, Alesia also surrendered [268]. Caesar hardly built "double walls"; most probably, this reflects the same trick of the use of an aqueduct constructed even before the war (and not just several days before). It should be noted that aqueducts were built as enormous chutes running between two vertical

walls on supports covered with roofs, which made them into tubes. It is possible that Caesar's "double wall" was an aqueduct chute ([268], "Caesar", XXVII).

49a. In Gothic war, Belisarius opposed Gothic kingdom created by Odoacer and Theodoric	49b. In Gallic war, Julius Caesar also opposed Germans, among whom Plutarch especially distinguished tribe of Tencteri (probably, variant of TRQN) [268]	49c. In TR-war, Achilles declared war on TRKVN and Friesians (= Phrygians) placed just on Germans (see above)	49d. In war with Tarquins, Valerius opposed TRQN
50a. Gothic war lasted for 16 or 18 years in 535 or 536 (taking Rome)–552 or 553 (defeat of Goths) A.D.	50b. Gallic war lasted almost a decade (*ibid.*)	50c. Trojan war lasted 9.5 years (or 9 years and 7 months, or 10 years, according to other versions); see above	50d. Tarquinian war lasted 12 years according to Livy (see above)
51a. "Principal king" Justinian did not personally take part in Belisarius' Gothic war	51b. "Principal king" Pompey did not personally take part in Julius Caesar's Gallic war (*ibid.*)	51c. Agamemnon's less active participation in battles than Achilles'	51d. Participation of Tarquin the Proud in battles [174]
52a. Like other authors, Procopius described Gothic war as extremely fierce and large-scale	52b. According to Plutarch's description, Caesar stormed more than 800 towns, conquered 300 peoples, fought with 3,000,000 people, of whom 1,000,000 (?) were killed in battles (*ibid.*)	52c. "Trojan cycle" describes TR-war as extremely fierce, with numerous battles (see above)	52d. Livy's description shows Tarquinian war as one of biggest events in Roman history for many hundreds of years (*ibid.*)

53a. Totila's and Tejas' death after their defeat in "battle of titans" at end of Gothic war	53b. Pompey's death after defeat in battle. Attempting to escape, he was soon killed (*ibid.*)	53c. Death of all principal Trojan kings after its fall. Tragic death of Agamemnon after his return	53d. Death of Tarquin the Proud after defeat by Romans; he attempted to flee, but was soon killed in Cumae [174]
54a. Beheading of Tejas as special and important war episode	54b. Beheading of Pompey as special and important war episode (*ibid.*)	54c. Beheading of Troilus (Totila's +Tejas' analogue) as special and important war episode	54d. —

"Beheading" episode is unique, as far as I could gather from available primary sources, for the whole history of the war in all three versions.

55a. Gothic king Theodatus' participation (see above)	55b. Theodahad's participation (*ibid.*)	55c. King Teutrat's (Theodahad's analogue) participation (see above)	55d. —
56a. Theodatus was killed	56b. Theodahad was killed (*ibid.*)	56c. Teutrat was killed (see above)	56d. —
57a. Belisarius killed (executed?) Vitiges (as in legend of Belisarius' and Vitiges' single combat, according to which Vitiges perished); Belisarius is placed in time near Totila's (Tejas') death (see above). Totila (+Teja) was Belisarius' enemy	57b. Achilla, commander of group sent to kill Pompey. Belisarius =Achilles' analogue (*ibid.*). Pompey was Julius Caesar's enemy	57c. Achilles killed Troilus (Totila's+Teja's analogue due to isomorphism between "Gothic" and Trojan versions); see above	57d. —

7. Julius Caesar and Achilles

58a. —	58b. Achilla was soon killed [268]	58c. Achilles was soon killed (see above)	58d. —
59a. Belisarius was charged with hunger for regal power and betrayal (see above)	59b. Julius Caesar was charged with hunger for regal power and betrayal [268]	59c. Achilles was charged with hunger for regal power and betrayal (see above)	59d. Valerius was charged with hunger for regal power and betrayal (see above)

To 59b: Plutarch: Caesar's hunger for regal power aroused sheer hatred for him and led to attempts on his life. Caesar's principal blame was just in that for the people ... Those who were talking Caesar into accepting the power circulated the rumour among the people ... [268]. Allegedly, against his own will, Caesar turned out to be very close to "regal power" (*ibid.*). Like Belisarius and Valerius = Volusius, Caesar strove to demonstrate the falseness of all these charges, and publicly rejected the title of king, which was given to him by his partisans (*ibid.*). However, this did not calm the Romans, and the displeasure with him grew ([268*], V. 2, pp. 485–486).

60a. Allegedly promising to grab Italian crown, Belisarius rejected charges (see above)	60b. Offered crown by many Romans, Julius Caesar publicly rejected charges [268]	60c. —	60d. Valerius publicly rejected charges (see above)
61a. Belisarius withdrew from war and was called away from Italy (see above)	61b. Events around Julius Caesar and his charges with "betrayal" occurred in peace time (*ibid.*)	61c. Achilles' removal from military action (see above)	61d. Valerius' removal from consulship and military action (see above)
62a. —	62b. Conspiracy against Caesar	62c. Conspiracy against Achilles	62d. —
63a. Belisarius' disgrace, his arrest, trial, confiscation of possessions and subsequent death [268]	63b. Cowardly murder of Julius Caesar, who was stabbed with sword in back of head (*ibid.*)	63c. Achilles' treacherous murder, who was stabbed in back (see above)	63d. Valerius' possible disfavour, since he died in poverty (see above)

64a. —	64b. Plutarch's declaration that Livy had described Julius Caesar's life. He referred to *History of Rome,* which did not survive (according to historians (*ibid.*))	64c. —	64d. Livy's description of Valerius' (Julius Caesar's analogue) life (cf. previous identifications). This book of Livy's *History of Rome* did survive. Thus, another proof of closeness of "Valerius" and "Julius Caesar" is available
65a. —	65b. Legend of destruction of Julius Caesar's home (frontispiece) (*ibid.*)	65c. —	65d. Legend of destruction of Valerius' home ([174]; (see also below)

To 65d: Livy asserted that Valerius' being charged with striving for regal power had been based on his construction of a house on a hill, turning it into a fortress. Allegedly for the purpose of stopping the rumour, Valerius ordered the demolition of his house and its transfer to the valley [174].

66a. Belisarius' waged Persian war [109], [44]. He also made war against Goths (cf. placing Goths on TRKVN)	66b. Julius Caesar's Persian war against Pharnaces (due to assimilation of Ph and Th, obviously FRNC = TRKN, which is very close to TRKVN). We have: Pharnaces = FRNC, which is identical with "Franks" (=TRNK)	66c. Achilles' war against PRS and Trojans (=TRKVN); (see above)	66d. Valerius' war against Porsena (=PRS) and Tarquins (=TRQN)
67a. Belisarius' war with Vandals in Africa	67b. Julius Caesar's war in Africa (*ibid.*)	67c. —	67d. —

68a. Narses: Belisarius' "continuation" (see above)	68b. Cicero (= RCC in Hebrew reading): Julius Caesar's "continuation"	68c. Ulysses (= Odysseus): Achilles' "continuation"	68d. Lartius (Marcius Coriolanus): Valerius' "continuation"
69a. Narses: Goths' conqueror (see above). He completed Belisarius' cause	69b. Cicero: legate and legion's commander in Julius Caesar's army (*ibid.*)	69c. Ulysses: Trojans' conqueror, who completed Achilles' cause	69d. Lartius: Tarquins' conqueror, who completed Valerius' cause
70a. —	70b. Names "Caesar" and "Cicero" are possibly close	70c. Names "Achilles" and "Ulysses" are close	70d. "Lartius" is close to "Narses"

To 69b: During Caesar's Gallic war (according to Plutarch) Cicero commanded a legion [268]. The historians regarded this Cicero as Marcus Tullius Cicero's "brother", but Plutarch himself said nothing about him, only mentioning a "Cicero". The orator Cicero, i.e., the famous Cicero, who was not a professional military man (like Narses, who was a eunuch in the court), but was Julius Caesar's favourite and repeatedly took part in military action (e.g., during his reign in Cilicia, an army of 1,200 men and 2,600 cavalrymen was under his command) (*ibid.*). According to Plutarch, Cicero made war, and the warriors rewarded him with the title of emperor (*ibid.*). Cicero was a consul and did not take part in the conspiracy against Caesar (*ibid.*). After Julius Caesar's death, a movement arose in Rome which lifted Cicero (succeeding Julius Caesar) to the crest of the political wave. Cicero's name was often heard and acquired a special influence at that time, being the symbol of the republic ([258], p. 174.). Thus, Cicero "extended" Julius Caesar's cause, Narses extended Belisarius', and Ulysses extended Achilles' cause (see above) ([268], "Caesar", XXIV; "Cicero", XXXVI).

71a. Narses and Belisarius allegedly were friends [109]. Narses did not take part in Belisarius' arrest and persecution	71b. Cicero and Julius Caesar were on friendly terms [268]. Cicero did not take part in anti-Caesar conspiracy	71c. Ulysses and Achilles were on friendly terms. Ulysses did not take part in Trojans' conspiracy against Achilles	71d. Lartius and Valerius were not enemies (at any rate, Livy said nothing about it) [174]
72a. Narses was eunuch (*orbator* in Latin, sterile)	72b. Cicero: orator (*orator* in Latin)	72c. Achilles (= Ulysses): "eunuch" (*orbator* in Latin) (for Achilles' "eunuchism", see above)	72d. —

The terms "orbator" and "orator" are extremely close. Therefore, some authors (e.g., Procopius) described Narses' (= NRSS) "sterility", whereas others (e.g., Plutarch) speak of Cicero's (= CCR) "oratorial qualities". It is pertinent to refer to the Latin here, since we analyze Roman history. This is the same mechanism which turned "aqueduct" into "horse". A foreign chronicler would understand a little-known term differently, and, giving it a new meaning due to phonetic proximity, would colour the new word with his own special "tints".

73a. Narses: sole eunuch mentioned in Gothic war history	73b. Cicero and Julius Caesar: sole popular orators especially mentioned in war history of 1st c. B.C., Julius Caesar being "second best" orator after Cicero (see below)	73c. Achilles: sole "eunuch" mentioned in Trojan war's history	73d. —

To 73b: That Cicero (= CCR) is Caesar's (= CSR) "continuation" can also be seen from the fact of Plutarch's special mention of these two historical figures as of being extremely good at oratory. Both Cicero and Caesar learned this art at the same school of Apollonius' [268]. Plutarch counts no outstanding orators among other participants in the war of the 1st c. B.C ([268], "Caesar", III).

74a. Banishment and tormented Narses' wandering after Gothic war (see above).	74b. Banishment and tormented Cicero's wandering after Gallic war ([258*], p. 56)	74c. Ulysses' wandering after Trojan war (see above)	74d. Banishment and Martius' (Coriolanus') wandering after Tarquinian war

To 74b: Cicero spent one and a half years in exile ([258*], p. 156). His house in Rome was destroyed, the estate sacked, and a considerable part of his possessions confiscated. Under the threat of death, it was forbidden to supply shelter to the exiled if he found himself at a distance of less than 500 miles from Rome ([258*], p. 156).

75a. However, Narses soon returned to Rome in triumph [44]	75b. However, Cicero soon returned to Rome in triumph (see below)	75c. However, Ulysses soon triumphantly returned home	75d. However, Martius (Coriolanus) returned to his native Rome along with army, and threatened city [174]

To 75b: After Cicero's banishment, the situation in Rome changed, and the decision to return him to Rome was adopted by the assembly. In August A.D. 57, Cicero landed in Brundisium, and his return to Rome turned into a triumph. In Rome, he made thanksgiving speeches before the senate and the people ([258*], p. 156, Comm.).

76a. Narses' death occurred under unknown circumstances	76b. Cicero's tragic death while fleeing ([268*], V. 3, p. 189)	76c. Ulysses' death surrounded by obscure circumstances	76d. Martius (Coriolanus') tragic death (when he fled) (*ibid.*)

We have exhausted all the basic legends in all four versions which turned out to be linked by the isomorphism. We now compare certain remaining and auxiliary legends outside the basic story, and annul column *c* (isomorphism ending with it).

8. Anthony and Antonina

77a. Antonina: Belisarius' wife and one of basic figures in Gothic war [109]	77b. Anthony: closest associate of Julius Caesar and one of basic figures in war of 1st c. B.C.

The names "Anthony" and "Antonina" are practically identical.

78a. Antonina constantly accompanied Belisarius during Gothic war. She was powerful woman, and allegedly strongly influenced her "husband" Belisarius [109]	78b. Anthony constantly accompanied Julius Caesar during his war with Pompey, Gothic war's analogue (see above) [268]

To 78: The difference between them is in "Antonina" being a woman (according to the chronicles of the 6th c. A.D.), and "Anthony" a man (according to Plutarch). At the same time, Plutarch (without our prompting) compared the Trojan war with that in the 1st c. B.C., and associated the "man" Anthony with the "woman" Helen, indicating that Cicero wrote in his *Philippicae* that the Trojan war had been waged by Helen, and the intestine war by Anthony [268].

79a. Antonina: prostitute in Eastern Roman Empire (second-most known after Theodora, Justinian's wife) [44], [109]	79b. Anthony: well-known Roman profligate, of whom allegedly legends were made (see below)

To 79b: Young Anthony was extremely handsome. Curiosity made Anthony addicted to drink, promiscuity and monstrous prodigality. Plutarch devoted many pages to the description of Anthony's "entertainment". The whole way of Anthony's life seemed outrageous to "good citizens": They loathed his disgusting evils, horrible spending and interminable debauchery with prostitutes (*ibid.*). All of Anthony's characteristics are unique, and no other figure taking part in the war of the 1st c. B.C. was characterized by Plutarch likewise (*ibid.*). Therefore, superimposing

the "promiscuous Anthony" on the "promiscuous Antonina" is to make the two unique descriptions by Plutarch and Procopius coincident. The 6th-c. chronicles called the "prostitute" Antonina a "haetera". We should not consider the term "haetera" to be a unique equivalent of "prostitute", but to possess another meaning: Ancient authors called the selected cavalry this way (*ibid.*). Therefore, "haetera" is also applicable to a man, as "selected horseman" ([268], "Anthony", II, IX).

80a. Haetera Antonina [109]	80b. "Haetera" Anthony who, in fact, commanded selected cavalry in Julius Caesar's army [268] (see below)

To 80b: Anthony was a "haetera", who personally commanded the cavalry corps, and led it in cavalry battles (e.g., in the battle with Octavianus Caesar) [268]. Besides, he commanded Julius Caesar's (i.e., "Belisarius' ") cavalry; in other words, he was "haetera Anthony" commanded by Julius Caesar. It is not surprising that the formula for Procopius could turn into "haetera" Antonina commanded by Belisarius. Plutarch also indicated that the cavalry's commander was the second-most important after the dictator (*ibid.*), speaking of Anthony and Julius Caesar, respectively.

81a. Haetera Antonina: Belisarius' wife [109]	81b. "Haetera" Anthony was married to Julia from House of Caesar [268]

The interchange of the two similar terms "Antonina, 'Julius Caesar's' wife" and Anthony's wife, "Julia from the House of Caesar" is manifest.

82a. Well-known haetera Theodora was "principal king" Justinian's wife (cf. names "Theodora" and "Flora")	82b. Well-known haetera Flora was lover of "principal king" Pompey (Justinian's analogue) for long time [268]
83a. According to Procopius, Theodora was Eastern Roman Empire's ruler. Effigies of her are preserved in New Rome's temples [44]	83b. According to Plutarch, haetera Flora was so famous that temples (?) were decorated with effigies of her, which were also offered Gods (*ibid.*)

To 83b: Most probably, effigies of Flora were placed in the temples because she was the empress Theodora's "double", whose portraits are, in fact, in holy temples [44] (see above).

84a. —	84b. Legend of calling Romans to leave Rome and to look for freedom on hill (see below)	84d. Legend of calling Romans to leave Rome and to look for freedom on hill [174]

Without our prompting, Plutarch reported in his description of the war of the

1st c. B.C. that the call for "freedom on a hill", which had once been heard (uniquely in the whole of Roman history until the 1st c. B.C.!) during the Tarquinian war. Thus, Plutarch associated the event of the 1st c. with that of the 6th c. B.C. In our opinion, this can only mean that Plutarch, without suspecting it himself, actually described the first years of the Roman republic, traditionally related to the 6th c. B.C., and superimposed over the events of the 1st c. B.C. (see the above shifts).

To 84b: Catullus supplied a multitude of arguments against the law, but, since he could not convince anyone in the assembly, he asked the Senate, and repeatedly cried from the orator's tribune that it should look for a hill or rock after the forefathers' example (!), where they would save freedom [268]. As one of the commentaries goes, Plutarch "... hinted at the events of the first years of the Roman republic when the plebeians, infuriated by the unsuccessfull struggle with the patricians, left Rome for the Sacred Mount" (see the Russian edition of Plutarch's *Parallel Lives,* V. 2, p. 536, Comm. 41).

It was not accidental that Catullus had made speeches in the (plebeian) assembly (see above).

85a.	—	85b. Legend of Rape of Sabines	85d. Legend of Rape of Sabines

Without our hinting at that, Plutarch supplied in his description of the war of the 1st c. B.C. the legend of the Rape of the Sabines, speaking of its "repetition" in Caesar's epoch. Recall that Livy placed this legend before the foundation of Rome c. 300 A.D., i.e., at the start of the Third Empire, isomorphic to the Second Empire's beginning. But since part of Livy's *History of Rome,* placed before the start of Regal Rome (= Third Empire), is isomorphic to the GTR-war (see above), Plutarch draws a parallel between the start of the Second Empire, i.e., the war of the 1st c. B.C. and the Tarquinian war in the 6th c. B.C.

To 85b: According to Plutarch, the praetor Antissaeus offered Pompey to marry Antissaeus' daughter. Pompey accepted the offer and concluded a secret agreement with Antissaeus. Recall that the "rape of the Sabines" was also a secret enterprise [174]. However, the deal became known. When Antissaeus announced the verdict, the people cried *thalassio,* heard according to the ancient custom at weddings. Plutarch relates the legend of the Rape of the Sabines without, however, reporting to which time this legend should be assigned. Though he mentioned the words "ancient custom", nothing else tells us that it was related to events that occurred several centuries before the 1st c. B.C. With this, I end the brief outline of the isomorphism linking the war of the 1st c. B.C. to the GTR-war of the 6th c. A.D.

It can be seen from the above analysis that the legend of the Rape of the Sabines is placed at the time of the GTR-war, the important "legend" of a woman being present, describing events related to a woman, and which were the cause of the war. Recall that the Rape of the Sabines, too, caused a war between the Romans and Sabines (*ibid.*). Hence, the Rape of the Sabines is a variant of the "legend of a woman" and part of the legends of the GTR-war, which we discovered above. We will also indicate similar information in our isormorphism diagrams.

8.3. The GTR-war of the 6th c. A.D. and the Nika riot of the 6th c. A.D.

As we see, the GTR-war is an execeptionally important event reflected in many chronicles of different peoples. The above chronicles investigated by us were related, mostly, to events occurring in Italy and around the Italian Rome. However, it is hard to imagine that the same war was in no way considered by Byzantine chronicles describing the reign of Justinian, one of the GTR-war's principal heroes and "principal king" (who did not take part in the battles himself).

It turns out that the GTR-war, in fact, was considered by "purely" Byzantine history as the well-known Nika riot, which took place in 532 A.D., i.e., almost when the GTR-war started in 534–535 A.D. Let me supply the data demonstrating that the legend of the Nika riot is, in most part, isomorphic to the GTR-war in the 6th c. A.D.

The principal documents decribing Justinian's reign in New Rome are the books of Procopius of Caesarea. In one of the "Procopius' " texts ("Procopius's History of His Own Time"), Justinian is represented as a great ruler, and the treatment is in favourable terms, whereas in others (e.g., the *Historia arcana* or "Secret History of Procopius") the same Justinian is described in a totally opposite manner. Traditional history even has a legend of a "two-faced" Procopius, who wrote panegyrics to Justinian in the daytime, and filled the pages of the *Historia arcana* with the description of Justinian's atrocities at night. However, we are not interested here in the problem of these texts' authorship, which was ascribed to "Procopius", since it is immaterial for our analysis. Here is the description of the Nika riot.

The uprise shook the empire in 532 A.D. For a reason which is not very clear, a large-scale uprise broke out in New Rome without any leaders who would, e.g., fight for regal power, which was very strange. The mutiny lasted for a short time (no more than several weeks), and was characterized by its extreme extent; in military confrontations, great military forces took part; it was not just a mutiny, but a large-scale civil war. New Rome was burning. The mutiny was started by two "parties", Venets and Prasins united against Justinian, but not following any "positive" programme. Justinian's army commander Belisarius (!) was ordered to suppress the mutiny, and led into the battle a powerful Gothic under Mund's command garrison together with Roman (Romaic) troops. In fear, Justinian hid in the palace, and did not take part personally in fighting the "mutineers" (in contrast to Belisarius), not storming the palace for some reason, though, according to Procopius, there were no special fortifications around. Belisarius soon managed to lure the rioting crowd into the hippodrome (circus) by a non-trivial trick, and there massacred a lot of them.

The Gothic war in the 6th c. A.D.	The Nika riot in the 6th c. A.D.
1a. Well-known author describing Gothic war was Procopius of Caesarea. His principal work the *Gothic War* from which this war's history is restored	1b. Well-known author describing Nika riot was Procopius of Caesarea, his text being unique primary source from which this mutiny's history is restored [105]

2a. Gothic war took place in mid-6th c. A.D. in 535–553 A.D. (see above)	2b. Nika riot took place in mid-6th c. A.D. in 532 A.D. (*ibid.*)
3a. Gothic war is regarded as one of fiercest wars in histories of Rome and Eastern Roman Empire, and characterized by extremely many victims, destructions, etc. (see above)	3b. Nika riot is regarded as one of fiercest civil wars in history of Eastern Roman Empire (New Rome), characterized by extremely many victims, destructions (almost whole of New Rome was allegedly destroyed) (*ibid.*)
4a. "Principal king" in Gothic war is well-known emperor Justinian (see above)	4b. "Principal king" in Nika riot was well-known emperor Justinian who commanded operations of suppression
5a. Justinian did not personally take part in war and commanded it from afar (see above)	5b. Justinian did not take part in person in suppressing mutiny and commanded war from afar
6a. Justinian was far from action arena, war taking place in Italy around Rome, and Justinian being in New Rome (see above)	6b. Justinian was far from action arena: Though all events allegedly occurred in New Rome, emperor locked himself in *palatium* (palace), mutineers never approached him, and did not even attempt to besiege *palatium* (*ibid.*)
7a. Justinian's principal adversaries in Gothic war in 6th c. A.D. are Goths (= Trojans; see above) and Franks (= Persians; see above). These TRKVN and PRS were two great forces united to fight Justinian	7b. Justinian's principal adversaries in Nika riot in 6th c. A.D. were Venets and Prasins, allegedly two circus (in N. A. Morozov's opinion, church) parties. These are two great principal forces in New Rome, united to fight Justinian
8a. As indicated above in investigation of isomorphism between GTR-war in 6th c. A.D. and TR-war, Trojans who fled from Troy after its fall founded Venice and, therefore, were its first inhabitants. It is possible that they were called Veneti	8b. Venets were one of principal groups opposing Justinian in Nika riot (see above). Thus, Venets (and Nika riot) are superimposed on Trojans (and Gothic-Trojan war)
9a. Franks and Persians (= PRS) were second-strongest force in Gothic war, opposing Justinian	9b. Prasins (= PRSN) are obviously, superimposed on Persians (= PRS) and Porsena (= PRSN) in left column, being second-greatest force in mutiny, opposing Justinian

10a. Goths (identified with Trojans in TR-version) took part in Gothic war and opposed Justinian, having been his allies before (cf. kingdom of Ostrogoths)	10b. Goths as well as Rome's (= Eastern Roman Empire's) allies took part in suppressing Nika riot (on Justinian's side), burning and sacking St. Sophia, massacring Romaic priests, i.e., being against Justinian's clergy

Thus, in both versions, Goths and Justinian were first allies and then enemies.

11a. Opposing forces	11b. Opposing forces

(The diagrams are almost identical.)

12a. Emperor Justinian won, being always in background	12b. Emperor Justinian was always involved in all events and won, although remaining in background
13a. Greek (Romaic) army commander in Gothic war was Belisarius	13b. Greek (Romaic) army commander in Nika riot was Belisarius ([105], pp. 60–61)
14a. Well-known commander Mund took part in suppressing Goths (= Trojans) and Franks (= PRS, and also = TRNK) along with Belisarius [109]	14b. Well-known commander Mund took part in suppressing Veniti (Trojans?) and Prasins (= PRSN) along with Belisarius (*ibid.*)

To 14b: The crowds taking part in the uprise were allegedly lured into an enormous hippodrome (circus). There is a legend asserting that the declaration of Justinian's nephew Ignatius as new emperor was arranged by Justinian himself, and this trick let him assemble the crowd in the circus, where the mutineers were massacred, and "more than 30,000 men died" ([105], p. 61.).

15a. Trick involved aqueduct, "Trojan horse", i.e., drawing off of water (see above)	15b. Trick involved hippodrome, arena for races. Thus, that very "course for horses" arises in this version again [105]

Thus, some ancient chroniclers spoke of an aqueduct, whereas others of a "grey likeness of a horse", and still others of an arena for races (hippodrome), all being different versions and interpretations of the same authentic event.

According to the Bible and our isomorphisms, Justinian and his suppression of the Nika riot are superimposed on the God-praising king Manasseh and the massacre during his reign. Hence, biblical Manasseh's "biography" described the same GTR-war in the 6th c. A.D. in its Byzantine God-praising version, viz., suppression of the "mutiny". The resume:

War with the Goths	History of the Nika riot
Described by Procopius of Caesarea	Described by Procopius of Caesarea
Large-scale war in empire's history	Large-scale mutiny in empire's history
Started in 534–535 A.D. "Principal king" was Justinian	Started in 532 A.D. "Principal king" was Justinian
Justinian was far from military arena	Justinian was far from military arena
Greeks' adversaries were Porsena (= PRSN), Goths (= Trojans)	Greeks' adversaries were Prasins (PRSN), Venets
Participants were Romaic Greeks, Franks (= Porsena = PRSN), Goths (= Trojans, Venets)	Taking part were Romaic Greeks, Prasinus (= PRSN), Goths (Trojans, Venets)
Emperor Justinian won	Emperor Justinian won
Greek army commander was Belisarius	Greek army commander was Belisarius
Mund commanded along with Belisarius	Mund commanded along with Belisarius
Non-trivial trick was used, involving aqueduct (= "horse")	Non-trivial trick was used when mutineers were deceitfully driven into hippodrome
Trick led to Trojans' defeat. Troy was stormed and taken	Trick led to mutineers' defeat. Hippodrome was stormed and taken

9. Egyptian Chronology

9.1. Difficulties in creating Egyptian chronology

The "convolution" of Roman history, i.e., the identification of the Second Empire with the Third-Empire jet, etc., automatically generates that of Egyptian chronology, and does not contradict any available and dated Egyptian documents.

Egyptology, thanks to which for the first time the dark was dispelled that previously covered Egyptian antiquity, was born only 80 years ago. This was written by P. Chantepie de la Saussaye in the late 19th c. [234]. In particular, the chronology of Egypt is one of the youngest historical sciences; it was formed on the basis of Greco-Roman chronology and, therefore, depends on it. The first Egyptologists and creators of chronology did not possess any objective criteria for testing their hypotheses, which led to large divergences between different chronologies of not less 3,000 years (see Part 1).

The rule durations are indicated in certain dynastic transcripts (preserved) for certain Pharaohs, but not at all for everyone of them; however, the figures differ sharply when we go from one list to another. E.g., the duration of Ammen-Emes reign is 26 years according to the second version of Eusebius, and 5 years according to Aphricanus, the difference being more than 5 times! A reign of 40 years was indicated by Eusebius for Amenophis, 20 years by Aphricanus and 8 years by Ophis. Eratosthenes allotted a whole century to A-Pappus, etc. The situation is typical for the so-called "Pharaoh lists" ([13], V. 6).

However, these "data" can still be a basis for reflection; there is no ground to be surprised at the 18–19th-c. historians attempting to use these figures for chronological purposes, though obtaining differences of 2,000 or 3,000 years. But there are dynasties about whose duration nothing is known at all (e.g., the whole of the 6th dynasty due to H. Brugsch). There is no "biographical" information about most of them; it is, therefore, strange to see the famous Egyptologist H. Brugsch allot (with somewhat gloomy joy), each Pharaoh of this dynasty a 33.3-year reign, assuming three Pharaohs a century (and why not, say, ten or 15?).

The difficulties of creating Egyptian chronology are also related to the fact that most preserved monuments with inscriptions are devoted to religious purposes. Of the surviring papyri, probably, nine-tenths are of religious contents. All this material is rather one-sided, and its origin is due to existing funeral rites. However, the inscriptions mostly resemble brief formulas containing the names of the gods of Death. The three large pyramids of all Pharaohs' tombs have no inscriptions ([234*], pp. 99–100). Egyptian dynastic history is not at all continuous and yawns with gaps that are sometimes even a dynasty long ([13], V. 6). At the same time, it has been long noticed in traditional history that ancient Egyptian history is characterized by a strange periodicity. For example, "if we turn to later periods, it is surprising to see that the Saite culture *exactly* (!—A. F.) *reproduces* that of the pyramids' epoch. The texts which were in use almost 3,000 years ago were taken up again. Again tombs were decorated after the ancient custom" ([234*], p. 107).

This peridiocity of Egyptian history had been noticed long ago, and was officially called "restoration".

For example, after the 19th dynasty,

"... a restoration set in ... Egypt again returned to pyramid construction ... That epoch was looked upon as a time of imitation. Ancient religious texts were brought to life, though they were *only partly understood*. Funeral rites of the 4th-dynasty kings were adopted, their pyramids restored, ancient titles remembered, art returned to the solid realistic school of the Old Kingdom ..." (*ibid.*, p. 173).

Certainly, these "restorations" were given an explanation.

For example,

"The Saite restoration is one of the most remarkable moments in the history of Egyptian culture, and the best illustration of the spirit of the Egyptian people" (*ibid.*).

Here is what B. A. Turaev says:

"Official texts underwent attempts of editing the archaic language hardly understood by everyone ... The forgotten ranks and posts were revived; the inscriptions of the time could be taken to belong to the Old Kingdom (the same as if you, the reader, started to correspond with your friends in the language of the 1st c. B.C.—A. F)" ([238], V. 2., pp. 102–103).

Egypt was probably a great religious centre for the Roman Empire too, with the cult of the dead concentrated there. The dead body does not decay in sand, which accounts for the predominance of the funeral theme in Egyptian monuments and written sources. The Bible also mentions an enigmatic city of David. N. A. Morozov [13] gathered all references to it in the Bible. It turned out that the city was always mentioned by the Bible as the burial place for God-praising kings (*ibid.*). It is, therefore, possible that the city of David is not actually a city, but an enormous necropolis, a kings' graveyard. Due to the dynastic parallels, there should be buried many Byzantine and Roman emperors.

Such a necropolis does exist, and is unique. This is the well-known field of the pyramids and tombs of Giza in Egypt. The rite of embalming the dead body probably arose just for the purpose of preserving it from decay, when it was carried into Egypt (e.g., from Europe) across the Mediterranean sea. There are ancient coins on which the Roman emperor Octavian Augustus is depicted as a Pharaoh (magazine *Vokrug Sveta*, 4, 1983). Recall that a dead body immediately buried in the sands of Egypt is not subject to decay; therefore, there is no necessity to embalm the local dead. It is now appropriate to draw our attention to the Greek legends of Charon, the carrier of the souls of the dead across a very wide river (probably, the Mediterranean Sea), or the dead themselves from Greece to the world below. The construction of enormous Egyptian pyramids was probably reflected in the Bible as the erection of the Tower of Babel.

For all their richness, archaeological data for Egypt are extremely chaotic, and unrelated to a continuous independent chain. According to the archaeologist M. Z. Goneim, we know almost nothing of a single pharaoh of the third dynasty, except Zoser. *Unfortunately, even this name is a later version that was not in use for a long time after his death, and encountered for the first time only in the 12th dynasty* [239].

It is known that the Hittites were "discovered" only in 1880 when Professor Archibald Sayse reported the existence of an ancient people called the Hittites, basing himself on the biblical analysis ([241*], p. 21). Together with William Wright, A. Sayse made it clear that the Hittites had lived north of the "Promised Land", and placed them in Asia Minor north of Palestine. However, if we admit that the "Promised Land" is in Europe, e.g., Lombardy in Italy, then the Hittites had to live north of Lombardy, in the place of the Goths. Superimposing the Hittites in this fashion on the Goths is also confirmed by the dynastic parallels.

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10. Some Strange Features of Ptolemy's Almagest. Preliminary Remarks

10.1. Latin and Greek editions

In conclusion, several remarks regarding the *Almagest* are in order. It is assumed that its first printed edition was published in 1515 in Latin (Greek being regarded as the language of the original). It was an awkward translation of the Arabic manuscripts. The edition of 1528 was based on the first, and subject to criticism. The first printed edition of the Greek text had been made in Basel in 1538, only five years before Copernicus' *De revolutionibus orbium coelestium* appeared. A translation from the Arabic text of the year 827 was allegedly made in 1230 A.D. (whereas, according to H. Montignot, this was done in the 11th c.). J. Bode in his work on the *Almagest* asserted that it had been incorrect, judging from the comparison of the Latin text with the Arabic one ([13], V. 5, p. 194). We have no information regarding the translation and the edition of 1528 A.D.

In 1537, the Latin text was also published in Cologne. We could not find enough data concerning the history and fate of the earlier translations, except the Cologne edition of 1537 and the one from Basel of 1538 (a very remarkable fact), and also about how much and how precisely they differ from the widely accepted text of the *Almagest*, which we will discuss below (following N. A. Morozov), and which was based on the Cologne and Basel books. Controversy surrounds even the earlier Venetian edition, for which N. I. Idelson supplies 1528, whereas N. A. Morozov, referring to J. Bode, gives 1537 (*ibid.*). Therefore, we have concentrated our attention on the first Greek Basel edition and the Latin 1537 Cologne edition, on whose title page it printed in black and white that it is the first (!), due to which we should clarify how reliable the dating of the 1528 edition is.

Following the two editions of 1537 and 1538, others appeared in 1541, 1551, etc. [13], [122]. Their abundance shows that the *Almagest* edition was not regarded as outdated in the 16th c. in spite of its antiquity (as suggested today).

According to O. Neugebauer, there is no better way to convince oneself of the intrinsic consistency of ancient and medieval astronomy than to juxtapose the *Almagest* and Copernicus' *De revolutionibus*. Chapter after chapter, theorem after theorem, table after table, these works run parallel ([257+], p. 197).

One of the most important sections of the *Almagest* is a star catalogue said in the text to have been made under Antoninus Pius from the personal observations of the author. Its surprisingly good condition attracts our attention first of all; the repeated copying during more than one thousand years as suggested by traditional history did not impair it at all. Any editor knows how many errors even a very attentive copyist of large numerical material can make. The second particular is its exceptional precision; the star coordinates are given to the accuracy of 1/6 of a degree. As a matter of fact, a precise timepiece is required for measuring the coordinates of heavenly bodies, and mere instruments for measuring angles are not enough. In order to obtain coordinates to the accuracy indicated by Ptolemy, a timepiece with a minute hand is required as a minimum! Meanwhile, while accurately describing the tools used, e.g., an armillary sphere, Ptolemy said nothing of a clock. The hypothesis regarding the existence of a timepiece with a minute hand in the 2nd c. A.D. contradicts the traditional information about the clock technology of that time [123]. Recall that a clock with a minute hand appeared in Europe only in the 15th c. A.D., and immediately uranometry, the art of determining star coordinates, started blooming. The third interesting feature is that, according to the modern astronomers, Ptolemy counted the longitudes of the point of the spring equinox where the ecliptic and equator meet; it is in Pisces, and there are no bright stars nearby. First, this point is imaginary and unrelated to any star; therefore, its visual observation is impossible, since it can only be calculated. But its computation cannot be done without a timepiece reckoning parts of a minute. The *Almagest* was analyzed in [13], V. 5. In particular, we made use of this investigation. It turns out that there exists a reliable technique to restore the time when it was made from the catalogue itself. Since star ecliptical coordinates (longitudes and latitudes) are indicated in the catalogue, and the longitudes increase annually by $50''2$ due to precession, dividing by this value the difference between the modern longitudes and those listed by Ptolemy, we at once obtain the year when the catalogue was made. This elementary computation leads to a shocking result: All the longitudes of the stars listed in the first Latin edition of the *Almagest* were observed in the 16th c. A.D., when the book was published! Why did J. Bode, who subjected the *Almagest* to accurate analysis, not notice it? [122]. It turns out that he studied the second, Greek edition, allegedly the original, from which the "Latin translation" is said to be made. J. Bode's position is clear: Why analyze the "Latin translation" when the undoubtedly authentic Greek text is available? But the longitudes in the Greek edition of all the stars were decreased by $20° \pm 10'$, compared with the Latin edition, which dates the position of the stars to the 2nd c. A.D. This may arouse suspicion that the Latin text was the original, and the Greek secondary, and not vice versa as regarded by tradition. It is possible that the 16th-c. author who was first to publish the "translation" did not care about taking precession into account. Being apprised of that, he introduced this correction and others into the Greek "original", moving it into the 2nd c. A.D. Furthermore, a point of view was widespread in the 16th c. A.D. that the value of precession was $51''$ a year. The division by this value of the difference between the longitudes of the Greek and the Latin edition leads to 139 A.D. (i.e., precisely the second year of Antoninus Pius' reign according to traditional chronology!) as indicated in the book. It is probable that the year when the book was written, compared in this way, was indicated in the text by the 16th-c. authors' hoping to hide the true time of observations. But the true value of precession was different! If we divide the difference between the longitudes by this more precise value (due to J. Lalande and J. Bode), then we obtain that the catalogue was made in 63 A.D. under Nero, and not under Antoninus Pius. This circumstance embarrassed the astronomers; it was suggested that Ptolemy had made use of some earlier observations (and not his own), though the *Almagest* clearly indicated that they had been made by the author personally. The problem of dating the *Almagest* was discussed in many works; in particular, it was conjectured that the "earlier" observations had been made by Hipparchus. Many astronomers did not agree with this ([257+], pp. 80–81). Though, an objection to the primacy of the Latin text is possible. In the 16th c., Ptolemy's book was published not as a document of the history of science, but as a treatise for immediate use by scientists and students of astronomy. The catalogue could not be used, made obsolete due to precession, and the translator updated it, introducing the latest data. As to the Greek edition, he believed it unnecessary as a textbook, because the Latin translation was available, and, hence, restored Ptolemy's original figures (which relate the catalogue to the beginning of the first millenium). This argument is also supported by the title page of the Latin edition, with direct indication that the book was reduced to "the modern epoch" and especially designed for students; thus acknowledging that the Latin edition (at least with respect to the catalogue) was apocryphal, but denying this concerning the Greek edition.

The objection can be refuted by the fact that the coordinates of many of the most remarkable stars listed in the Greek edition were considerably improved in comparison with the Latin edition (see their list in [13], V. 4). Besides, the Greek edition of 1538 literally teems with improvements of this sort in contrast to the Latin one signed by 1537 A.D. But that was not all. Comparison of the star latitudes in the Latin "translation" and the Greek "original" shows that they all were increased by 25″ or corrected to more precise ones, and not due to precession, for the latitudes are not subject to it. The corrections were always such that the whole ecliptic was shifted southwards, almost onto the sun's diameter, which seems to be, possibly, only due to the author's introduction of systematic corrections to refraction, without taking into account that they, just equal to the sun's diameter, decreased in shifting towards the pole of the ecliptic (a vertically falling ray is not refracted). The author could not calculate the differential corrections of today, and confined himself to systematically shifting all the stars except those investigated in an especially precise way. Thus, "restoring" Ptolemy's data in one respect (cf. precession), the Greek edition improved them (or attempted to improve) in another, which does not agree with the conjecture regarding the text' originality.

Studying the latitudes, J. Bode noticed that the *Almagest*'s entire ecliptic had been askew (which was, in fact, true), indicating that its deviation is one and a half times greater than in theory, and expressed his bewilderment as to what such a considerable systematic difference can be ascribed. There is an explanation: The catalogue's author resorted to so-called ecliptical, and not equatorial coordinates (as expected), which are substantially more precise and more easily determined from observations. If we assume that he originally determined the star positions in the equatorial system and subsequently recalculated them into the ecliptical, then the deviation can be immediately explained by the rounding-off errors. It suffices to put the distance on the sphere of the pole of the ecliptic precisely equal to 23° instead of 23.5° in order to obtain the systematic difference that so surprised J. Bode. The generally accepted method of rounding off was rejecting any fractional parts, even close to unity, and in our case it is only 0.5.

However, if the author simply knew of oscillations in the ecliptic with respect to latitudes, then it immediately signifies that the book was written not earlier than the 16th c. A.D. Why then did he not retain the original equatorial coordinate system (as is done in all modern catalogues), carrying out the enormous job of recalculating the coordinates into ecliptical ones? Note that the methods of such a recomputation are quite bulky and lead to new errors. The whole job is so superfluous that you want to find some reason for it, probably mere (and vain) ambition to make the catalogue eternal, and thereby hide the apocrypha. As a matter of fact, ecliptical latitudes are not subject to precession!

The original equatorial coordinate system can also be discerned in the order of catalogizing the stars. Like the modern astronomers, Ptolemy started his catalogue with the North Star (α of Ursa Minor), i.e., the pole of the equatorial system. If the author had made the catalogue with respect to the ecliptical system from scratch, then it would have been natural to begin with the pole in the constellation Draco, and catalogue its stars first. Actually, the stars of Ursa Minor were catalogued in the *Almagest*, then those of Ursa Major and Draco. Moreover, starting the catalogue with the North star, the author created another anachronism, it being closest to the pole of the world only in modern times (!), β, the opposite star in that same Ursa Minor, nearest to the pole in the 2nd c. A.D. The author again disclosed the time when the catalogue was made.

The book ended no less remarkably, indicating Achernar (more precisely, "a very bright star in Eridanus"), which could not have been observed in Alexandria in the 2nd c. A.D., since it was at an angle of 10° below the horizon; to watch it, you had to move 600 km deep into Africa. In the 16th c. A.D., due to precession, it had already risen over the horizon and was observable in Egypt. Certainly, its low position created difficulties for the observer, and the coordinates in the Latin 1537 edition were given with an error. Hence, modern commentators of the *Almagest* prefer to believe that Ptolemy exaggerated the brightness of this "very bright star" in Eridanus, and that it is not identifiable with Achernar but with θ of Eridanus located north of Achernar.

10.2. Dürer's astrographic charts in the first editions of the Almagest

As indicated on the title page, the edition was supplied with 48 astrographic charts engraved by A. Dürer. Until book printing came into use, astrographic charts had listed only the brightest stars, and their disposition across the constellations varied from chart to chart. It was only after gravure had been invented that publishing a detailed astrographic chart for the study by astronomers became possible. Until the invention in the 15th c. A.D. of a process for reproducing pictures mechanically (gravure), no detailed astrographic charts could have been spoken of, and only mass editions of absolutely identical copies could have justified the sky's detailed representation with stars of the third and fourth magnitude. Even if somebody had undertaken the titanic work of making such a chart, it could not have been completely preserved for centuries, because its copies would at least have decayed soon, and reproduction meant repeating the whole job anew. A. Dürer's astrographic charts were the first authentic detailed sky maps. Neither an astronomer nor an observer, with the only purpose of retaining the elegance, he made certain essential inaccuracies. We illustrate this only with the shiniest examples. The constellation Ara looks very beautiful in A. Dürer's map; however, we see that Ara is turned upside down in the sky, and its tongue is lowered instead of being raised, the torch burning upside down.

"Who of the authentic ancient stargazers imagined it in this form?" ([13], V. 4, p. 209).

Winged Pegasus is also very beautiful according to A. Dürer and is correct, i.e., not upturned in the plane representation. Nevertheless, if we take the map and look into real sky, then

"... from sunset to sunrise, Pegasus flies there with its legs upwards like a shot-down bird" (*ibid.*).

It is also clear that the ancient astronomers would have never represented this "winged" constellation as flying upside-down. It was, therefore, A. Dürer's blunder. Accordingly, Hercules is with its legs upwards if we apply the chart to the actual sky. Virgo is also represented erroneously, supine and setting with her legs upwards. Meanwhile, in pre-Dürer's and quite rough charts, it had normally been represented (standing), though with fantastic arrangement of other stars. It is important that all the inaccuracies vanish in the plane chart (Pegasus is standing up, etc.), i.e., the arrangement was chosen because of artistic requirements. A. Dürer's errors were natural: Having a plane chart, and not a real picture, he was drawing in order to make an impression on the art lover. Certainly, engraving was an enormous job; therefore, even if all these blunders did awe the author-astronomer, he could do no more than launch all the drawings into publication, especially since A. Dürer, who regarded them only as works of art, could bring the prints (made not later than 1515 A.D.) into circulation without waiting for the book to be published. A. Dürer's "Pegasus turned upside-down", e.g., clearly put Copernicus in trouble. Retaining its senseless position, he changed the order of the stars in his own star catalogue, thus showing the covert struggle of common sense against the nonsense of certain fragments of A. Dürer's charts consecrated by Ptolemy's authority.

Acknowledging the authorship of A. Dürer in all the blunders in the constellations' positions, we establish that any representation copying his errors must be post-Dürer. We now return to Ptolemy.

The *Almagest* positions the non-bright zodiacal stars not on the basis of their coordinates, but on verbal descriptions of the type: "in Aries' horn", "in Pegasus' mouth", "in the ankle of Pegasus' right leg", etc. It follows clearly that they refer to the charts, i.e., A. Dürer's pictures! Therefore, they could have all appeared in the *Almagest* only after 1515 A.D. Thus, not only the star catalogue, but the very text of the *Almagest* was created in its final form only in the 16th c. A.D., immediately before being printed.

The *Almagest* also touched other problems of astronomy (the theory of planets, eclipses, etc.), with the corresponding chapters not containing any proof of textual antiquity. Quite the opposite, the unusual fragmentariness of Ptolemy's reports of lunar eclipses, and their great scattering across centuries, catches one's eye. For example, of 41 eclipses which could be seen in the Mediterranean in the 2nd c. A.D., Ptolemy indicated four, with only one of them being total, and the other three partial. And this was done by a professional astronomer stressing that he had carried out the observations personally ([13], V. 4, p. 467). The textual study discloses the reason for this strange phenomenon. Describing the technical characteristics of the four eclipses (the time of their maximal phases and the phases themselves, etc.), he hinted that he had precisely calculated all of them (*ibid.*). The astronomer F. Ginzel, while taking note of this declaration by Ptolemy, did not feel doubtful about the computations having been made in the 2nd c. A.D., before the eclipses.

After everything we know about the *Almagest*, we may ask: Is it true that the computations were made in the 2nd c. A.D.? As to the "personal observations" concerning eclipses, they are as reliable as the statement about the "personal observation" of the stars. That lunar eclipses are apocryphal and calculable can also account for Ptolemy's not mentioning a word about the immeasurably more impressive solar eclipses, e.g., the annular solar eclipse in 125 A.D., whose maximal phase was seen in Alexandria at 10 a.m., occurring only a fortnight before the lunar eclipse described by him. Ptolemy disregarded this solar eclipse. From our point of view, the author of the *Almagest* simply was not aware of any solar eclipse of the time and could not determine their characteristics, since, even in the 15–16th cc. A.D., to determine the umbra of a solar eclipse was an extremely complicated problem, in contrast with lunar ones whose predictions and computations could be carried out successfully. The identification of others of Ptolemy's eclipses, carried out by F. Ginzel, is based on solutions strained to a small, but quite definite, degree, which completely rejects the traditional dating of this part of the *Almagest* [13].

It should be borne in mind that calculating astronomical data "in the past" could have been carried out in the Middle Ages also as "computation exercises". The same might be attributed to attempts to make such calculated astronomical dates agree with hypothetically ancient calendars, eras, etc.

11. Duplicates in Greek Chronology. The 1,800-year Chronological Shift

11.1. The Epoch of the Crusades in 1099–1230 A.D. and the Epoch of the Great Greek Colonization in the 8-6th cc. B.C.

Here, we will analyze the basic duplicates arising under the shift by *c.* 1,810 years. Apparently, medieval Greece in the 10–15th cc. A.D. was an arena of the basic events now referred to in the history of classical ancient Greece. As I discovered, the global history of Europe and the Mediterranean probably possesses numerous identifications represented in the GCD. The "modern textbook" is the result of gluing the four practically identical chronicles together, which are shifted with respect to their original (first chronicle) backwards by *c.* 333 (Byzantine–Roman shift), 1,053 (Roman shift), 1,778 or 1,810 (Greco-biblical shift) years, respectively. The shift by c. 720 years, being the difference of the first and second, is also important. The names stress the history of civilization in which they are especially important. In the table below, we briefly indicate which events of medieval history in the 10–15th cc. A.D. served as the originals of those described by Herodotus in his *Histories*, and then referred to profound antiquity.

We first list the four historical epochs which are, probably, duplicates. Note that, as it turns out, not only medieval Greek, but also Italian events in the 10–15th cc. A.D. were reflected in Herodotus' *Histories*. See Figs. 64 (1), 64 (2), 101, 104, Table 17.

(1) The Holy Roman Empire in the 10–13th cc. A.D. War in Italy in the 13th c. A.D. and the fall of medieval Troy (= TRN). We denote this war by the GTR-war.

(2) Livy's regal Rome of seven kings, war of the Tarquins, the TRQN-clan.

(3) Ancient Greece in the 8–5th cc. B.C. Expulsion of the tyrants (= TRN). Epoch of the great Greek colonization in the 8–6th cc. B.C.

(4) The crusades and colonization of the East in the 10–13th cc. A.D.

Roman history	Greek history
1a. According to GCD, period 901–924 A.D. of Italian history is occupied by copy of GTR-war and duplicate of Trojan war	1b. Herodotus started his *Histories* with short account of legends of Trojan war and its incentives ([67], 1:1–5)

In reality, while describing the initial period of the history of ancient Greece, Herodotus reproduced fragments of Roman history described by Livy, but under different names.

2a. In Livy's version of war with Tarquins, dispute broke out about whose wife was better, leading to rape of Lucretia, her death and war [174]. According to Homer, it was "judgement of Paris", dispute among goddesses, "apple of discord"	2b. In Herodotus' version, tyrant (= TRN again!) Candaules of Sardis "argued" with Gyges around 560 B.C., asserting that his wife was most beautiful woman in world. Events ended in Candaules' death ([67], 1:7–10)
3a. "Woman's offence" (Lucretia, Helen, Amalasuntha, etc.) and revenge for it. GTR-war occurred in Italy (= TL)	3b. Offence of Candaules' wife and revenge for it. Events occurred in Lydia (= LD). Terms "LD" and "TL" are different only in order of their letters
4a. In Livy's, Gothic and version of 13th c. A.D., GTR-war led to changing ruling dynasty. Dynasty of Hohenstaufen fell in 13th c. A.D. (cf. Hugo in 10th c. A.D.)	4b. In Herodotus' version, these events also led to dynastic changes, and Heraclidae fell ([67], 1:7). One of principal personages was Gyges (cf. Hugo in left column)
5a. Holy Roman Empire in 962–1250 A.D. It is also Livy's regal Rome of seven kings (cf. six kings in right columns)	5b. According to Herodotus, six kings are placed in this period under 1,810-year shift. Herodotus supplied very little information about them (*ibid.*)

6a. Epoch of Crusades in 1099–1230 A.D. Famous epoch in history of Europe and East. Colonization of East, forming new states. Medieval Greece ruled by Byzantine Empire with *basileuses*. According to GCD, "written history" more or less started just in 10th c. A.D.	6b. Epoch of great Greek colonization in 8–6th cc. B.C. started in 10th c. A.D. (under above shift) just when so-called classical Greece began [110]. In Greek polises, power also belonged to the *basileuses* in 7–6th cc. B.C. ([110], p. 46, 55). Greek "written history" started in 8th c. B.C.
7a. Hohenstaufen were especially important in medieval Rome in 1138–1254 A.D. They were earlier identified with Gothic dynasty, Tarquins, Trojans and TRQN-clan	7b. Under upward 1,800-year shift, we move into 7–8th cc. A.D. TRKVN (or TRN) was very important in Greek 6–7th-c. history. This epoch was called "epoch of tyrants (= TRN)"

In the Middle Ages, the south of Italy was called Great Greece [44].

8a. According to Livy, last TRQN-king Tarquin the Proud ruled in Rome in 534–509 B.C. End of his reign coincides with date on right	8b. Peisistratus' tyranny ruled in Athens in 560–510 B.C. [283]. Herodotus and Livy probably described same history
9a. Tarquin the Proud ruled for 26 years. Terms "PRS" and "TRN" are always present in GTR-war; combined, they form "PRSTRN"	9b. Peisistratus reigned for 33 years in 560–527 B.C., his name possibly being close to "PRSTRN" (cf. left column)
10a. Tarquin the Proud took power in Rome and established TRQN-clan's power [174]	10b. Peisistratus took power in 560 B.C. and established tyranny (= TRN) in Athens ([283], p. 146)
11a. Tarquin's banishment from Rome, uprise against him, led by two heroes, Brutus and Valerius (*ibid.*). Tarquin attempted to return to power with no success. War ended in complete defeat of Tarquins c. 509 B.C., i.e., around 1300 A.D. (under 1,800-year upward shift)	11b. Peisistratus' banishment from Athens, uprise against him, led by two heroes, Megacles and Lycurgus Peisistratus, several times marched to Athens, and could twice return to power. However, war with tyrants in 514–510 B.C. ended in their defeat and death ([283], pp. 146–147)
12a. Fall of TRQN was turning-point in Roman history	12b. Fall of tyrants was turning-point in Greek history (*ibid.*)

13a. End of dynasty of Hohenstaufen. Power went to House of Anjou. Kaiser Manfred was last in dynasty (1254–1266 A.D.) [44], [45]. Reigned for 12 years in Italy (= TL, or LT, "Latins")	13b. End of Heraclidae. Power went to Croesus ([67], 1:6), hero (probably, identical to "kaiser"). Ruled for 14 years in 560–546 B.C. in Lydia (= LD, or LT) ([39], p. 193)
14a. Totila's reign in 541–552 A.D. (= TTL), Manfred's duplicate in Third Empire	14b. Croesus, son of Alyattes (= LTT = TTL if read backwards; cf. left column)

11.2. Charles of Anjou and Cyrus

Medieval Greece	Ancient Greece
15a. Charles of Anjou, Manfred's enemy. War between them. Charles of Anjou was French (= PRS), and became Achaean ruler (!) in 1278–1285 A.D. [45]. Stormed on Conradin in 1268 A.D., and conquered Italy (= LT, or Latinia). Italy was under PRS-power. Manfred ruled in 1254–1266 A.D. Everything well consistent with right column	15b. Cyrus was Croesus' enemy. War between them. Cyrus was king of Persia (= PRS). Having conquered Lydia (LD, or LT), he also took Greek territories in Asia Minor ([283], p. 168) in 546 B.C., or 1264 A.D. under above shift (cf. 1268 A.D. in left column). Cyrus = sire (king?). Lydia was taken by PRS. Croesus ruled in 560–546 B.C. [39], or 1250–1264 A.D. under above shift
15*a. Charles of Anjou actually founded Neapolitan kingdom, succeeded by Charles II of Naples (*ibid.*)	15*b. Cyrus and his son Cambyses are regarded as founders of Persian (= PRS) state ([110], p. 87), latter being superimposed on Charles II of Naples (see below)
16a. Charles of Anjou actually reigned for 29 years in 1254 (last year in reign of Conrad IV) – 1285 A.D. (*ibid.*)	16b. Cyrus reigned for 29 years in 559–530 B.C. ([39], p. 193), or 1251–1280 A.D. under 1,810-year shift, which is well consistent with left column
17a. Long siege of Troy = Naples = Rome in GTR-war. Army commander Belisarius, Charles' duplicate	17b. Long siege of Babylon by Cyrus ([67], 1:190). Babylon is superimposed on Rome (see, e.g., [13])

18a. Belisarius' military trick when taking Naples, and penetrating into city through dried-up aqueduct, analogue of "Trojan horse". GTR-war ended in 1268 A.D. (Fall of Troy = Naples, death of Conradin) [44]	18b. Cyrus' military trick when he penetrated into Babylon along dried-up river's bed. Details are similar to those of taking Naples and Troy [44]. Fall of Babylon is dated to 539 B.C., or 1271 A.D. (!) under 1,810-year upward shift

According to traditional history, the name "Cyrus" was revived in medieval Greece just in the 13th c. A.D. The quite modest title "sire" was distorted by the Greeks into "Cyrus", and grew in their eyes into the magnificent *megaskyr* (great ruler) [45]. I have made the following simple calculation. F. Gregorovius' text embraces the 1st–17th cc. A.D., describing decade after decade in the history of Greece. I marked all the years in which the term "Cyrus" was mentioned.

19a. Sharp increase of mentions of "Cyrus" in 13th c. A.D. No mentions beyond 13th c. A.D. [45]	19b. Sharp increase of mentions of king Cyrus in Greece in 6th c. B.C. These two splashes are well consistent under 1,810-year shift
20a. GTR-war of 13th c. A.D. is probably original of Trojan war (see above), and dated to 1250–1268 A.D. or 1204 A.D. (Constantinople)	20b. Muntaner's version describing Trojan war as medieval event is given in [45] when accounting for events which occurred in 1270 A.D.
21a. Successor to Charles of Anjou, Charles of Naples reigned for four years in 1285–1289 A.D. (*ibid.*), which is well consistent with right column	21b. Cambyses, Cyrus' son and successor, reigned for 8 years in 530–522 B.C. ([39], p. 193), end of his rule occurred 1288 A.D. under 1,810-year upward shift

The name "Cambyses" is, probably, formed from CAM and BIS, the latter translating from the Latin as "second". Since the "Persians" were repeatedly identified with the "French", such a translation is appropriate. Thus, Charles II is superimposed on CM II.

22a. Frederick II Sicilian reigned for about 35 years in 1302–1337 A.D. [45]. His name = FR + DERICK, another version being Frederici (Faderici)	22b. Cambyses' successor, Darius I Hystaspes reigned for 36 years in 522–486 B.C. [74], [283]. Official coin was daric (Gr. *Dāreik*). Terms "daric" and "Darius" are possibly close (cf. also Frederici)
23a. Frederick's actual co-ruler was Margaret, mistress of Morea woman of Morea	23b. Well-known Mardonius was actually co-ruling with Darius, "actual ruler of Persia" ([110, p. 92)

It is probable that Margaret Donna turned into "Mardonius" in certain documents.

24a. Series of wars on medieval Greek soil started in 1314 A.D. [45]	24b. Greco–Persian wars started in 492 B.C. ([110], p.92)

The dates are very consistent under the 1,810-year shift, viz., 1810 − 1314 = 496, whereas we have 492 B.C. in the right column, with the divergence being only 4 years (under the 1,810-year shift!).

25a. Margaret (= MR − Donna) was principal inspirer of war, its first period ending unsuccessfully for her ([45*], p. 222)	25b. Mardonius was principal inspirer and organizer of war, first Persian expedition ending unsuccessfully ([110], p. 92; [283], p. 179)
26a. Second period. Military expedition to Morea in 1315 A.D. (*ibid.*)	26b. Second Persian expedition to Greece in 490 B.C. (*ibid.*)

Under the 1,810-year shift, 1315 A.D. is made coincident with 495 B.C., which is well consistent with 490 B.C. on the right.

27a. Ferdinand, army commander under Frederick II, his representative and Margaret's (= MR + Donna) son-in-law, who headed army which invaded Greece	27b. Arthaphernes, army commander under Mardonius and Darius I, headed Persian army with Datis ([283], p. 180). It is possible that Arthaphernes is distorted version of "Ferdinand"
28a. Battle of 1316 A.D. was central event of this period in Morea [45]	28b. Battle of Marathon of Persians with Greeks in 490 B.C. ([110], p. 93). Under 1,810-year shift, we obtain 1320 A.D. (cf. agreement of dates in right column)
29a. Participation of Venetian fleet in war of 1316 A.D. is especially stressed (*ibid.*). Venice supported French (= PRS) in this war	29b. Participation of Phoenician fleet in war of 490 B.C. is especially stressed ([110], p. 92). Phoenicia supported Persia in its war with Greece. Phoenicia = Venice?

11.3. Matilda and Miltiades

Medieval Greece	Ancient Greece
30a. Morea's troops were headed by woman made famous in this period, Matilda, together with her husband, Frenchman Louis of Burgundy ([45*], pp. 222–223)	30b. "The Greek troops were headed by the talented army commander Miltiades, who lived in Persia for a long time ..." (*ibid.*), his name being evidently close to "Matilda"

The same confusion can be observed here as above. The women "MR + Donna" and Matilda turned into the men Mardonius and Miltiades (or vice versa).

31a. Matilda then became Ferdinand's (Persians') analogue. Adversary Ferdinand (= PRS) landed with his fleet in Greece in 1315 and 1316 A.D., coming out against Matilda and Louis [45]. (Cf. consistency of dates under shift.)	31b. Miltiades then became Persians' adversary in war. Persians headed by Arthaphernes (and Datis) landed with their fleet in Greece in 492 and 490 B.C., coming out against Miltiades ([110], pp. 92–93)

Under the 1,810-year shift, we have $1,810 - 492 = 1318$, which is close to 1315, and $1810 - 490 = 1320$, which is close to 1316.

32a. Ferdinand's army was defeated in 1316 A.D. War was won by Matilda, regent of principality. Her further tragic fate: She was tried in 1322 A.D. ([45*], p. 224)	32b. Persians led by Arthaphernes (and Datis) were defeated, and war won by Miltiades, who was principal hero of this period. His further tragic fate: He was tried in 489 B.C. ([110], p. 93)

Under the 1,810-year shift, we obtain the ideal consistency of these two well-known dates in Greek history, which clearly duplicate each other; thus: $1810 - 1322 = 488$ B.C.

33a. Matilda was removed from power, and tried by pope in Avignon in 1322 A.D. However, she was not executed, but taken to fortress where she died in 1331 A.D. [45]	33b. Miltiades was dismissed, and his enemies demanded his execution. However, he was pardoned, and execution replaced by payment of enormous fine. Soon after trial, Miltiades died in 489 B.C. ([283], p. 184)
34a. Duke Walter II reigned for 19 years from 1337 (when Frederick II of Sicily died) until 1356 A.D. (*ibid.*)	34b. Xerxes the Great reigned for 22 (or 21) years in 486–464 B.C. [39], [74] (cf. consistency with Duke Walter II)

Under the 1,810-year shift, we obtain that Walter's rule was superimposed on 473–454 B.C., which is close to Xerxes' rule.

35a. Franks' third expedition to Greece in 1331 A.D., lasting for about one year [45]	35b. Persians' third expedition to Greece in 480 B.C., lasting for about one year ([110], p. 94; [283], p. 184)

The Franks (= TRN and = PRS) are mentioned in the left column, whereas the

Persians (= PRS) are shown in the right one. Under the 1,810-year shift, we obtain that the dates are ideally consistent, viz., 1810 − 1331 = 479 B.C. (whereas we have 480 B.C. on the right!).

36a. Duke Walter II was French and belonged to best families in France and Italy [45]. Simultaneous invasion of Franks (= PRS = TRNK) and Turks (= TRK) of Greece, one of most important events in medieval Greece. Chronicles stress long process of preparation, and pope John XXII declared expedition as Crusade [45]	36b. Xerxes was Persian (= PRS) and greatest figure of this period, one of most popular ancient heroes [67]. Persians' third expedition to Greece is regarded as greatest and most dangerous. It was prepared scrupulously and for long time ([283], pp. 184–185). Herodotus described grandiose military preparations preceded by strong diplomatic activity [67]
37a. Duke Walter was accompanied by his wife Margaret, second most important heroine (MR + Donna again). In 1331 A.D., Duke Walter went on military expedition, sending his troops to Greece by sea. War lasted for about 1 year, and failed, whereupon Walter left Greece, and invasion failed, too [45]	37b. "... Mardonius, Xerxes' closest military consultant ...", again took part in military expedition as second principal hero of war ([67], [283], p. 185). In 480 B.C., Xerxes undertook military expedition to Greece via Hellespont, which lasted for about 1 year, and finished with Xerxes' defeat ([67], [283], pp. 185–195)
38a. Greeks and Catalonians could not provide for strong defence in Greece during first period of this war. At first, they evaded action, then turning-point, and French lost. Duke Walter's brother died during war (*ibid.*)	38b. Greeks could not form strong army in first period of this war, and Xerxes easily conquered part of Greece. Persians then lost. Both of Xerxes' brothers died during war ([67*], p. 373). Parallel between these events is clearly seen

11.4. The Greco–Persian war and the battle of 300 Spartans with Xerxes' armies at Thermopylae

A famous episode in the history of the Greco–Persian wars is the battle of 300 Spartans with Xerxes' armies at Thermopylae. Under the 1,810-year shift, I could not find the "original" of this event. But under the shift of a slightly smaller value, the battle of 300 Spartans was discovered immediately.

Medieval Greece	Ancient Greece
39a. Thermopylae was mentioned in description of Duke Jean La Roche's expedition in 1275 A.D. General Senadenos (Xerxes' analogue) invaded Thessaly with extremely large army supported by fleet. Byzantine (= PRS) and Turkish (= TRK) forces attacked Greece	39b. Thermopylae was mentioned in Xerxes' expedition supported by large Persian (= PRS) fleet [67]. Xerxes is probably Senadenos, and Spartan king Leonidas is Duke Jean La Roche. Well-known episode with 300 Spartans followed
40a. Duke Jean La Roche with 300 well-armed knights was engaged in battle with enormous army of Turks, Greeks and Cumaeans, defeating them [45]	40b. Spartan king Leonidas with 300 Spartans was engaged in battle with enormous Persian army ([283], p. 190), number of troops coinciding with that of knights in left column. In fierce fighting, Xerxes defeated Spartans, though he paid dearly for his victory [67]

This parallel is strongly confirmed by the following episode. In view of the multitude of enemies, the duke exclaimed in the words of one of the ancients, "Too many men, but too few he-men!" [45]. F. Gregorovius supplied this report of a medieval chronicle with the comment that "these words were taken from Herodotus' *Histories*, where Xerxes (!—A. F.) had seen at Thermopylae that his hordes πολλοὶ μὲν ἄνθρωποι εἶεν ὀλίγοι δὲ ἄνδρες, though the expression could have occurred to the duke simply after he had realized the situation (probably, knowing Herodotus' *Histories* well!—A. F.)" ([45*], p. 188(18)). The difference between 1275 A.D. and 480 B.C. is 1,755 years, which is close to 1,778 years, or a variant of the shift by c. 1,800 years. Thus, the parallel indicated by F. Gregorovius corresponds exactly to our GCD.

11.5. The war in medieval Greece and the Peloponnesian war in ancient Greece

Medieval Greece	Ancient Greece
40a. War in medieval Greece lasted for 13 years in 1374–1387 A.D., principal forces opposing each other being Navarrese and Athens [45]	40b. Peloponnesian war in ancient Greece. Lasted for 27 years in 431–404 B.C., two principal forces opposing each other being Sparta and Athens ([283], p. 267)

The astronomical dating of Thucydides leads to two solutions, i.e., the 12th and 11th cc. A.D., with the eclipse of 1039 A.D. (second solution) and the beginning of the war in 1374 A.D. being 335 years apart, which is the first basic chronological shift in the GCD.

41a. War of 14th c. A.D. was preceded by biggest congress in Greece in 1373 A.D., where delegates from all Greek regions gathered [45]	41b. Peloponnesian war was preceded by diplomatic preparation for "congress" of delegates of Peloponnesian League in 432 B.C. ([283], p. 279)

Under the 1,810-year shift, we obtain 1810 − 1373 = 437 B.C., which is close to 432 B.C., when the ancient congress was called.

42a. War of 14th c. A.D. started approximately one year after congress, i.e., in 1374 A.D., being caused by Corinthians' behaviour. Peloponnesus attacked Athens. At start of war in 1377–1378 A.D., Navarrese armies invaded Attica and conquered it [45]	42b. Peloponnesian war started approximately one year after congress, i.e., in 431 B.C., being caused by Corinthians' declaration of war. Headed by Spartans, Peloponnesian League attacked Athens, invading Attica at start ([283], pp. 279–280, 283)
43a. War ended with Athens' defeat (*ibid.*)	43b. War ended with Athens' defeat (*ibid.*)
44a. Navarrese, originals of ancient Spartans, were characterized as war-hungry gang of tough men who organized military state in Elida, and were famous for magnificent war skills. Military Navarrese state and Catalonians' state in Athens were involved	44b. According to ancient version, Sparta was war state with quite original "militarized" style of life. Sources noted magnificent war skills of Spartans and excellent organization of their army [283]. War state Sparta and democratic Athens were engaged in war
45a. After Athens' defeat, political life of country changed sharply. Nerio, winner and Navarrese leader, popular army commander principal hero in this war, organized coup d'état in Athenian duchy (*ibid.*)	45b. After Athens' fall, period of reaction leading to sharp changes in political life of country. Popular Spartan army commander Lysander destroyed Athenian state ([283], pp. 342–343, 338)
46a. Nerio established new political order, tyranny, and was called "tyrant of Athens" (*ibid.*). Navarrese were most of all noticeable in Greece, and concluded peace treaty with Turks (Persians' analogue in right column) in 1392 A.D.	46b. Lysander introduced "tyranny of thirty" in Athens, this period just being called "tyranny of thirty" (*ibid.*, p. 344). Sparta became principal division of Greece, and Persian ally in 401 B.C. ([283], pp. 402–403)

Under the 1,810-year shift, we obtain 1810 − 401 = 1409 A.D., which is very close to 1392 A.D. when the peace treaty with the Turks was concluded (see the left column).

47a. Nerio died in 1394 A.D. [45]	47b. Lysander died *c.* 395 B.C. ([283], p. 407)

Under the shift, we obtain 1810 − 1394 = 416 B.C. (cf. 395 B.C.).

48a. Famous Parthenon long having vanished from arena of history surfaced again only in 14th c. A.D., when Nerio decorated it richly and it again acquired its prior importance. Athens was declared to belong to Parthenon at end of 14th c. A.D., thus reviving antique custom [45]	48b. According to ancient version, Parthenon was built in 447 B.C. Under 1,810-year shift, we obtain 1810 − 447 = 1383 A.D. Thus, in fact, we get to end of 14th c. A.D., i.e., epoch of Nerio. Athens was Parthenon's property in 5th c. B.C. Under shift, we get into 14th c. A.D.

According to F. Gregorovius, the monstrous idea to turn the whole city into the property of the Parthenon's Latin priests occurred to Nerio. Making the Virgin Mary the proprietress of the most glorious city, the duke hardly remembered that the Virgin (Parthenos) of the same temple on the Acropolis had already (!) been Athens' mistress. The city of Theseus again took to the divine Virgin's defence [45]. It is probable that the Parthenon was, in fact, erected under Nerio in the 14th c. A.D.

49a. Popular philosopher, writer and public Greek and Italian figure, Gemistus Pletho. Name "Gemistus" means "twin" in Latin. Thus, Gemistus Pletho was "second" Plato, or Plato's "twin". Spirit of Greek science, having slept long, awoke just at that time [45]	49b. Popular philosopher, writer and public figure of ancient Greece, Plato (428–347 B.C.), died in 347 B.C., which is close to 360 B.C., year of Pletho's death (1450 A.D. under 1,810-year shift). This period was Golden Age of science and ancient Greek literature (also Socrates, Herodotus and Thucydides)
50a. Mistra's well-known despotate, war state (*ibid.*)	50b. Sparta, well-known war state of despotic type

F. Gregorovius was unable to ignore the obvious parallels, and noted that Mistra, or Sparta, had been at that time the political and spiritual concentration of Hellenism ([45]; [45*], p. 307).

51a. Academy of Plato founded by Gemistus Pletho in Italy. His work *Teaching on the state* did not survive [45]	51b. Plato's famous ancient Academy. Plato's well-known work *Republic* was preserved until today, probably being just that of Gemistus Pletho

52a. Period of rise of Navarrese state and Mistra's despotate from war in Greece c. 1400 A.D. until rise of Ottoman Sultanate in mid-15th c. A.D. Thus, this was c. 50-year-long period, turning-point in medieval Greek history	52b. Rise of Sparta from Peloponnesian war until rise of Macedon in mid-4th c. B.C. Thus, this was c. 50-year-long period until 350 B.C., well consistent with medieval epoch under 1,810-year shift (see left column)

11.6. The medieval Mahometans and the ancient Macedonians. Mahomet II and Philip II

Medieval Greece	Ancient Greece
53a. Peloponnesus' hegemony (and that of Mistra's despotate) ended in mid-15th c. A.D. when new powerful force, Turks, appeared. Extending their influence, they stormed on Byzantine Empire. This ended history of medieval Greece as independent state, new military and political force being Mahometans [45]	53b. Sparta's hegemony ended in mid-4th c. B.C., and new powerful force, Macedon, appeared. This "Macedonian" period ended ancient history of Greece as independent state ([110], p. 270), new military and political force being Macedonians (cf. close term "Mahometans" in left column) ([110], p. 270)
54a. Mahometans were mostly in Turkey (=TRK). Turks' invasion of Byzantine Empire and Greece started in 1446 A.D. Greeks could not withstand them, and, as once in Xerxes' times, faced again barbarian Asia ready to storm on Peloponnesus [45]	54b. Macedon is located in Thrace (= TR). "By the mid-4th c. (B.C.—A. F.), most of the Hellenistic world was under the Macedonian kings' hegemony ... Sparta, and all other polises a *fortiori*, could not organize whatever considerable resistance" (*ibid.*), events occurring in 4th c. B.C.

Under the 1,810-year shift, we obtain that 446 A.D. should be superimposed on 364 B.C., i.e., just in the mid-4th c. B.C. Thus, the Mahometan and Macedonian rises are made coincident.

55a. Famous Mahometan ruler, sultan Mahomet II (Mehmed II according to [40]), called Conqueror. Founded vast Mahometan monarchy	55b. Famous Macedonian king Philip II, "true creator of the Macedonian power" ([110], p. 271), which turned into hegemonic state

56a. Greece vanished from political arena as independent force, and Mahomet II ascended throne in 1451 A.D. [45]	56b. Greece vanished from scene as independent force, and Philip II ascended throne in 359 B.C. (*ibid.*)

Under the 1,810-year shift, we derive the ideal coincidence, viz., 1810 − 1451 = 359 B.C. The dates on the right and left become precisely coincident.

57a. Mahomet II was crowned at age of 21 and reigned 30 years. Starting with Osman I (Ottoman I) in 1298 A.D., all rulers (including Mahomet II) were Osmans, or Ottomans (= TMN) [45], [74]	57b. Philip II was crowned at age of 23 and ruled for 24 years in 359–336 B.C. ([283], p. 476). He was Aminta's son (*ibid.*, p. 462). Among his predecessors, there were several kings with name Amyntas (= MNT) [74]

The terms TMN and MNT are different only in the order of their consonants, which we have already repeatedly encountered when analyzing Herodotus.

58a. History of Ottoman Sultanate until Mahomet II embraced 1298 (when Empire was founded) to 1451 A.D. (coronation of Mahomet II), lasting for 153 years [74]	58b. Macedon's history until Philip II embraced 540–359 B.C. (when he mounted throne). Thus, duration of this period is *c.* 180 years

The numbers 180 and 153 are sufficiently close.

59a. Ottoman Sultanate's founder Ottoman I (= TTMN). Under 1,810-year shift, we obtain 1810–1298 = 512 B.C. (1298 A.D. = year when Sultanate was founded)	59b. Macedonian state's founder Aminta I (= MNT). 512 B.C. (year of its foundation) fits into second half of 6th c. B.C
60a. With Mahomet II, new epoch started, creation of great empire in Asia and Europe	60b. From Philip II, new epoch started, creation of enormous Macedonian Empire (including parts of Asia and Europe)
61a. In 1453 A.D., important event occurred, i.e., fall of Byzantine Empire, taking of Constantinople by Turks	61b. In 364 B.C., important event in Greek history occurred, i.e., separation of Byzantium ([110], p. 353)

Under the 1,810-year shift, we obtain 1810 − 1453 = 357 B.C., which is extremely close to 364 B.C. Recall that the original name of Constantinople was Byzantium [40].

62a. Mahomet II started his conquering expeditions in 1453 A.D. Osmans attacked Constantinople with all their might. Byzantines prepared for siege (cf. ancient "Byzantine Empire")	62b. Philip II started his conquering expedition in 340 B.C. People of Perinthus asked for "... Byzantine (!—A. F.) and Athen's help. The Byzantines (!—A. F.) sent them special machines for siege" ([283], p. 473)
63a. Constantinople (= Byzantium) was capital of greatest empire, and strongly fortified both from land and sea, being strongest medieval fortress [40], [45]	63b. Byzantium's role was very great in ancient times. Philip II "... besieged the biggest city on the seas" (*ibid.*)
64a. Two flotillas of Genoese and Venetian ships were sent to Constantinople ([40], p. 45)	64b. Philip's deeds were declared peace-violating, and two flotillas were forwarded for the Byzantines' help (*ibid.*)
65a. At Constantinople's (= Byzantium's) walls, fierce sea-battle ending in defeating sea-forces of Mahomet II ([40], p. 46). Considerable part of Turkish fleet was burned down	65b. At Byzantium's walls, big sea-battle occurred, in which "... allies defeated the Macedonian fleet, and thereby made themselves the masters of the seas" (*ibid.*)
66a. Constantinople's siege lasted for long time. Attempts to storm it from land failed. Constantinople received aid from sea (*ibid.*)	66b. Byzantium's siege by Philip II lasted long time. "The inland siege of the city was little effective, since Byzantium received all the necessary from the sea" (*ibid.*)
67a. Byzantine army commander Justinian was betrayed and fled ([40], p. 53)	67b. Philip II slandered Byzantine army commander before Byzantines (*ibid.*)
68a. Siege of Constantinople stopped temporarily. "The Council convened. The great vizier advised the sultan to come to terms with the Turks" ([40], p. 47)	68b. Byzantium's siege was temporarily stopped, Philip II unable to take it (*ibid.*). Then Philip II lifted siege
69a. Events occurred in 1453 A.D. (*ibid.*)	69b. Events occurred in 340–339 B.C. (*ibid.*)

The difference between the right and left dates is 1,793 years, which is almost equal to the value of the shift by *c.* 1,800 years.

70a. Mahomet II started new siege, and Constantinople fell in 1453 A.D. Armies of Byzantine's allies were defeated, and Greece and Byzantine Empire completely lost their independent existence ([45*], p. 349). Greece was completely conquered in 1459 A.D. (*ibid.*, p. 353)	70b. Philip II lifted siege, but again attacked Byzantine forces and their allies following year and completely defeated them in battle of Chaeronea in 338 B.C., Greece and Byzantium being completely conquered ([283], pp. 474–475)

Under the 1,800-year shift, we obtain $1800 - 338 = 1462$ A.D., which practically coincides with 1459 A.D. We now point out to the original of the well-known "ancient" battle of Chaeronea. Having sent his pashas with the army to Morea in 1459 A.D., where fighting for life was going on, Mahomet II crossed the Isthmus of Corinth the following year in order to turn the ill-fated country into one large inferno. The cities and castles were stormed ([45]; [45*], p. 356).

71a. Period of history from c. 1470 until 1485 A.D. (First Mahomet II, and then Bayazet (1480–1485 A.D.)). Ottoman Sultanate under Osmans, its symbol being crescent and two horns. Medieval Ottoman Empire's map is very much like that of empire of Alexander the Great	71b. Alexander the Great in 336–323 B.C. Alexander's empire. In East, he was called Iskander (two-horned) (cf. crescent!). His empire was of clearly "Eastern" nature
72a. Greeks' flee from Byzantine Empire, Hellenism begins to spread across medieval Europe, starting with mid-15th c. ([45], p. 360)	72b. Creation of Alexander's empire led to another well-known phenomenon, viz., spreading of Hellenism in "ancient world" ([283], p. 297)

APPENDIX 1

Volume Graphs for the "Biographies" of the Holy Roman Emperors of the 10–13th cc. A.D. Additional Chronological and Statistical Data of Ancient History

Figure 90 represents the volume graphs of the "biographies" of the Holy Roman emperors in the 10–13th cc. A.D.

By a "biography", we understand that part of the text which describes the events during an emperor's reign. If its description began at a time not clearly specified, then as the start of the "biography", we took the first mention of a ruler.

In Fig. 90, these volumes were calculated for the three different, but certainly *a priori* dependent, monographs by F. Kohlrausch [274], E. Fedorova [303] and C. Bémont and G. Monod [124], who, among other things, described the 10–13th cc. A.D. (F. Kohlrausch, *A History of Germany, from the Earliest Period to the Present Time*, D. Appleton and Co., New York, 1896; E. F. Fedorova, *Famous Italian Cities*, Moscow University Press, Moscow, 1985 (in Russian); C. Bémont and G. Monod, *Histoire de l'Europe en Moyen Age*, Paris, 1921).

The emperors' numbers (according to traditional chronology) were marked off along the horizontal axis, and the volumes of their "biographies" derived from the above books along the vertical axis. The correlation of the volume graphs was thus made manifest. For comparison, we also showed the volume graphs for the biblical kings' "biographies". From the traditional point of view, they do not depend on the above, but are to some extent correlated, as seen from the graph.

It is remarkable that a correlation of this sort is discovered only in the case where at least one of the texts in question describes the events traditionally dated *earlier* than the 13th c. A.D. *In the 13–20th cc. A.D. the suggested methods (including the one described in the book) did not lead to any divergence from the traditional dates.*

In Part 1, the author has formulated certain hypotheses which may possibly clarify the reason for the appearance of such a correlation.

Figure 90 is "decoded" in the table below, where *the first column* contains the rulers' numbers, *the second one* the Holy Roman emperors' names, and *the third* the volumes of their "biographies" in lines according to F. Kohlrausch (see [274*]), whereas the scale along the vertical axis is ten times larger. We stress that the choice of a scale on the vertical axis is not important, since we give first priority to the distribution of the *local maxima* graph, and neglect their absolute values. We, therefore, measure the volumes either in pages or lines of the corresponding editions, without reducing them to a unique absolute scale. Different measuring units do not

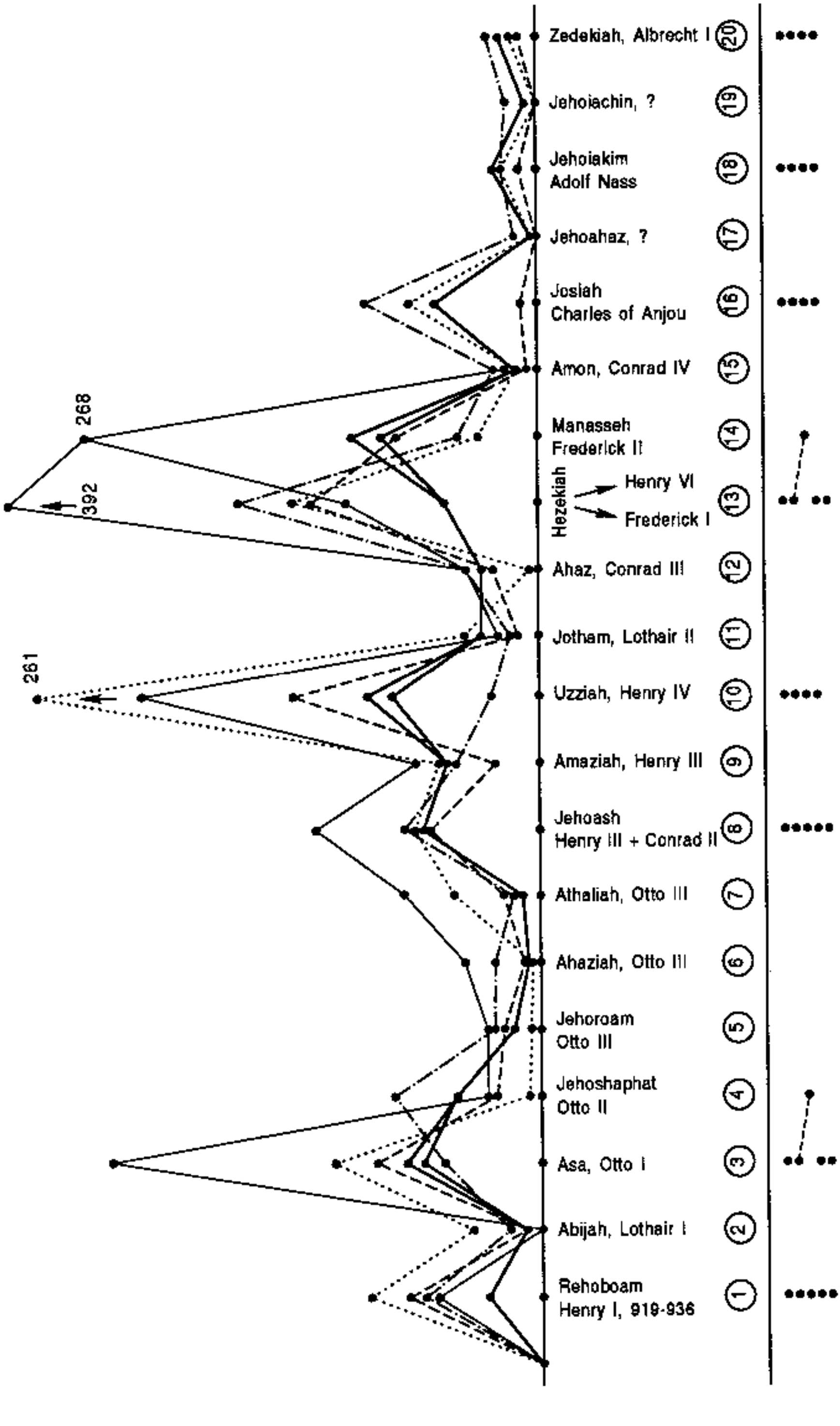


Figure 90. Volume graphs for the "biographies" of the Holy Roman emperors and for the "biographies" of the biblical kings

influence the distribution of the local maxima. Thus, *the fourth column* contains the "biography" volumes in lines according to C. Bémont and G. Monod (see [124*]), and *the fifth* is made up in accordance with E. F. Fedorova [303]. *The seventh column contains* the "biography" volumes in verses of Judaean biblical kings, *Column 6* contains their names, *the eight* column contains the durations of the Holy Roman emperors' reigns, and *Column 9* those of the biblical rulers.

The local maxima of all the graphs were marked in Fig. 90. That the points of the splashes are correlated is seen explicitly.

Table

1	2	3	4	5	6	7	8	9
N	Rome ([124], [44], [274], [74]) (names)	vol [274*]	vol [124*]	vol [303]	names Bible	vol Bible	durations Rome	Bible
1.	Henry I (919–936)	386	32	59	Rehoboam	35	17	17
2.	Lothair I (947–950)	1	2	20	Abijah	9	3	3
3.	Otto I (936–973)	478	130	62	Asa	30	37	35(41)
4.	Otto II (960–983)	116	16	2	Jehoshaphat	44	23	24(25)
5.	Otto III as German king from 989 to his Roman coronation in 996 A.D.	94	16	1.5	Jehoroam	14	13	8(6)
6.	Otto III (996, year of Roman coronation)	16	21	0.7	Ahaziah	14	1	1
7.	Otto III (996–1002) as Holy Roman emperor since his coronation in 996 A.D.	103	40	27.5	Athaliah	8	6	6
8.	Henry II (1002–1024) Conrad II (1024–1039)	304	67	37	Jehoash	40	37	38(40)
9.	Henry III (1028–1056)	144	38	29.5	Amaziah	25	28	29
10.	Henry IV (1053–1106)	748	118	261	Uzziah	15	53	52(43)
11.	Lothair II (1125–1138)	78	12	21	Jotham	9	13	16(7)
12.	Conrad III (1138–1152)	140	21	3	Ahaz	21	14	16(20)
13.	Henry VI (1169–1197) or Frederick I (1152–1190)	698 (or 86)	392 (or 56)	73.5	Hezekiah	91	28 (or 54)	29
14.	Frederick II (1196–1250)	432	268	18	Manasseh	23	54	55(45)
15.	Conrad IV (1250–1254)	22	4 [124*]	3.5	Amon	9	4	2
16.	Charles of Anjou (1254–1285)	35		35	Josiah	52	31	31
17.	?	0		0	Jehoahaz	5	0?	1
18.	Adolf of Nassau (1291–1298)	52		11	Jehoiakim	10	7	11
19.	?	0		0	Jehoiachin	9	0?	1
20.	Albrecht I (1298–1308)	44		8	Zedekiah	13	10	11

For additional chronological and statistical data of ancient and medieval history, see Figs. 91–112.

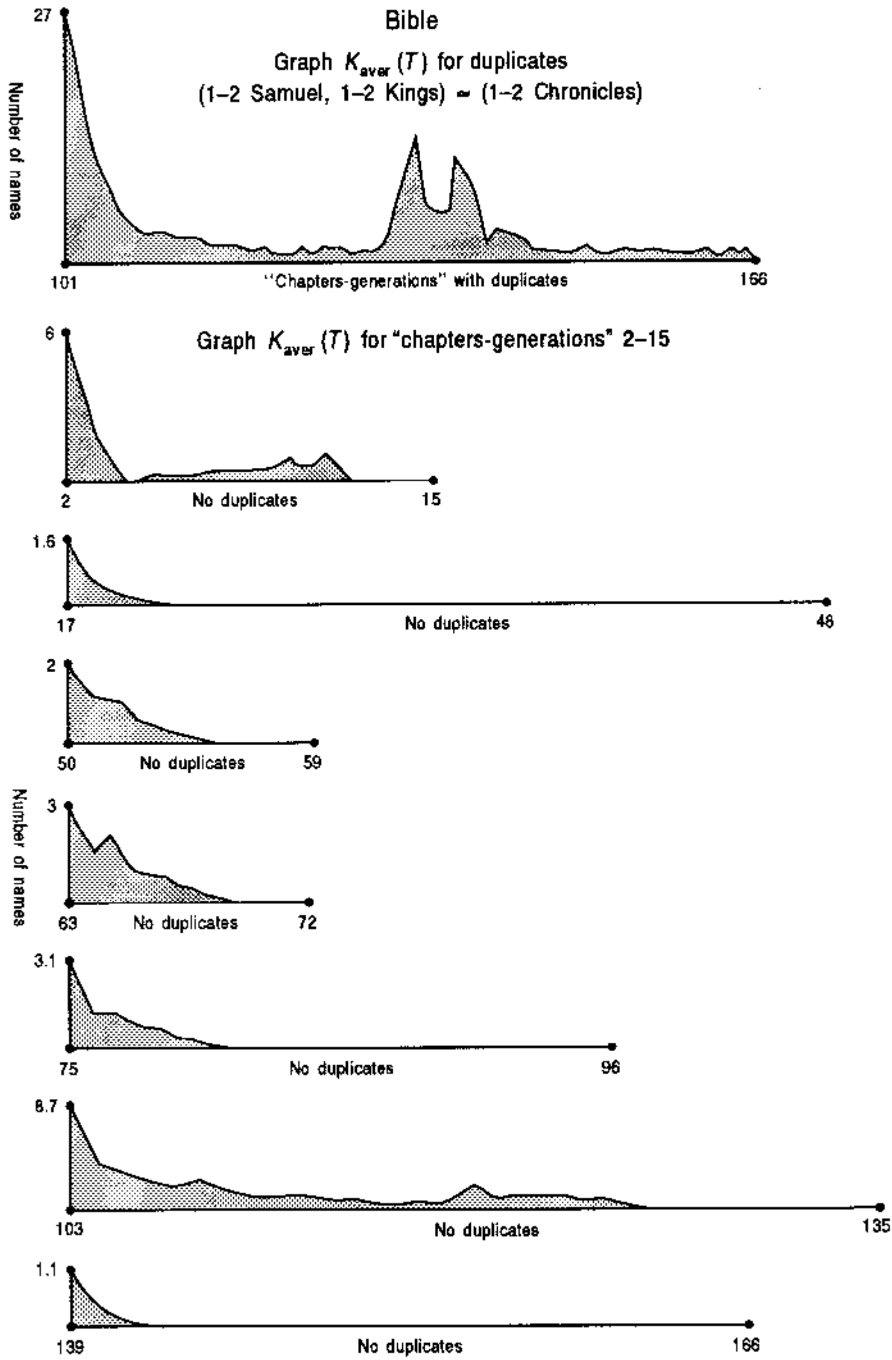


Figure 91. Frequency histograms for the list of biblical names. Averaged graphs. Duplicates: (1–2 Samuel, 1–2 Kings) = (1–2 Chronicles)

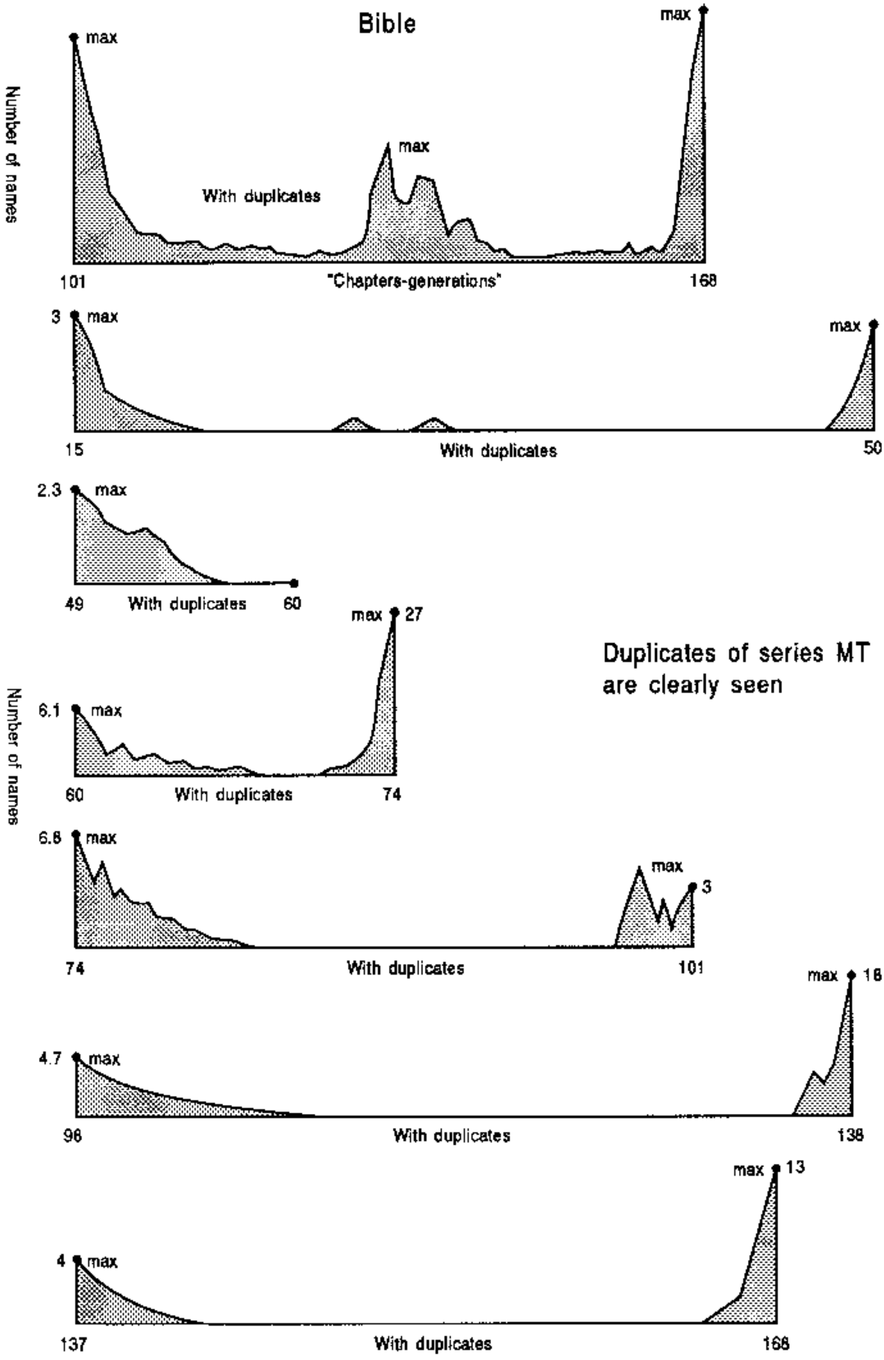


Figure 92. Frequency histograms for the list of biblical names. Duplicates of the series MT

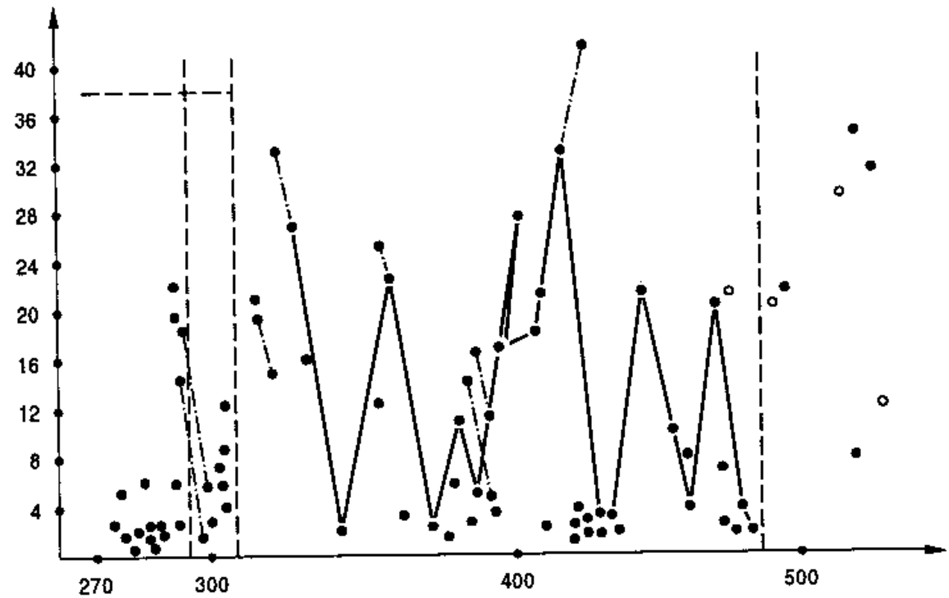


Figure 93. Durations of the rules. Jet from the Western Roman Empire in 4th–5th cc. A.D. and the Kingdom of Israel

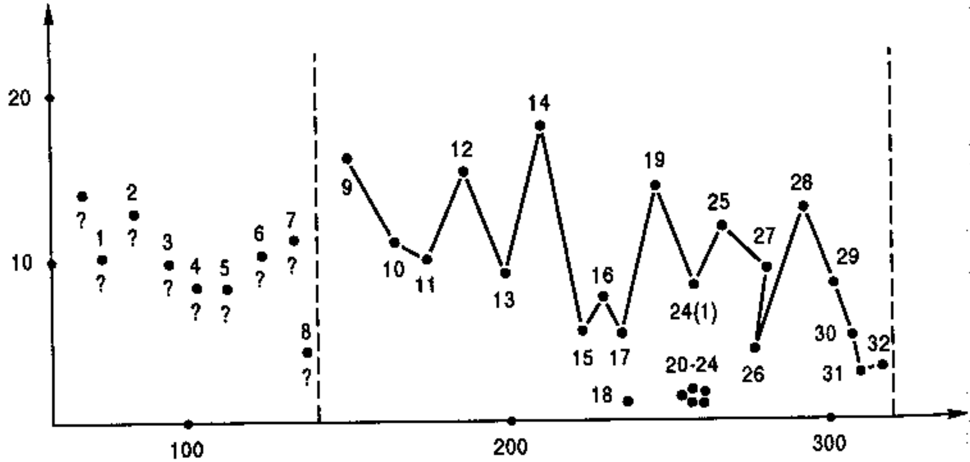


Figure 94. Durations of the rules. First period of the Roman episcopate in 141–314 A.D. and the jet, isomorphic (parallel) to the second period in 314–532 A.D.

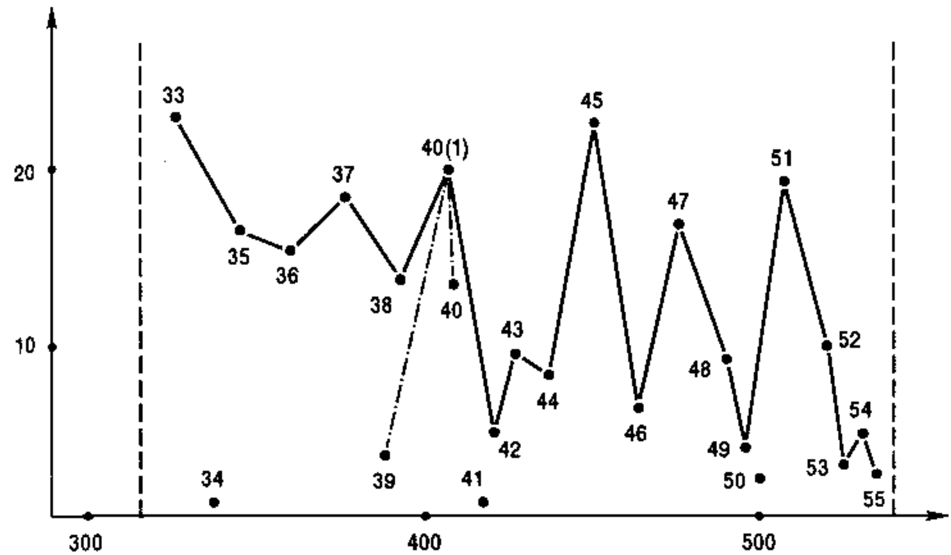


Figure 95. Durations of the rules. Second period of the Roman episcopate in 314–532 A.D. and the jet, isomorphic to the first period in 141–314 A.D.

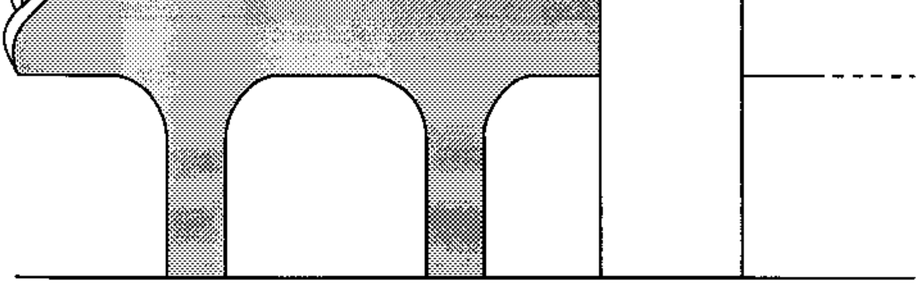


Figure 96. Ancient aquae-ductio

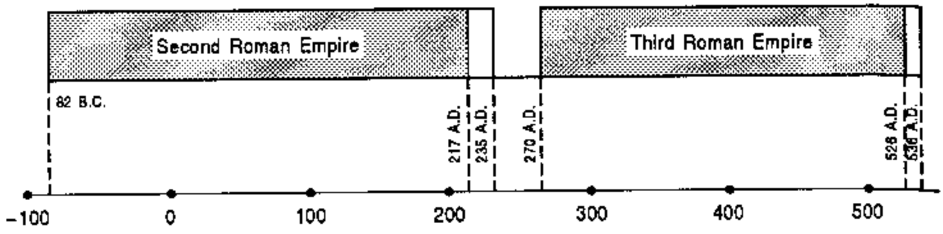


Figure 97. The Second and Third Roman Empires

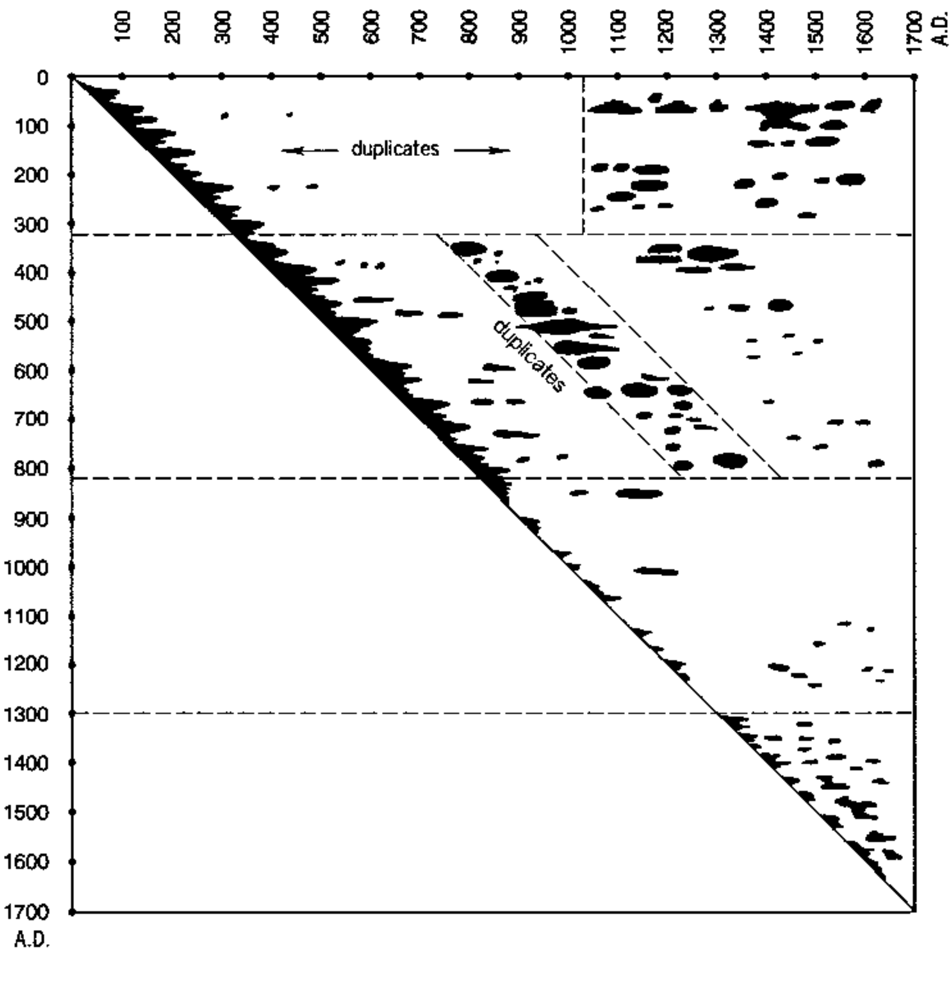


Figure 98. Frequency matrix for the name list of the Roman popes and for the name list of the Byzantine pontifexes (50–1700 A.D.)

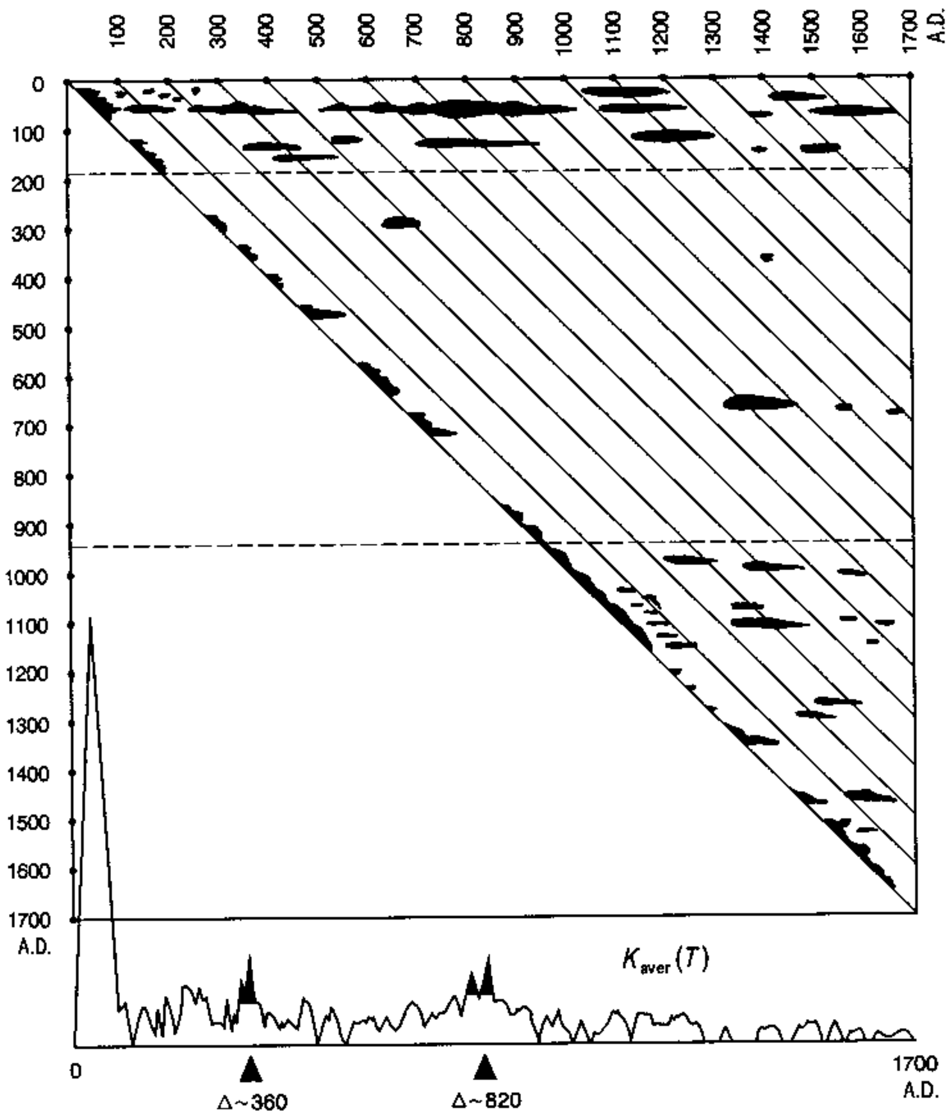


Figure 99. Frequency matrix for the nationality list of the Roman popes in 50–1700 A.D.

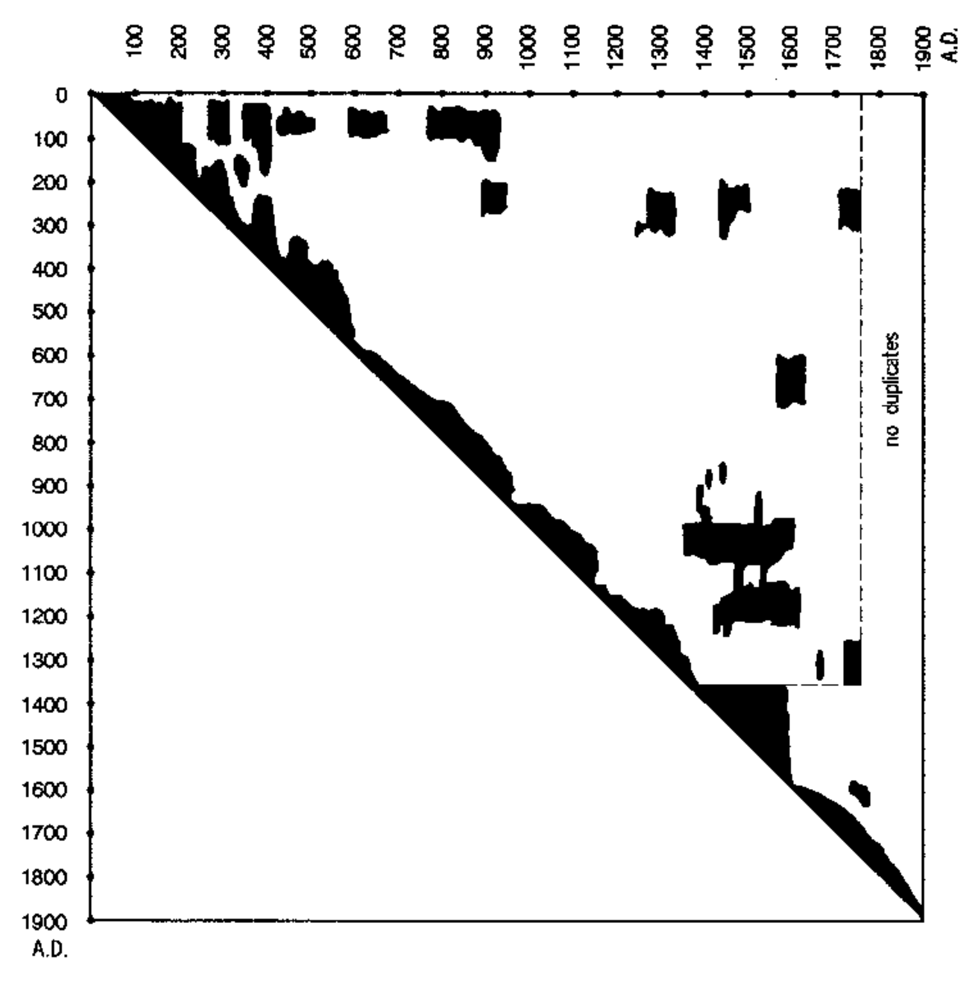
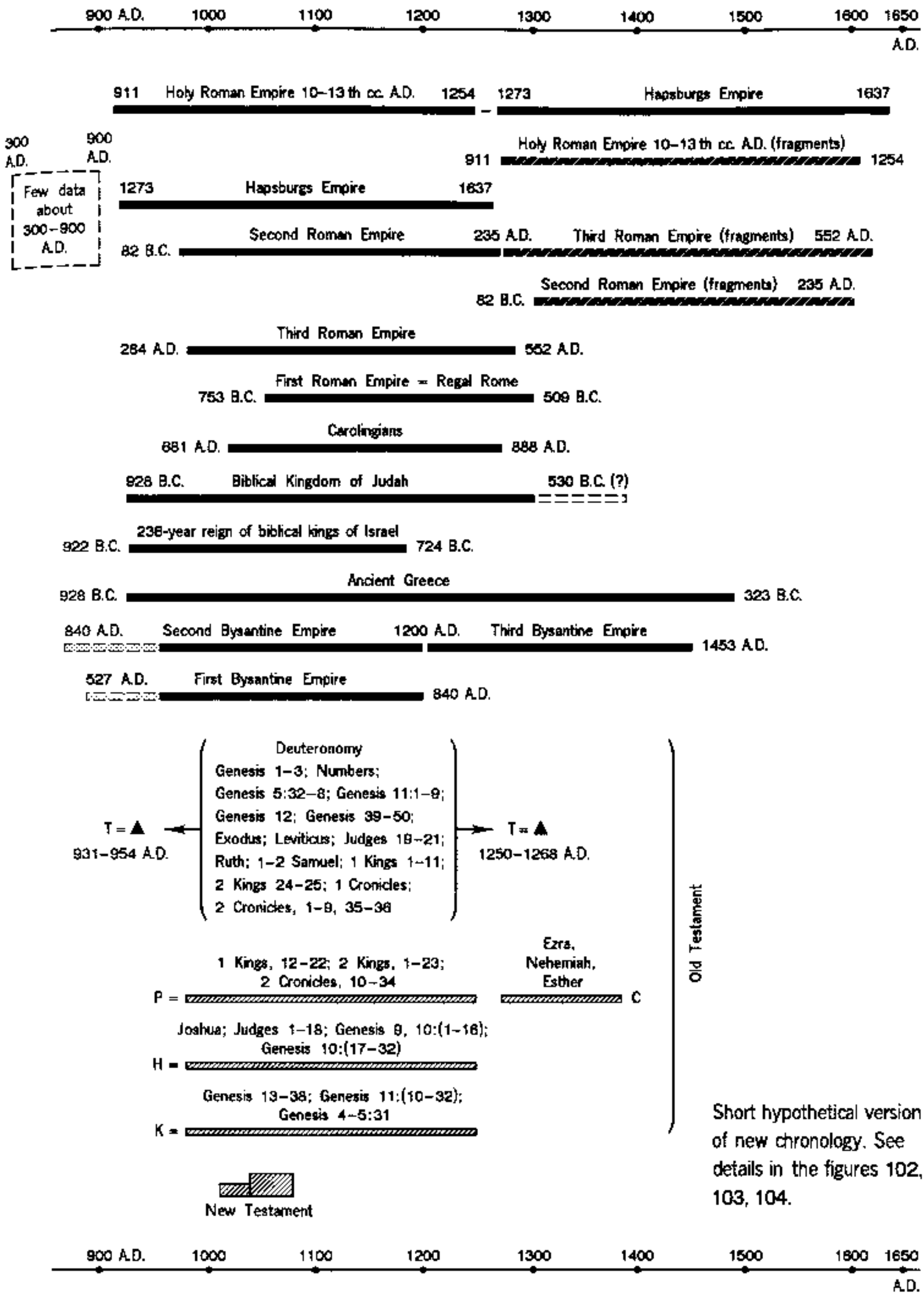


Figure 100. Frequency matrix for the names of Armenian catholicoses in 20–1900 A.D.



Short hypothetical version of new chronology. See details in the figures 102, 103, 104.

Figure 101. Short hypothetical version of the new statistical chronology. "New Textbook of Ancient History"

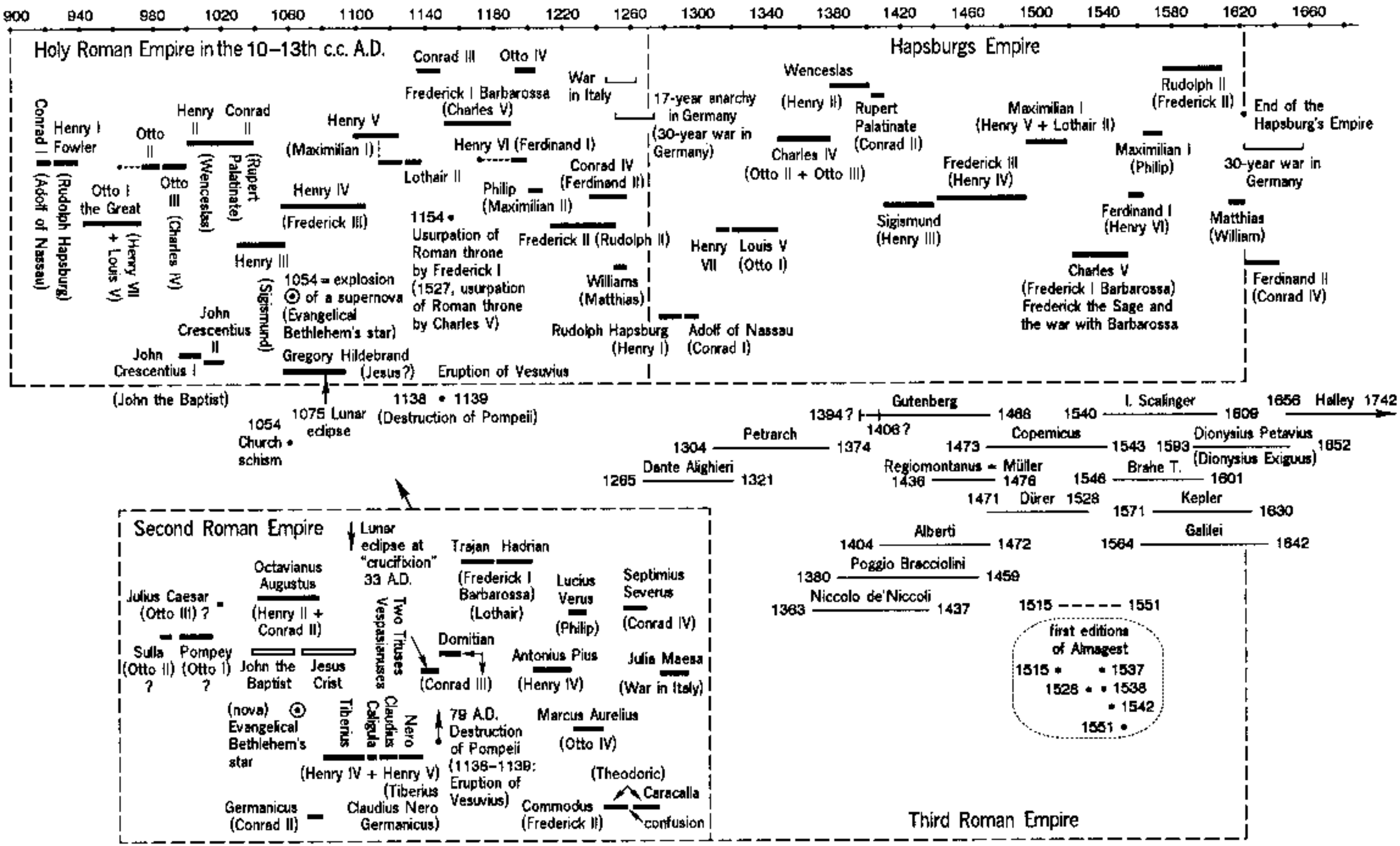


Figure 102. A short chart of the new chronology. Some main rulers are shown. We assume that the corresponding ancient texts have been shifted upwards by three basic displacements. "New Textbook of Ancient History"

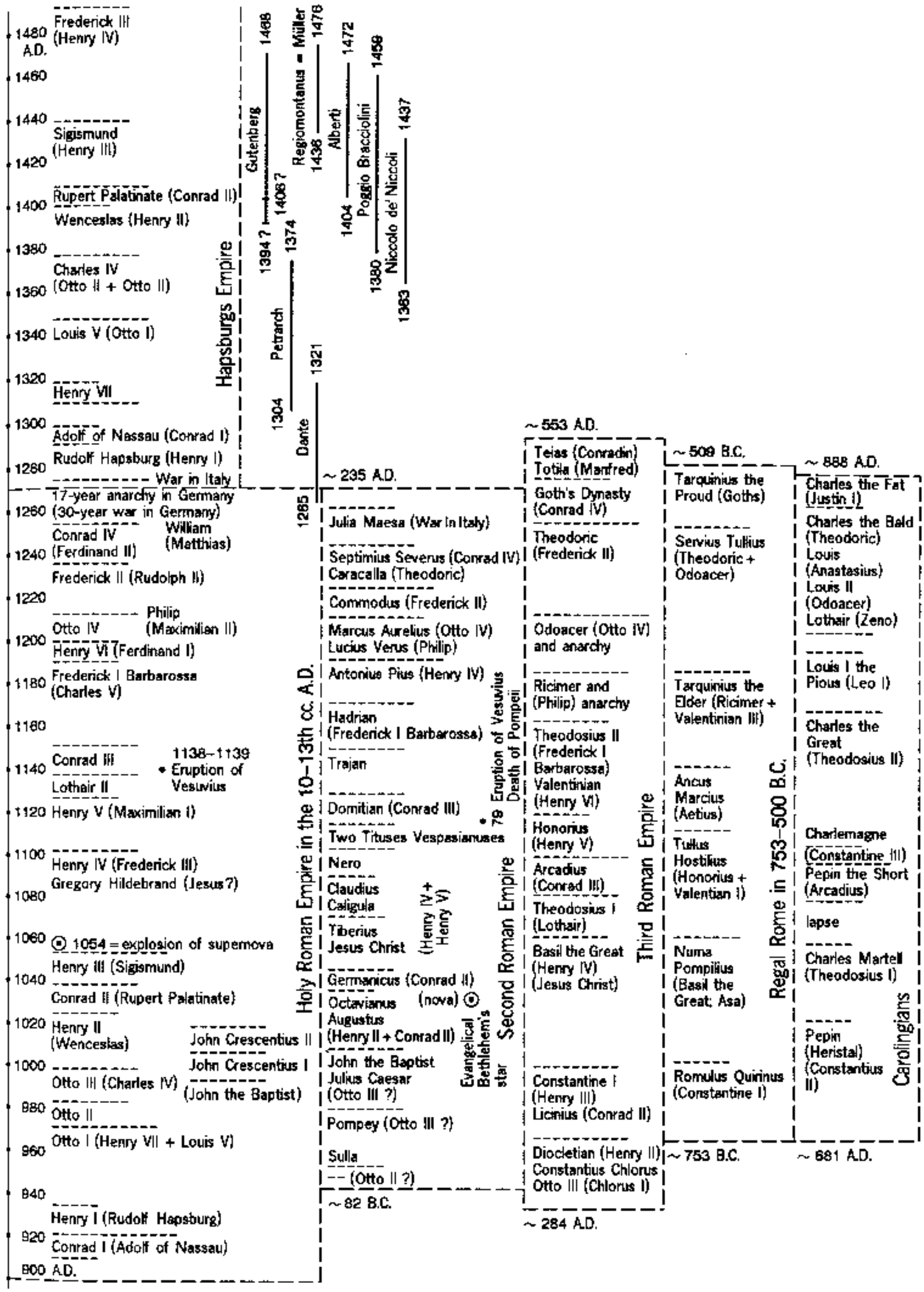


Figure 103. A short chart of the new chronology. The names in parentheses are either their duplicates or their contemporaries. "New Textbook of Ancient History"

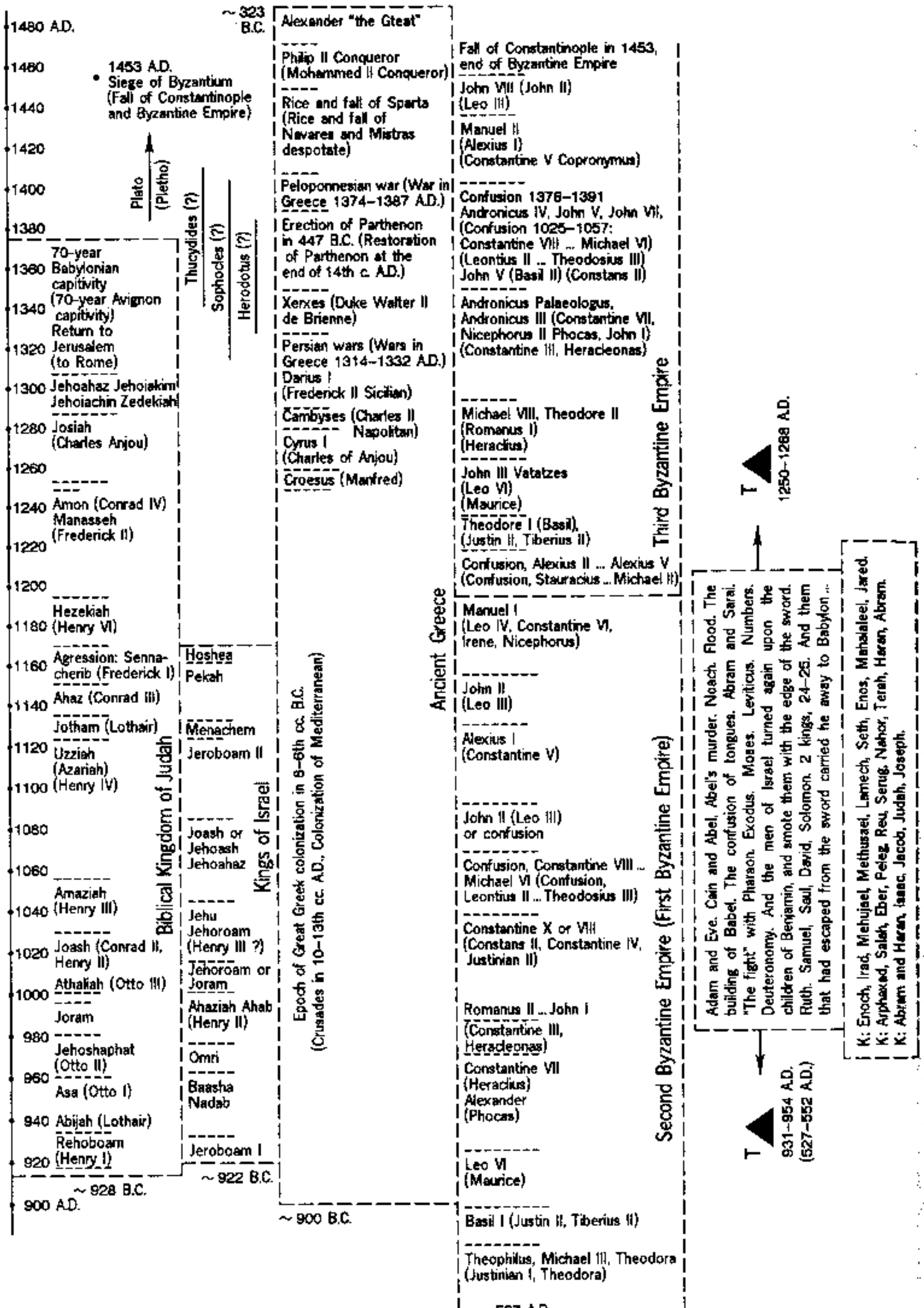


Figure 104. A short chart of the new chronology. "New Textbook of Ancient History"

Figure 105. The round zodiac of the Dandarah temple. General view

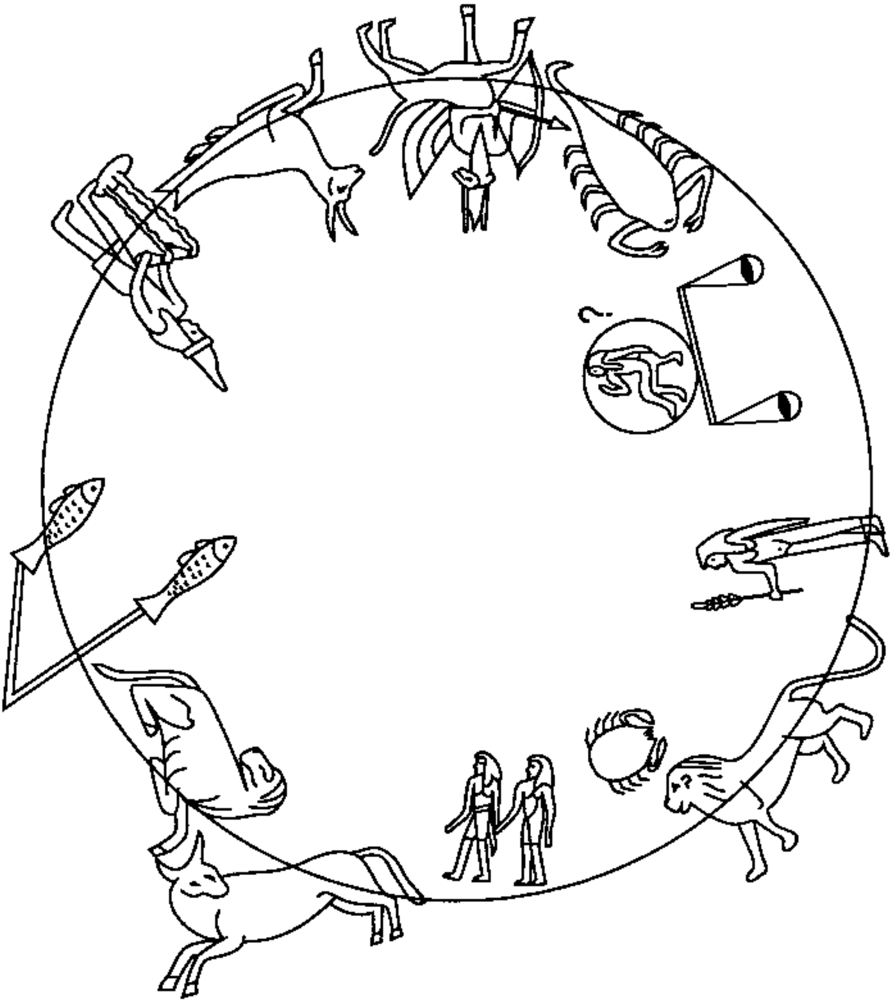


Figure 106. The round zodiac. The twelve symbols of the zodiac

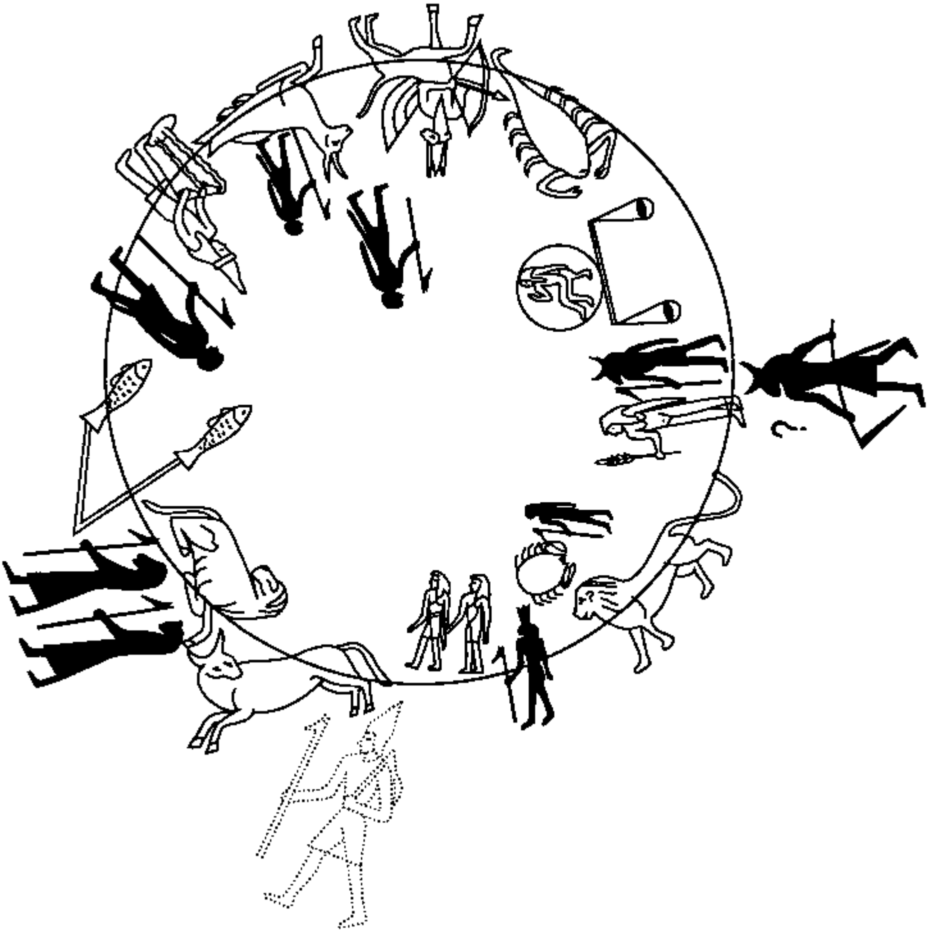


Figure 107. The round zodiac. The planets move along the zodiac

Figure 108. The round zodiac. The fourteen constellations within the zodiac

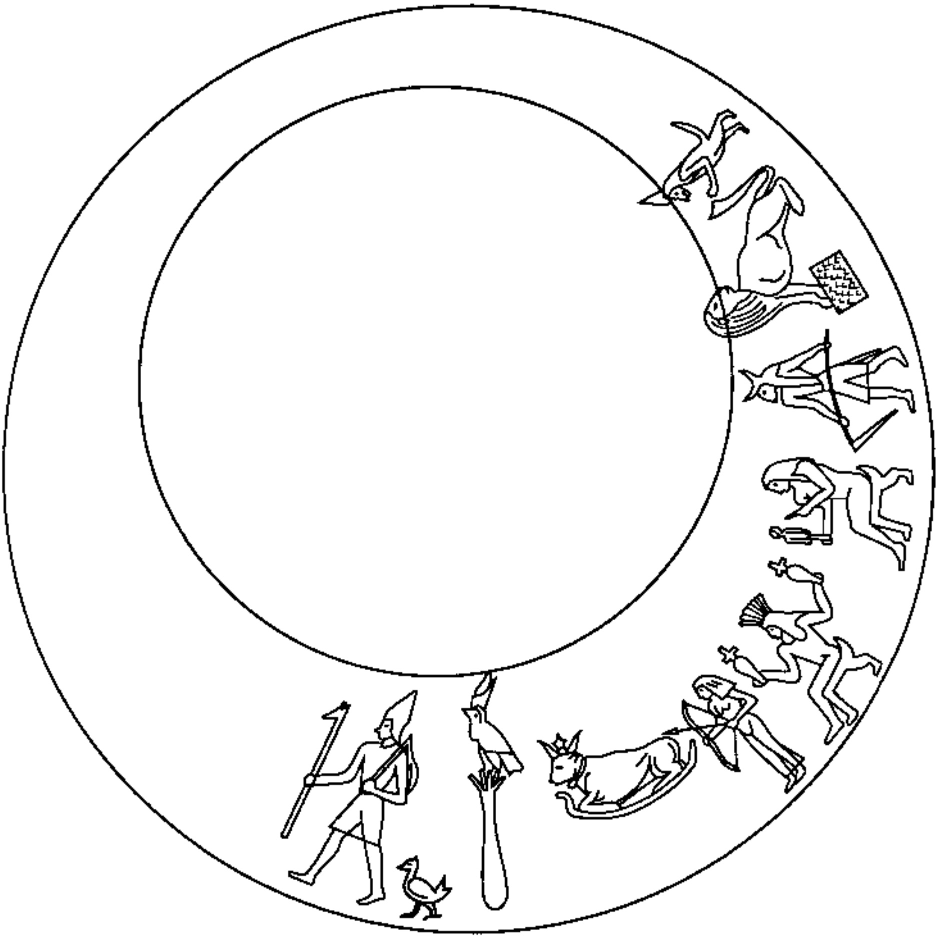


Figure 109. The round zodiac. Procession of the figures filling the space between the zodiac and the outer circle of the disc

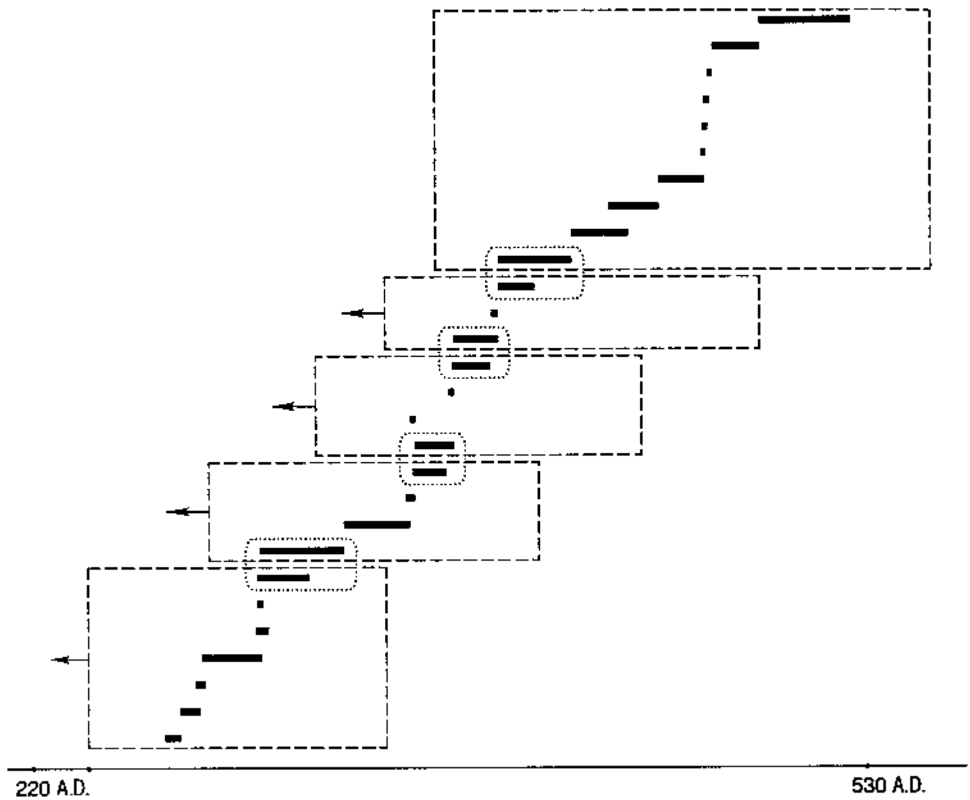


Figure 110. The jet of the Third Roman Empire in 270–526 A.D. parallel to the Second Roman Empire. Durations of the rules

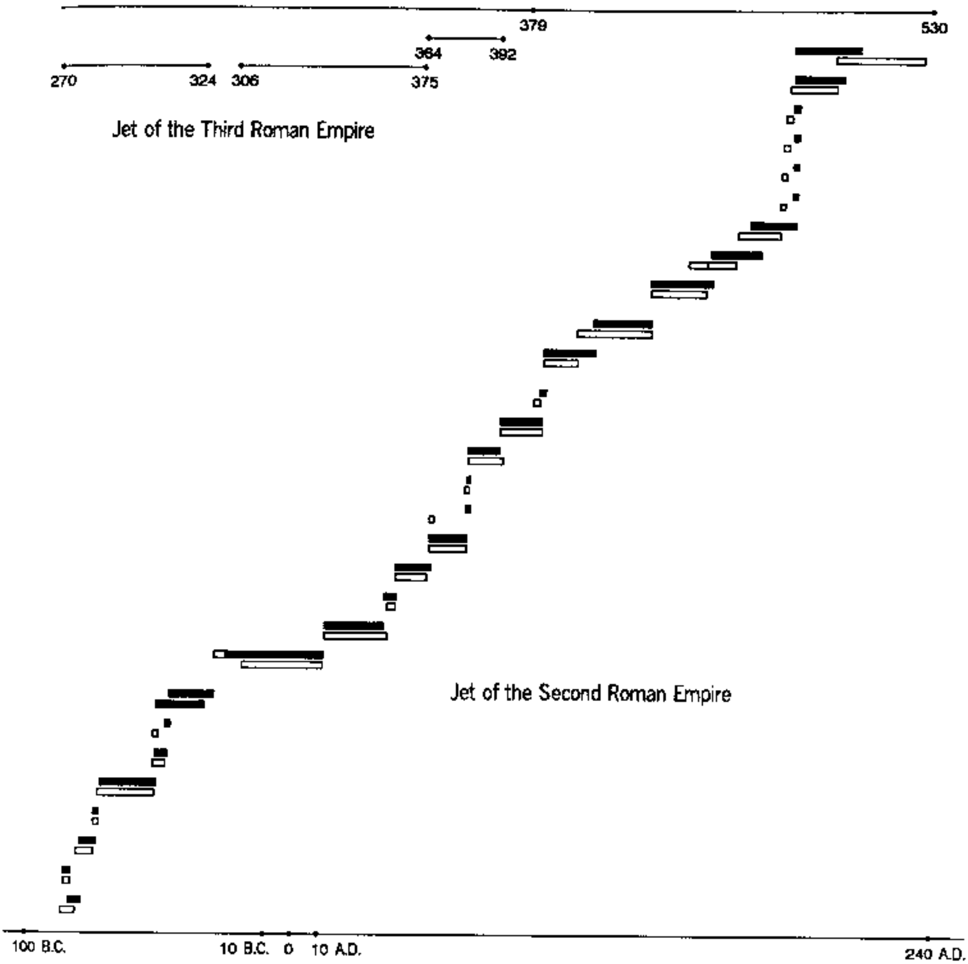


Figure 111. Parallel jets from the Second and Third Roman Empires. Durations of the rules

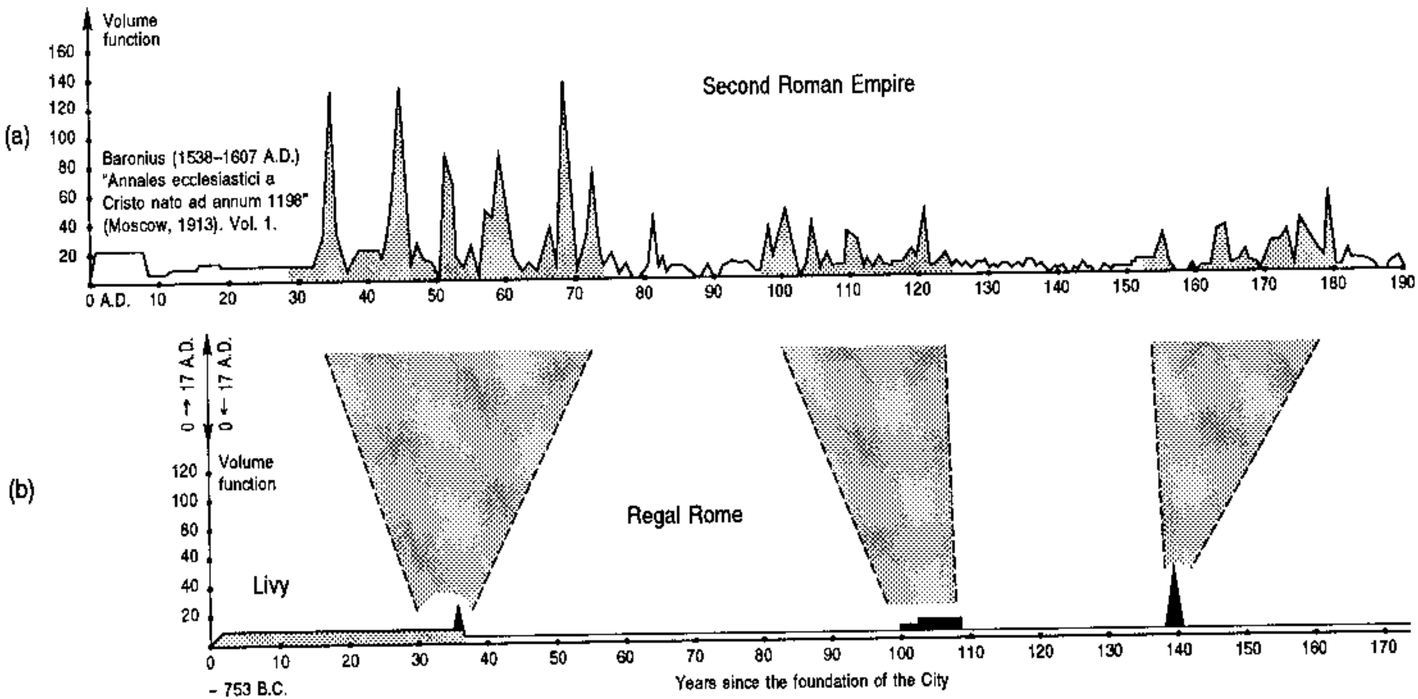


Figure 112. The correlation of volume functions for the following texts:
(a) Roman history according to Baronius (Second and Third Roman Empires). Baronius (1538-1607 A.D.) "Annales ecclesiastici a Christo nato ad annum 1198" (Moscow, 1913). Vol. 1
(b) Ancient Roman history according to Titus Livius (First Roman Empire and Roman Republic). Titus Livius, *Works*, Harvard Univ. Press. Cambridge; Heinemann, London, 1914

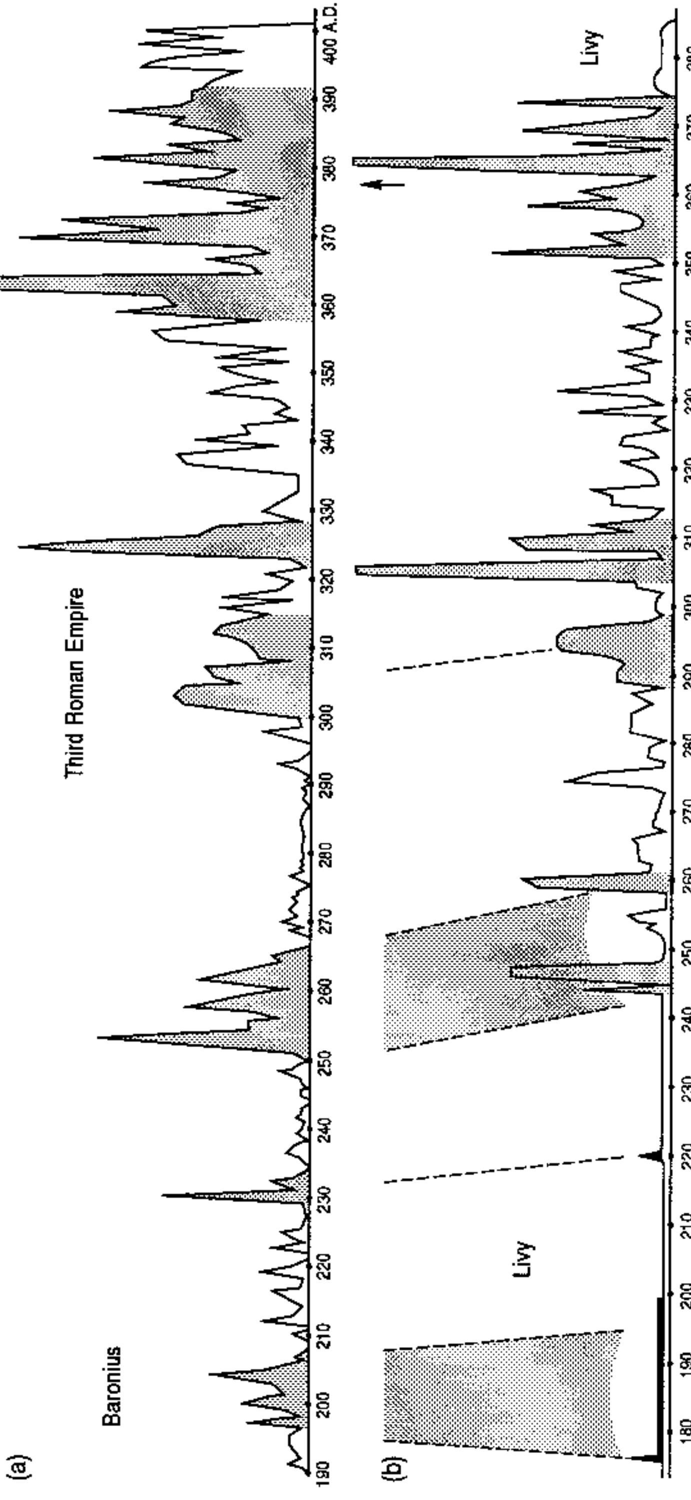


Figure 112. (Continuation)

APPENDIX 2

When Was Ptolemy's Star Catalogue Really Compiled? Variable Configurations of the Stars and the Astronomical Dating of the Almagest Star Catalogue

This work was done by A. T. Fomenko, V. V. Kalashnikov, and G. V. Nosovsky and was initially published (in Russian) in Stability Problems of Stochastic Models, 1988, Systems Research Institute, Moscow [310]. See also [313, 317].

This work is devoted to describing a new method of dating the moving configurations of stars on the celestial sphere. The method was tested on several star catalogues whose dates are well known (Tycho Brahe, etc.) and also on several star catalogues which were generated artificially. Then the same method was applied to the Almagest. The results obtained do not confirm the traditional dating of the Almagest (2nd century A.D. or 2nd century B.C.) but shift its dating to the epoch 600–1300 A.D.

1. History of the Problem and Subject of the Work

Interest in the problem of dating the Almagest (compiled by Ptolemy) is not new. See, for example, *The Crime of Claudius Ptolemy*, a review of the problem by the well-known astronomer R. R. Newton [321], as well as the fundamental investigation of C. H. F. Peters and E. B. Knobel [320].

Increased interest in the problem followed the publication of the investigations of N. A. Morozov in 1928 [13], which raised well-grounded objections to the traditional dating of the 2nd century A.D. or the 2nd century B.C. for the Almagest. Much interesting and critical material is also contained in the book by R. R. Newton mentioned above. Newton formulated the well-grounded conjecture that the main part of the astronomical data in the Almagest had been falsified.

New impetus to a deeper investigation of this problem was given by the works of A. T. Fomenko [18–20, 24, 295] in 1980–1987, in particular by the paper *The jump of the second derivative of the moon's elongation* [20]. Fomenko introduced some new empirico-statistical methods for the analysis of ancient narrative texts (historical chronicles, etc.). He then investigated the whole system of ancient chronology and summarized all these results in a *global chronological diagram* (see details in [18–22]). The recent paper by Y. N. Efremov and E. D. Pavlovskaya [325] attempted to confirm the traditional dating of the Almagest star catalogue based on the proper motions of the stars. Reasons for the failure of this attempt are explained briefly below.

In the present work we describe a method for dating the moving (variable) configurations of stars on the celestial sphere. The proper motions of modern stars are known today with great exactness, so that it is possible to calculate their positions in the past and to compare these calculated coordinates with the corresponding coordinates shown for these stars in ancient star catalogues. This then permits a determination of approximate dates for the observations used in compiling the ancient catalogue and hence of the date of its compilation.

The geometrical-statistical method devised by the present authors has been tested on several star catalogues with well-known compilation dates as well as on several star catalogues generated artificially. In the case of artifical catalogues, the "date of observation" was, of course, known to the compilers but not to the investigators. This method of dating appears to be very accurate: all dates calculated by our method coincided with real (known) dates. The same method was then aplied to the Almagest star catalogue: the results obtained do not confirm the traditional dating of the Almagest and shift its dating to the Arabian epoch, i.e., 600–1300 A.D.

Our work (carried out in the period 1985–1989) is based on careful analysis of all geometrical, statistical, and calculation aspects of the problem. We do not touch on any historical problems; the work is purely geometrical and statistical. The method is based only on the analysis of numerical data contained in the star catalogues, namely, on the analysis of the coordinates of the stars.

2. Some Notions from Astronomy

We now formulate some standard notions (see [320, [321], and Figure 113) to explain the problem and our results. Suppose that the stars belong to the celestial sphere with its center being the "eye of the observer". To fix the position of the stars, we need a spherical coordinate system. Two such systems were customarily used in the Middle Ages: the equatorial system and the ecliptical one. The *equator* of the celestial sphere is the circle of the intersection of the sphere with the plane of the earth's equator. Parallels and meridians can then be introduced onto the sphere. The equatorial latitude δ is measured in arc degrees ($-90° \leqslant \delta \leqslant 90°$) and is called the *declination* of the star. The equatorial longitude α is measured in hours ($0 < \alpha \leqslant 24$hr) and is called the *ascent* of the star. The starting point for counting longitudes must be determined (see details below).

The intersection of the celestial sphere with the plane of the earth' orbit is called the *ecliptic*. The *zodiacal constellations* are distributed along the ecliptic. We can now define new latitudes and longitudes based on the ecliptic. The ecliptical latitude b is measured in arc degrees ($-90° \leqslant b \leqslant 90°$), and the ecliptical longitude l is also measured in arc degrees ($0 < l \leqslant 360°$). The position of the starting point for counting longitudes (the "zero meridian") must be fixed. The intersection of the equatorial plane with the ecliptical plane is the "axis of the equinox". This axis intersects the celestial sphere at two points, the spring equinox and the fall equinox. The point of the spring equinox is taken as the origin in the calculation of equatorial and ecliptical longitudes.

These two coordinate systems are not fixed, they evolve in time for the following reasons:

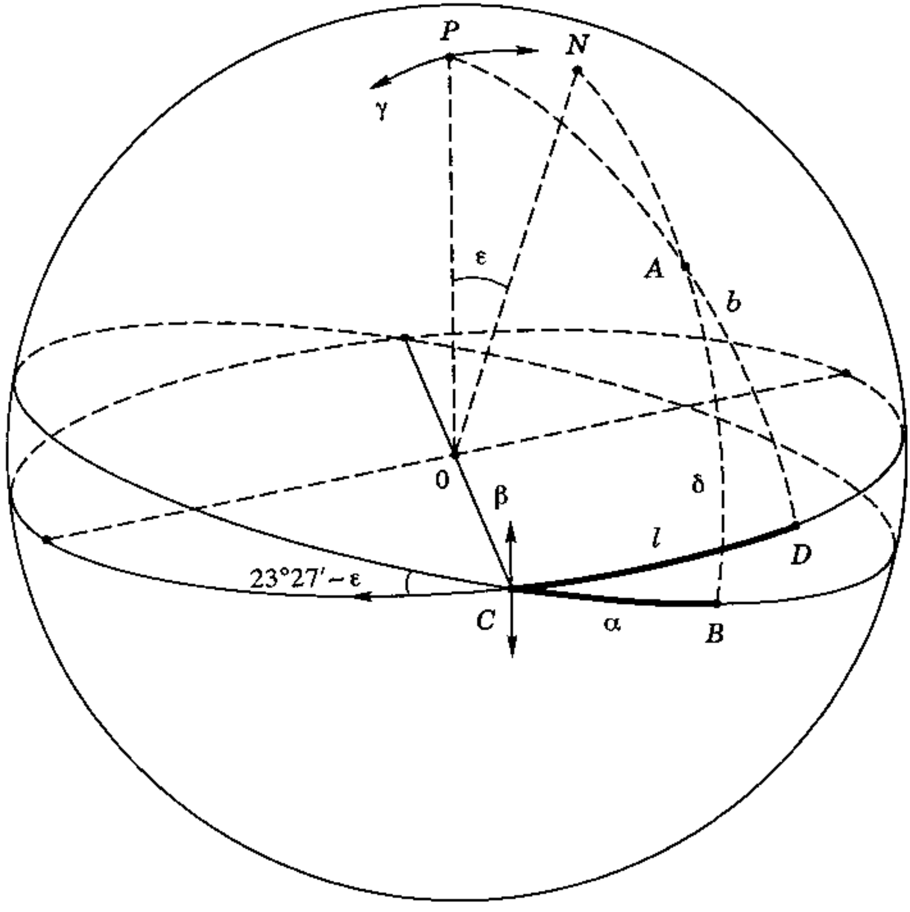


Figure 113. The celestial sphere, equatorial plane, ecliptical plane, latitude, longitude, spring equinox and fall equinox

(A) The axis of the earth's rotation (see radius vector in Fig. 113) moves approximately along the cone whose angle at its vertex equals about $20°27'$ (in 1900 A.D.). In Fig. 113 this is the angle between ON and OP. This motion is called "precession" and its velocity is about $50''$ per year. A complete revolution (rotation) of the axis ON requires about 26,000 years. Consequently, the equatorial coordinate system and the axis of the equinox have a precession which induces the precession of the longitudes (see the indicator C in Fig. 113). If we fix some star (without proper motion) on the celestial sphere, then its equatorial longitude α is the function $\alpha(t)$ of t, corresponding to approximately uniform motion along the circle parallel to the ecliptic.

(B) The earth's axis has smaller oscillations (the so-called nutations) as well as precession, but the maximum amplitude of these oscillations does not exceed $17''$.

(C) A third important perturbation is the *oscillation of the ecliptic*. This oscillation is induced by the oscillation of the plane of the earth's orbit. We let $\varepsilon(t)$ denote the angle between the ecliptic plane and the equatorial plane (Fig. 113). The function $\varepsilon(t)$ describes the ecliptic oscillations as a time function.

Here we take into consideration the precession of the longitude and the ecliptic oscillation but not the smaller oscillations such as nutations. The exact astronomical and mathematical theory of ecliptic motion was formulated by S. Newcomb. This theory is well known and has been generally accepted up to the present time; it is the basis of all modern calculations concerning the evolution of ecliptic and other parameters of the earth's motion. We have used Newcomb's theory and modern specifying equations (from the work of H. Kinoshita [322]) in calculating the functions $\alpha(t)$ and $\varepsilon(t)$, using a computer. Various other astronomers (including C. H. F. Peters, E. B. Knobel, and R. R. Newton) have used Newcomb's theory as a basis for calculating the positions of the stars in ancient times from modern exact data.

The considerable proper motions of some stars is also taken into account—actually we consider all stars as moving stars. All data about the directions and velocities of proper motions are contained in [323] and [326]. Most stars which are visible (to the naked eye) move very slowly, but there do exist stars (the bright ones) whose position on the celestial sphere has changed by several degrees over two thousand years. We can consider all proper motions of the stars during the time interval from 500 B.C. to the present as rectilinear motions.

Finally, we also consider the refraction effect, which is important for the stars close to the horizon.

We measure time t, using centuries as units. The value $t = 0$ corresponds to 1900 A.D. The coordinates of "modern" stars are reduced to this year. The value $t = 1$ corresponds to 1800 A.D. and so on. But the parameter t must not be an integer. For example, the value $t = 3.75$ corresponds to 1525 A.D. The parameter t will change inside some time interval fixed a priori. For the Almagest, we choose this interval to be $0 \leqslant t \leqslant 25$, i.e., from 600 B.C. to 1900 A.D.

3. Some Characteristics of the Ancient Star Catalogues

We study the star catalogues of Ptolemy (the Almagest), Tycho Brahe, and Hevelius. All these catalogues were worked out without telescopes. Each catalogue contains about 1000 stars, whereas modern catalogues contain about 5000 stars visible to the eye.

The modern catalogues use equatorial coordinates which can be measured more simply and accurately than ecliptical ones. The medieval and ancient catalogues mentioned above use the ecliptical coordinates. The ancient astronomer did not know about the small ecliptic oscillations and hence supposed the ecliptical coordinates to be "eternal" coordinates. In other words, they supposed that ecliptical latitudes did not change over time and that ecliptical longitudes changed with constant velocity induced by precession. The equatorial coordinates even of fixed stars (those without proper motions) change in a more complicated way. After the discovery of the oscillations of the ecliptic, all "advantages" of ecliptical coordinates disappeared.

Some of the stars in the ancient catalogues have proper names—they are the named stars. Usually these are very bright stars; among them are stars with considerable proper motion, for example, Arcturus. It is natural to suggest that proper names were given to stars that were important to ancient observers and to assume that the coordinates of such stars would have been measured with special care, and certainly several times. Hence these "named stars" can be thought of as the "information kernel" of the ancient catalogue. Later we will see how this idea gets additional support from the numerical calculations. The information kernels can vary between catalogues, but in the actual catalogues listed above, these kernels are very similar. The named stars form a clearly visible basis (or frame) on the celestial sphere, making it very convenient to measure the positions of other stars (without proper names) relative to this system of basic points.

The *exactness*, the accuracy, of each catalogue is very important for dating it. It is natural to suggest that the claimed accuracy of a catalogue corresponds to its scale, i.e., to the size of the unit in the scale used. For example, the size of the unit in the Almagest is $10'$, in Tycho Brahe's catalogue it is $1'$ and in Hevelius's catalogue it is $1''$ (see [324]). But many investigations (see [321] for example) lead us to conclude that the accuracy of the ancient catalogues must be considered most carefully. For example, R. R. Newton (see [321]) proves by statistical methods that the errors in the latitudes of some stars in the Almagest are $20'$, not $10'$, and that the error in the arc deviation is equal to $1°12'$. The last error contains some systematic error. When the systematic error is removed, the arc deviation error decreases to $30'$. Thus we see that the accuracy of the latitudes of the stars in the Almagest is greater than their longitudes [321]. The accuracy of Tycho Brahe's catalogue is considered by modern specialists to be $2'$–$3'$ (but not $1'$). This fact was confirmed by our own investigations (see below). It is reasonable to suppose that the accuracy of Hevelius' catalogues is close to that of Tycho Brahe's, since the two observers used practically the same instruments, making the accuracy of Hevelius' catalogues about $2'$–$3'$, but of course not $1''$. This hypothesis is confirmed by our calculations.

4. Errors in the Coordinates in Ancient Catalogues

For lack of space we will not discuss the possible reasons for the appearance of errors in ancient catalogues but refer the reader to R. R. Newton's book [321]. Here we list only the most important facts.

(A) Analysis of the methods used in making ancient observations and measuring coordinates shows that for actual catalogues the possible errors in the latitudes of the stars (latitude deviation) must be less, in a statistical sense, than the errors in longitudes and hence less than the errors in the arc distance (between stars). In other words, the latitudes shown in ancient catalogues are the firmest and most accurate coordinates of the stars, which is confirmed by our investigations.

(B) The *longitude deviation* can include some additional terms which are the result of the recalculation of the catalogues to eliminate the precession effect [321].

(C) The compilers of medieval and ancient star catalogues were neither aware of the *refraction effect* nor of the effect of the *accumulation of errors* in the observation and calculation of the coordinates of the stars, using the finite system of fixed basic points (named stars). Such errors actually do occur in these catalogues.

(D) Errors in the catalogues may have been introduced by copyists. In the original manuscripts of the Almagest, letters were used to denote figures, and this has caused difficulties in the interpretation of its numerical data. For example, the letters (or figures) Δ, λ, α are easily confused [320].

If we consider errors in the coordinates to have a random value, then (within the limits of the claimed accuracy of the catalogue corresponding to the value of the unit in the catalogue's scale) we can take this random value as a value, chosen from some homogeneous sequence (for example, normal). "Large deviations" or "spikes" can be attributed to the causes listed (see C and D). The hypothesis of randomness is unnatural for "spikes", making it necessary to examine all suspicious cases individually. Final conclusions cannot be drawn from calculations based on these "suspicious stars", so they must be removed from the list at the start. Several such cases are discussed in [320] and [321] and have been given careful consideration in our work.

5. Preliminary Analysis of the Almagest

We base our work on the summarized version of the Almagest as it appears in the fundamental work of Peters and Knobel [320]. The list of stars (about 1000 in all) contains some variants listed in [320]. At the first stage of our investigation, we did not question the star coordinates of the Almagest or the traditional assumption that their ecliptical coordinates correspond to the year 60 A.D. The numeration of the Almagest stars is that of F. Baily.

Identification of the dim stars of the Almagest with modern stars is a complicated problem which cannot be solved in all cases. In other words, "who is who" among the unnamed stars is not at all clear. For the most part, the stars of the Almagest are identified only by their coordinates or by non-modern verbal descriptions, and these have many different interpretations. Identification of most of the Almagest stars with the corresponding modern stars was made by Peters and Knobel [320].

In order to satisfy our need for firm data, we have solved the problem of identification anew. For this purpose, we chose from the modern star catalogue the set of 30 named stars and 50 stars with $v \geqslant 0.5''$ per year, where v is the velocity of proper motion. To solve the problem of "who is who" in the Almagest, we used Newcomb's theory. Namely, we calculated (using a computer) the ecliptical coordinates of all the above stars at the times $t = 1, 2, \ldots, 25$ (i.e., from 600 B.C. to 1800 A.D.). Then we compared these coordinates with those given in the Almagest.

This work appears to confirm in general the traditional identifications of the Almagest stars (see [320]) in almost all cases. We obtained some additional information, namely the classification of all identified pairs of modern stars (modern as well as from the Almagest) according to the values of the arc distances between them.

We also discovered several stars in modern catalogues (in particular o^2 Eridanus) which can be identified for different times t with different Almagest stars. In other words, the identification of such stars (and consequently the answer to the question "who is who") is a function of time t. For o^2 Eridanus, we get the following different stars: 778, 779, and 780 (in Baily's enumeration). Peters and Knobel also expressed doubts as to the identification of o^2 Eridanus. These facts refute the work of Efremov and Pavlovskaya [325], since the proper motion of o^2 Eridanus is the basic argument used by them to derive the date of compilation of the Almagest. Efremov and Pavlovskaya at first suppose that the Almagest was compiled in the second century A.D. and then "prove" that this is indeed true. In our opinion, stars such as o^2 Eridanus must be excluded from consideration because a change in their identification essentially changes the dating of the catalogue.

Having completed the computer identification of the stars, we obtained the list T of all the stars which have firm and unique identification with Almagest stars. This list T contains the following information about the identification of stars: (1) Baily's number i; (2) the ascent α_i and declination δ_i of the star from the modern catalogue at time $t = 0$; (3) the velocity components of the proper motion of the star on the celestial sphere; and (4) the ecliptical longitude l_i and the ecliptical latitude b_i of the corresponding Almagest star.

Let $\alpha_i(t)$ and $\delta_i(t)$ denote equatorial coordinates and $L_i(t)$ and $B_i(t)$ denote the ecliptical coordinates of the i-th star from the modern catalogue (more precisely, from list T) in the century t. These coordinates were calculated (by computer), taking into consideration the precession, the ecliptic oscillation, and the proper motion of the stars. The problem of dating the Almagest is then reduced to finding t_0 such that the set of coordinates $V(t_0) = \{L_i(t_0), B_i(t_0)\}$ is closest to the set of coordinates $V_A = \{l_i, b_i\}$ for the corresponding Almagest stars.

The simplicity of this idea is not consistent with the difficulty of solving the problem so formulated. Overcoming these difficulties is the content of the present work.

Usually such a problem can be solved by choosing some natural distance between the sets $V(t)$ and V_A. Then one can determine the moment t_0 when this distance is minimal. It appears in our case, however, that the possible error in the calculation of t_0 is very large. For example, let $a_i(t)$ be the arc distance between stars with the coordinates $(L_i(t), B_i(t))$ and (l_i, b_i) and let $t_i^* = \arg(\min a_i(t))$. It is easy to see that if the coordinates of some Almagest star S have an error Δ and if v_i is the velocity of the star K_i on the modern celestial sphere which is identified with S, then the error in the determination of t_0 (using star K_i) is about Δ/v_i. Consequently, we can state only that the desired date t_0 is in the time interval $(t_i^* - \Delta/v_i, t_i^* + \Delta/v_i)$. (More precisely, we must consider the projection of v_i on the straight line connecting the modern star K_i with the Almagest star S.) For example, in the case of the Almagest (using the most optimistic estimation), we have $\Delta \approx 15'$ and $v \approx 1.5''$/year. Here $14' \approx \sqrt{(10')^2 + (10')^2}$, where $10'$ is the claimed accuracy of the Almagest and $1.5''$/year is the velocity of a very fast star, namely Arcturus. Thus we see that the time interval of possible solutions t_0 for this case is equal to about 1200 years. (This result also contradicts those results obtained in [325].) For slower stars, this time interval covers all values $t = 0, 1, \ldots, 25$.

In fact, the exactness of the method used by Efremov and Pavlovskaya [325] is less than that described above. Moreover, our calculation shows that by changing stars in the configuration considered in [325] we can vary the desired date from $t^* = 13$ to $t^* = 21$. Since it was supposed in [325] that $t^* = 16.5$, the results obtained there cannot be considered correct.

Our numerical investigation confirmed the lack of exactness of other similar "point-minimum" methods. It appears that by slight variation of the initial data (for example, by changing the set of moving stars), we can vary the "point of minimum" from $t = 0$ to $t = 25$. Moreover, it was discovered that the final result depends on the sort of distance used. This means that such results are extremely subjective.

The information kernel of the Almagest consists of twelve stars, designated "vocatur" (i.e., named). The twelve stars (with their modern astronomical names and Baily's numbers in brackets) are: Arcturus (α Boo, 110), Sirius (α CMa, 818), Aquila (α Aql, 288), Previndemiatrix (ε Vir, 509), Antares (α Sco, 553), Aselli (γ Cnc, 452), Procyon (α CMi, 848), Regulus (α Leo, 469), Spica (α Vir, 510), Lyra (α Lyr, 149), Capella (α Aur, 222), Canopus (α Car, 892).

Table 1 shows the deviation in latitudes $|B_i(t) - b_i|$ for all these stars (in minutes) for several values of t.

Table 1
Deviations in latitudes for the 12 vocatur (named) stars

	t					
No.	1	5	10	15	18	21
110	37.6	21.2	<u>0.9</u>	19.3	31.4	43.3
818	23.6	18.3	11.7	<u>5.1</u>	<u>1.2</u>	<u>2.6</u>
288	<u>8.6</u>	<u>9.4</u>	10.5	11.8	12.6	13.4
509	13.0	14.3	15.8	17.1	17.8	18.4
553	32.6	29.5	25.5	21.6	19.3	17.0
452	30.5	28.5	25.9	23.2	21.5	19.8
848	11.2	16.0	21.9	27.6	31.1	34.4
469	17.5	16.6	15.4	14.0	13.0	12.1
510	<u>2.4</u>	<u>0.7</u>	<u>1.3</u>	<u>3.1</u>	<u>4.2</u>	<u>5.2</u>
149	15.4	14.2	12.5	10.8	<u>9.8</u>	<u>8.7</u>
222	21.9	21.7	21.3	21.0	20.8	20.6
892	51.0	54.2	58.2	62.3	64.8	67.3

The values $t = 18$ and $t = 21$ correspond almost exactly to the traditional dates for the lives of Ptolemy and Hipparchus. (Recall that some experts attribute the Almagest to Hipparchus.) Table 1 confirms that it is senseless to date a catalogue using the "exact minimum" of some usual distance between stars or between star configurations. The value t_0 as the absolute minimum of a distance is very "sensitive" to small variations in the initial data.

Table 1 also shows that for seven of the twelve stars the latitude deviations $|B_i(t) - b_i|$ are more than $10'$ for all t from the a priori time interval. ($10'$ is the accuracy claimed by the compiler of the Almagest.) For the star 510 (Spica), the following inequality holds:

$$\max_{1 \leqslant t \leqslant 21} \left| B_{510}(t) - b_{510} \right| < 10'.$$

For another four stars, no more than two stars are contained in a 10-minute interval. And this is true for all t!

This fact is particularly surprising since it is valid for the *bright, named* (*i.e., well-known*) *stars*, the very ones whose coordinates must have been measured most carefully by the ancient astronomer. We conclude that the Almagest star catalogue must contain some *systematic errors.*

In the next sections, we shall try to realize two main objectives: (a) to calculate all *systematic errors* in the Almagest, and (after removing these systematic errors from the stars' coordinates) (b) to calculate some *time interval* spanning the actual time of observation. As was shown by the preceding calculations, we can determine only the *time interval*, not the "exact point of minimum".

6. General Description of the Method of Dating

6.1. Types of errors occurring in the catalogues. We have shown that all attempts to calculate the *exact point* of minimum of a particular distance between modern star configurations and those of the Almagest fail. As pointed out above, errors in the coordinates of individual Almagest stars are great in comparison with the velocities of proper motions of most fast, bright stars. So we must examine very carefully all possible errors in the catalogues. We divide these errors into three types: *systematic errors, random errors,* and *spikes.*

Systematic errors appear as a result of global measurements or recalculations of coordinates which induced the global rigid translation (motion, shift) of the stars on the total celestial sphere (or on a significant part of it). Such systematic errors do occur in the Almagest (see below).

Random errors are the result of a lack of exactness of individual measurements attributable to the use of imprecise instruments. Errors of this kind cause a random movement of each star on the celestial sphere. It is reasonable to assume that these errors have random distribution with zero mean value. Such errors usually do not exceed the size of the scale unit (of the instrument).

Spikes are caused by circumstances beyond the control of the observer and unknown to him—for example, the errors of later copyists, refraction, etc. These errors usually change the coordinates only of single stars; their values are likely to be considerably larger than the unit scale of the instrument and occur rarely.

6.2. Systematic errors. Systematic errors are most frequently introduced by the recalculation of equatorial coordinates into ecliptical ones. Such recalculation is inevitable, since all astronomical instruments are based on the earth and initially are correlated with the equatorial coordinate system. The transition to the ecliptical system was accomplished with the aid of mathematical formulas, special globes, or astronomical instruments. Thus the term "recalculation" is to be interpreted very broadly, including as it does, formulas, globes, instruments and so on. In any case, in order to compile a catalogue using ecliptical coordinates, the astronomer must know the position of the ecliptic and the position of the axis of the equinox OC in the epoch to which the catalogue is to be reduced (Fig. 113). This position is known with some error τ_1 (in the general case). The error in the calculation of the point C (along the ecliptic) induces the *systematic* rigid translation of the longitudes of all stars. Next, the astronomer may make a mistake τ_2 in the definition of the longitudes of the stars simultaneously. These two errors are summed to arrive at the systematic error in the longitude $\tau = \tau_1 + \tau_2$.

The next possible systematic error is induced by translation (shift) of the equinox point C along the meridian. In other words, it is the error in the latitude of the point C, since this point is translated from the equator. This error is denoted by β in Fig. 114. Instead of β, we can introduce a parameter φ, which is an angle between the real axis of the equinox and the line of intersection of the equatorial plane with the "catalogue's" ecliptical plane, see Fig. 114.

These two errors, β and τ (or φ and τ), totally describe all possible translations of the point C on the sphere: any error is some combination of β and τ (or φ and τ).

A third error, which we denote by γ, may appear in the calculation of the angle ε between the equator and the ecliptic (Fig. 113). In other words, γ is the error in the calculation of the position of the pole of the ecliptic on the celestial sphere.

All these errors were included in our calculation formulas and in the equations of the ecliptic motion. In addition, all possible pairs β, γ were tested in the calculation process. By varying β and γ, we can slightly shift (or swing) the ecliptical coordinate system. It is clear that any rotation of the celestial sphere can be decomposed into the product of three orthogonal rotations defined by the parameters τ, β, and γ. Thus, they include all other possible systematic errors (if they occur).

The possibility of systematic errors in the Almagest has been discussed by many authors, see [320], [321], and [13]. Let us summarize the results of these discussions.

The error τ can be induced by the observer's attempt to reduce a star catalogue to some date other than the actual date of observation. The catalogue of Tycho Brahe, for example, was reduced to the "perfect" calendar date of 1600 A.D. Or the astronomer may try to hide the real date of observation by reducing his catalogue to another epoch [321], [13]. Practically, such a translation (shift) of a catalogue is realized in a very simple way: it is sufficient to add some constant (corresponding to precession) to the longitudes of all the stars in the catalogue.

Sometimes the error τ is a consequence of a change in the starting point for the calculation of longitudes. Ancient astronomers did calculate longitudes starting from different initial points on the ecliptic—Copernicus, for example. This change required the addition of some constant to the longitudes of all the stars.

What about the errors β and γ? The equatorial latitudes of the stars can be determined from the observations in such a simple and exact way (see [321]) that we may assume that the error β (at the time of the actual observation, of course) must be practically zero. In other words, $\beta \approx 0$.

The error γ has quite a different character. Accurate determination of the ecliptic position requires complicated calculations or nontrivial observations and measurements, so that the order of magnitude of the error γ must be considerably greater than that of the error β. References [320] and [13] both discuss this systematic error. Some authors estimate the value of γ to be about $20'$ or $30'$. Our calculations give a value of $\gamma \approx 20'$.

6.3. Random errors and spikes. Let us consider the star (from our list T) with Baily number i, with l_i and b_i being its ecliptical coordinates. We denote by $L_i(t,\tau,\beta,\gamma)$ and $B_i(t,\tau,\beta,\gamma)$ the ecliptical longitude and latitude of this star, calculated for time t, and taking into account the proper motion of the star and the errors τ,β, and γ. From a modern catalogue (i.e., for $t = 0$), we determine the equatorial coordinates α_i, δ_i of the i-th star and calculate the coordinates $\alpha_i(t), \delta_i(t)$ of the same star at time t. These coordinates are converted to ecliptical ones (for the same time t) using the equation of ecliptic oscillation, the precession angle, and the corresponding rotation of the angle $\varepsilon(t)$ about the equinoctial axis. Then we rotate the ecliptic for the same small angles β,γ, and τ. In other words, we determine (for time t) the ecliptic perturbations defined by the systematic errors β,γ, and τ. The resulting star coordinates are then $L_i(t,\tau,\beta,\gamma)$ and $B_i(t,\tau,\beta,\gamma)$, using the same ecliptic coordinate system as was used by the compiler of the Almagest star catalogue. It is now possible to compare the Almagest coordinates l_i, b_i of the i-th star with its calculated coordinates $L_i(t,\tau,\beta,\gamma)$, $B_i(t,\tau,\beta,\gamma)$.

Let us consider the following latitudinal and longitudinal deviations:

$$\Delta_b(i,t,\beta,\gamma) = B_i(t,\beta,\gamma) - b_i,$$
$$\Delta_l(i,t,\tau,\beta,\gamma) = L_i(t,\tau,\beta,\gamma) - l_i.$$

Here we use the obvious fact that the latitude $B_i(t,\tau,\beta,\gamma)$ (and hence the latitudinal deviation) does not depend upon τ, i.e., $B_i(t,\tau,\beta,\gamma) \equiv B_i(t,\beta,\gamma)$. This is one of the reasons why latitudes are more stable than longitudes. We will mainly use latitudes (which are not affected by the error τ) and consider longitudes only as auxiliary data.

If the measurements for the i-th star do not contain some unforeseen errors (copyist's mistake, refraction, etc.), then the deviations Δ_b and Δ_l must be within the accuracy interval characteristic of the given catalogue. The accuracy of a catalogue may be unknown. Moreover, the author of a catalogue may have chosen as the size of a unit in the catalogue scale the "record" accuracy, that is, the accuracy of observations of the most famous (named) stars. To find and eliminate "spikes", we may use the following method (where the values of β and γ are considered to be given).

1. The deviation $\delta = [\sum_i \Delta_b^2(i,t,\beta,\gamma)/N]^{1/2}$, where N is the number of stars in the list T. In fact, the value of δ does not depend upon t, since most of the stars have small proper motion. Thus we may take the resulting value of δ (or even $\delta/2$) as the "record" accuracy Δ of a given catalogue. The "real" accuracy of the catalogue is the value $2\delta \div 3\delta$. We should also note that about 40% of the stars in the catalogue are within the "record" interval of accuracy.

2. Stars whose coordinates are not within the "record" accuracy of the catalogue must be excluded from the investigation. Either these are "spikes," or else there were large errors in the measurement of their coordinates.

Since the number of these "spikes" is small, they do not affect δ. Nevertheless, we have excluded from the list T all stars whose coordinates were considered doubtful by Peters and Knobel [320].

In addition, we excluded from the list T all stars whose coordinates can be considerably deformed by refraction (see Canopus in Table 1).

7. Statistical Analysis of the Almagest Star Catalogue

7.1. Preliminary remarks. The star catalogue in the Almagest contains 1025 stars. Their coordinates (ecliptical longitudes and latitudes) are given in the catalogue with a "claimed accuracy" of $10'$, i.e., the author believed that he really reached an exactness of $10'$. All stars are collected in constellations which are arranged in a natural order from north to south. We have studied a "canonical" version of the catalogue from a fundamental work [320], which contains, in particular, results of the identification of the stars from the Almagest with "modern" stars. As we mentioned above, some "fast" stars had to be deleted from the catalogue because of their uncertain identification. One can find in [320] real errors in the coordinates of stars from the Almagest star catalogue. These errors were obtained by Peters, given that the dating of the Almagest is about 100 A.D. Although these calculations do not completely fit our situation, they can be used for deleting some "large deviations" (more than $1°$). We pointed out that such "doubtful" stars are not informative. As a result, we obtained a "clean catalogue" which contains 864 stars. This served as the subject of our statistical investigations.

It is interesting to note that two stars (Canopus and Previndemiatrix), which were removed from the catalogue, turned to be spikes, see [310] for details.

Let again l_i and b_i be the ecliptical longitude and latitude of the i-th star from the clean catalogue. Let $L_i(t)$ and $B_i(t)$ be real corresponding values for time t. A detailed and careful statistical analysis shows (see [321]) that the longitudes in the Almagest cannot be considered reliable numerical data. R. Newton showed in [321] that these data were the result of some complicated recalculations of the initial ones. But all specialists agree that latitudes are the initial observed data. We based our investigation on latitudes only. It turns out that an analysis of only latitudes gives us the possibility of separating all stars into groups having "well-measured" coordinates and groups having "badly measured" ones. We *demonstrate* in this paper *that star catalogues* (not only the Almagest but many others!) *can be dated with the help of only latitude data.*

Recall that the initial mean-square errors of star latitudes in the Almagest,

$$\delta = \left[\left(\sum_{i=1}^{N}(b_i - B_i(t))^2\right)\Big/N\right]^{1/2},$$

is equal to approximately $20'$. This accuracy does not really depend on time t ($0 \leqslant t \leqslant 25$).

7.2. Classification of latitude errors. Let t^* be the real (but unknown to us) year of the observation of the stars. We started with a decomposition of the real latitude deviation $\Delta b_i(t^*) = b_i - B_i(t^*)$ into two components:

$$\Delta b_i(t^*) = \xi_i + r_i(t^*). \tag{1}$$

Let us call the value ξ_i the error of observation. It can be inspired by various causes but there is no reason to discuss them here. It is natural to suggest that ξ_i is a Gaussian random variable with zero mean value $E\xi_i = 0$, and with finite variation $d = E\xi_i^2 = 0$. We can call the component $r_i(t^*)$ an error due to the wrong determination of the ecliptic pole. The position of the ecliptic was known to ancient astronomers with some error which can be characterized by the two parameters γ and φ, see Fig. 114. From the definitions, it is easy to obtain that

$$r_i(t^*) = \gamma_i \sin\left(L_i(t^*) + \varphi_i\right) + \delta_i, \tag{2}$$

where $|\delta_i| < 1''$ if $|B_i(t^*)| < 80°$. Consequently, the value δ_i can be neglected in our calculations.

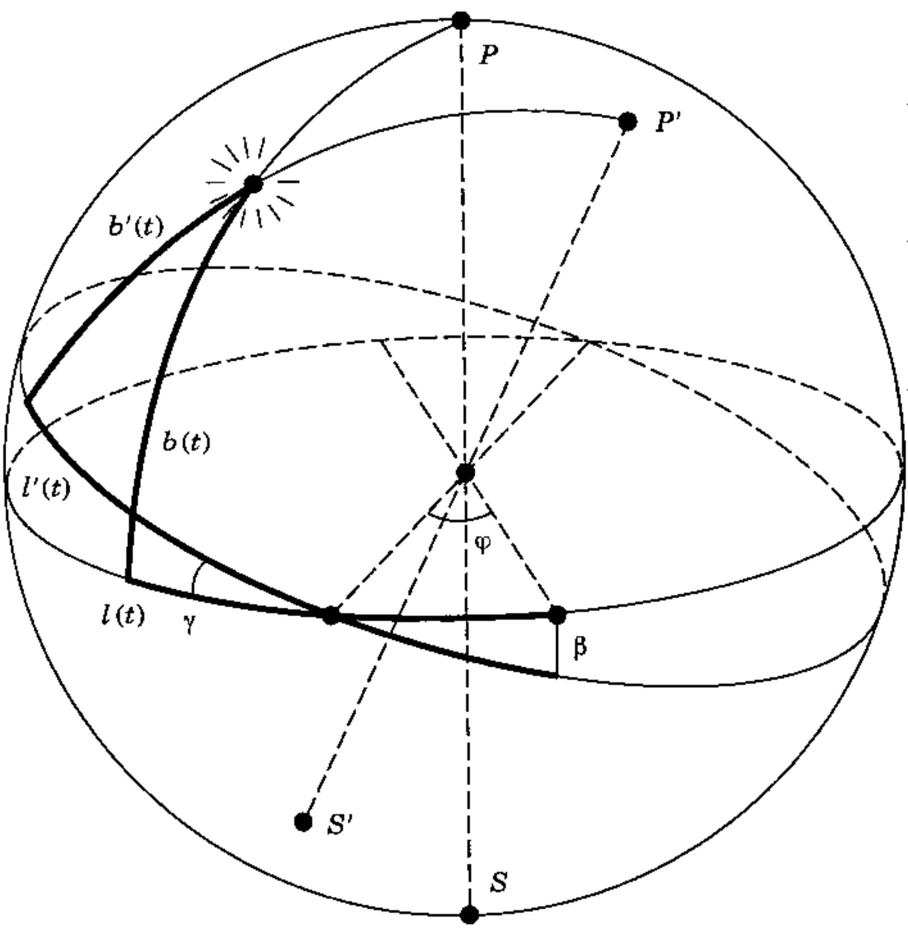


Figure 114. Geometrical representation of systematic errors in terms of spherical coordinates

The idea of the proposed method is to determine γ_i and φ_i by mathematical statistics and to compensate for these errors in order to deal with the real observation error only. Such an approach leads us to a dating method. The realization of the method is based on the fact that the parameters γ_i and φ_i have a "group-like nature", i.e., they are the same for certain groups of stars (e.g., for constellations). This is really true in many cases, because γ_i and φ_i do not depend on individual measurements but on preliminary determination of the ecliptic position for the groups mentioned.

We assume that each constellation G in the ancient catalogue has an individual group error (i.e., this error is common for all stars of the constellation) in the determination of the position of the ecliptic pole. Let us parameterize it by the values γ_G and φ_G. That is, for each star $i \in G$, we assume that the equalities $\gamma_i = \gamma_G$ and $\varphi_i = \varphi_G$ are true. Our aim is to estimate γ_G and φ_G for each group G of the catalogue. Note that the Almagest star catalogue contains 48 constellations.

7.3. Analysis of errors. Seven homogeneous regions in the Almagest star atlas. Let us suppose that t is the year of observation. Determine the value

$$\Delta b_i(t, \gamma, \varphi) = b_i - B_i(t) - \gamma_G \sin\left(L_i(t) + \varphi_G\right) \tag{3}$$

for the i-th star and consider a constellation G containing N stars. Then we calculate values for $\hat{\gamma}_G$ and $\hat{\varphi}_G$ from the condition of minimization of the function

$$\delta_G^2(t, \gamma, \varphi) = \left[\sum_{i=1}^{N_G} \Delta b_i^2(t, \gamma, \varphi)\right] \Big/ N_G \to \min, \tag{4}$$

varying γ and φ. This problem can be easily solved analytically.

Let us call the value

$$\delta_G^{\min}(t) = \delta_G\left(t, \hat{\gamma}_G, \hat{\varphi}_G\right)$$

a minimal mean-square error in the constellation G. We additionally calculate the percentage $p_G^{\min}(t)$ of stars from G which satisfy to the inequality $|\Delta b_i(t, \hat{\gamma}_G, \hat{\varphi}_G)| < 10'$, i.e.,

$$p_G^{\min}(t) = \#\left\{i\colon \left|\Delta b_i\left(t, \hat{\gamma}_G, \hat{\varphi}_G\right)\right| < 10'\right\}/N_G. \tag{5}$$

The concrete values $\delta_G^{\min}$ and $p_G^{\min}$ for different constellations G are listed below. The calculated values $\hat{\gamma}_G$ and $\hat{\varphi}_G$ are estimates of the real parameters γ_G and φ_G determining the group error. Though it is possible to prove some asymptotic properties of these estimates (see Theorem 1 below), we cannot consider $\hat{\gamma}_G$ and $\hat{\varphi}_G$ too close to the real values γ_G and φ_G because we do not have firm statistical reasons for such closeness, as the total number of stars in the constellations does not exceed 20–30. Consequently, the values $\hat{\gamma}_G$ and $\hat{\varphi}_G$ cannot only serve to calculate a lower bound $\delta_G^{\min}$ for the mean-square latitude error in the constellation G. The value $p_G^{\min}$ gives us some additional useful information about the group errors. We need a considerably larger group of stars to reliably estimate the group error. It turns out that there are seven regions in the Almagest star atlas which differ from one another from the point of view of the accuracy of the measurement of the latitudes. Each of these seven regions is "homogeneous", i.e., the measurement accuracy in this region is more or less the same for most of the stars. This fact is very important. It was discovered in our computer experiments with the data from the Almagest star catalogue. We would like to note that the same division of the star atlas follows from systematization of the results of preceding researchers but that is also beyond the scope of this chapter. Here is a list of the seven regions (see Fig. 115):

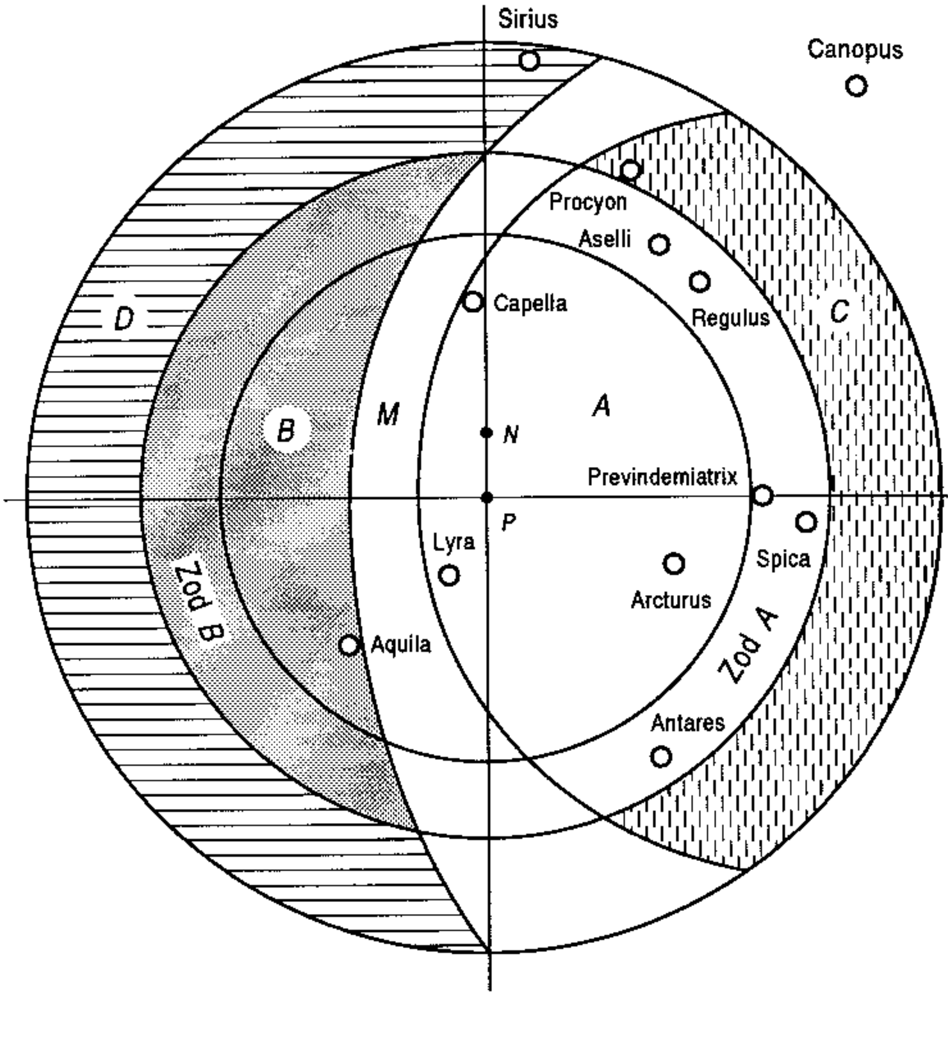


Figure 115. The seven "homogeneous" regions discovered in the Almagest star catalogue

Region A contains all the stars ($N_A = 249$) of the northern part of the sky and of the zodiac which are located on the side of the Milky Way containing the point of the spring equinox.

Region B is a similar region ($N_B = 262$) located on the other side of the Milky Way.

Region Zod A contains all the zodiacal stars ($N_{\text{Zod}\,A} = 124$) from region A and consists of six constellations: Gemini, Cancer, Leo, Virgo, Libra, Scorpius.

Region Zod B contains all the zodiacal stars ($N_{\text{Zod}\,B} = 168$) from region B.

Region C contains all the southern stars ($N_C = 116$) located on the same side of the Milky Way as region A.

Region D contains all the southern stars ($N_D = 143$) located on the same side of the Milky Way as region B.

Region M is the Milky Way ($N_M = 94$).

More details are found in Table 2.

Table 2

Region (G)	Baily's number of stars in a region before cleaning up the catalogue	Total number of stars in a region after cleaning up the catalogue
A	1–158, 424–569	249
B	286–423, 570–711	262
C	847–997	116
D	712–846, 998–1028	143
M	159–285	94
Zod A	424–569	124
Zod B	362–423, 570–711	168

Let us consider a "large" group of stars R and determine the parameters $\hat{\gamma}_R$ and $\hat{\varphi}_R$ using the above relation (4) where one should replace G by R.

THEOREM 1. *Let us suppose that for all stars $i \in R$, the parameters γ_i and φ_i are equal for all i (see (1) and (2)) and coincide with γ_R and φ_R, respectively. Then the values $\hat{\gamma}_R$ and $\hat{\varphi}_R$ have the following properties:*

(1) *$\hat{\gamma}_R$ is a nonbiased estimate of the value γ_R having a normal distribution with a variation*

$$\delta^2(\hat{\gamma}_R) = d\left[N_R\left(s_{20}\cos^2\varphi_R + 2d_0\cos\,\varphi_R\sin\,\varphi_R + c_{20}\sin^2\varphi_R\right)\right]^{-1},$$

where

$$s_{20} = \left[\sum_{i=1}^{N_R} \sin^2 L_i(t) \right] \Big/ N_R,$$

$$c_{20} = \left[\sum_{i=1}^{N_R} \cos^2 L_i(t) \right] \Big/ N_R,$$

$$d_0 = \left[\sum_{i=1}^{N_R} \sin L_i(t) \cos\, L_i(t) \right] \Big/ N_R.$$

(2) *The estimate $\hat{\varphi}_R$ is asymptotically (when $N_R \to \infty$) unbiased for the value φ_R, and its distribution function can be calculated in terms of a normal distribution (we do not need a concrete formula here).*

(3) *The value $\delta_R^{\min}(t^*)$ is an asymptotically nonbiased estimate for the real mean-square error*

$$d^{1/2} = \left(E\xi_i^2\right)^{1/2}$$

of the measurements.

We shall call the parameters φ_R and γ_R systematic errors in the group R. The value $\delta_R^{\min}$ characterizes the accuracy of the measurements in the region R. Thus, in order to discover groups of well-measured star groups, we can use the following algorithm.

Algorithm of the choice of well-measured star groups

(1) Calculate the values $\hat{\gamma}_R$, $\hat{\varphi}_R$, $\delta_R^{\min}$ for each "large" group R of stars;

(2) choose the group $R_0 = \arg\min \delta_R^{\min}$;

(3) test that the calculated values $\hat{\gamma}_{R_0}$ and $\hat{\varphi}_{R_0}$ are really parameters of the group error for all individual constellations in R_0. Consequently, Theorem 1 is valid. All such constellations G form a set of well-measured stars. Of course, this set can be empty;

(4) delete the set R_0 from the initial catalogue and repeat the algorithm beginning with step (1), etc.

As a result we obtain the hierarchy of well-measured collections of stars corresponding to the accuracy of the latitude measurements.

Step (3) in the above algorithm will be discussed more fully in some comments which we shall give below.

Let us note that the epoch t of real observations is unknown to us. Hence, all conclusions made above have a conventional character (given that the catalogue was compiled in the epoch t). Consequently, we need to test all values t from our a priori time interval. Because we know the trajectory of the real ecliptic pole from Newcomb's theory, it is sufficient to obtain $\hat{\gamma}_R$ and $\hat{\varphi}_R$ only for some fixed $t = t_0$. These two parameters determine the location of the "catalogue ecliptic" and then give us the possibility of calculating $\hat{\gamma}_R$ and $\hat{\varphi}_R$ for all t.

7.4. *Error values in the Almagest star catalogue.* Computer calculations resulted in the following values of minimal mean-square errors (they practically do not depend on t):

$$\begin{aligned} \delta_A^{\min} &= 16.5'; & \delta_B^{\min} &= 19.2'; \\ \delta_{\mathrm{Zod}\,A}^{\min} &= 12.8'; & \delta_{\mathrm{Zod}\,B}^{\min} &= 19.3'; \\ \delta_C^{\min} &= 22.5'; & \delta_D^{\min} &= 24.4'; \\ \delta_M^{\min} &= 20.5'. \end{aligned}$$

It follows that the region Zod A is the most well-measured one in the star atlas. One can see the curve $\hat{\gamma}_{\mathrm{Zod}\,A}(t)$ (which, in fact is a line) in Fig. 116. This curve is contained in the tolerance set corresponding to a confidence level $\epsilon = 0.05$. Similar curves were obtained for all the other regions. We also calculated all functions $\hat{\varphi}_R(t)$. An example can be seen in Fig. 116.

These calculations confirmed that the corresponding values $\hat{\beta}_R$ (which can be obtained from $\hat{\gamma}_R$ and $\hat{\varphi}_R$) are rather small ($|\hat{\beta}_R| < 5'$), i.e., $\beta \ll \gamma$.

But the tolerance sets for the curves φ are very wide (about 40°). This fact indicates the "nonsystematic" nature of the parameter φ. Indeed, the calculated value $\hat{\varphi}_{\mathrm{Zod}\,A}$ is only the average of the individual values φ_G for six zodiacal constellations (from G_1 = Gemini to G_6 = Scorpius). This fact can be considered as an indirect confirmation of the hypothesis that measurements were made by some instrument fixing an angle between the ecliptic and the equator (of course, with some error in the value of this angle). It is also probable that the axis of the rotation was fixed each time a measurement occurred. One such ancient instrument is the well-known "astrolabe" or "armillary sphere" described by Ptolemy.

Now let us turn to the procedure of testing the hypothesis that the value $\hat{\gamma}_{\mathrm{Zod}\,A}$ determined by our calculations is common for all constellations in Zod A, i.e., this value really represents the group error. For each constellation G in Zod A, we calculate and compare the corresponding "initial" error $\delta_G^{\min} = \delta_G(t,0,0)$, "minimal" error $\delta_G^{\min}(t)$ and an error δ_G^{gr}, which results after rotation over the angles $\hat{\gamma}_{\mathrm{Zod}\,A}(t)$ and $\hat{\varphi}_{\mathrm{Zod}\,A}(t)$, i.e.,

$$\delta_G^{\mathrm{gr}} = \delta_G\big(t, \hat{\gamma}_{\mathrm{Zod}\,A}(t), \hat{\varphi}_{\mathrm{Zod}\,A}(t)\big).$$

The result is shown in Fig. 117 for $t = 100$ A.D. Similar calculations were made for all t. We can see from Fig. 117 that the resulting effect induced by the "optimal" individual rotation for each individual constellation practically coincides with the effect induced by the "common" rotation calculated for the total Zod A. We can also see the additional confirmation of the nature of the group error $\hat{\gamma}_{\mathrm{Zod}\,A}(t)$ in Fig. 118 where we demonstrate graphs of the percentages of the stars with latitude deviations not exceeding 10′ after a corresponding "optimal" rotation (see $p_G^{\min}$) and without rotation (initial percentage p_G^{in}).

We also investigated the neighbourhoods of eight named stars: Antares, Arcturus, Aselli, Lyra, Capella, Regulus, Spica. Two of these stars (Arcturus and Procyon) have a large velocity of proper motion.

It turned out that the group errors for all these stars are the same (or very close) as those for the stars in Zod A. Numerical data contained in the star catalogue

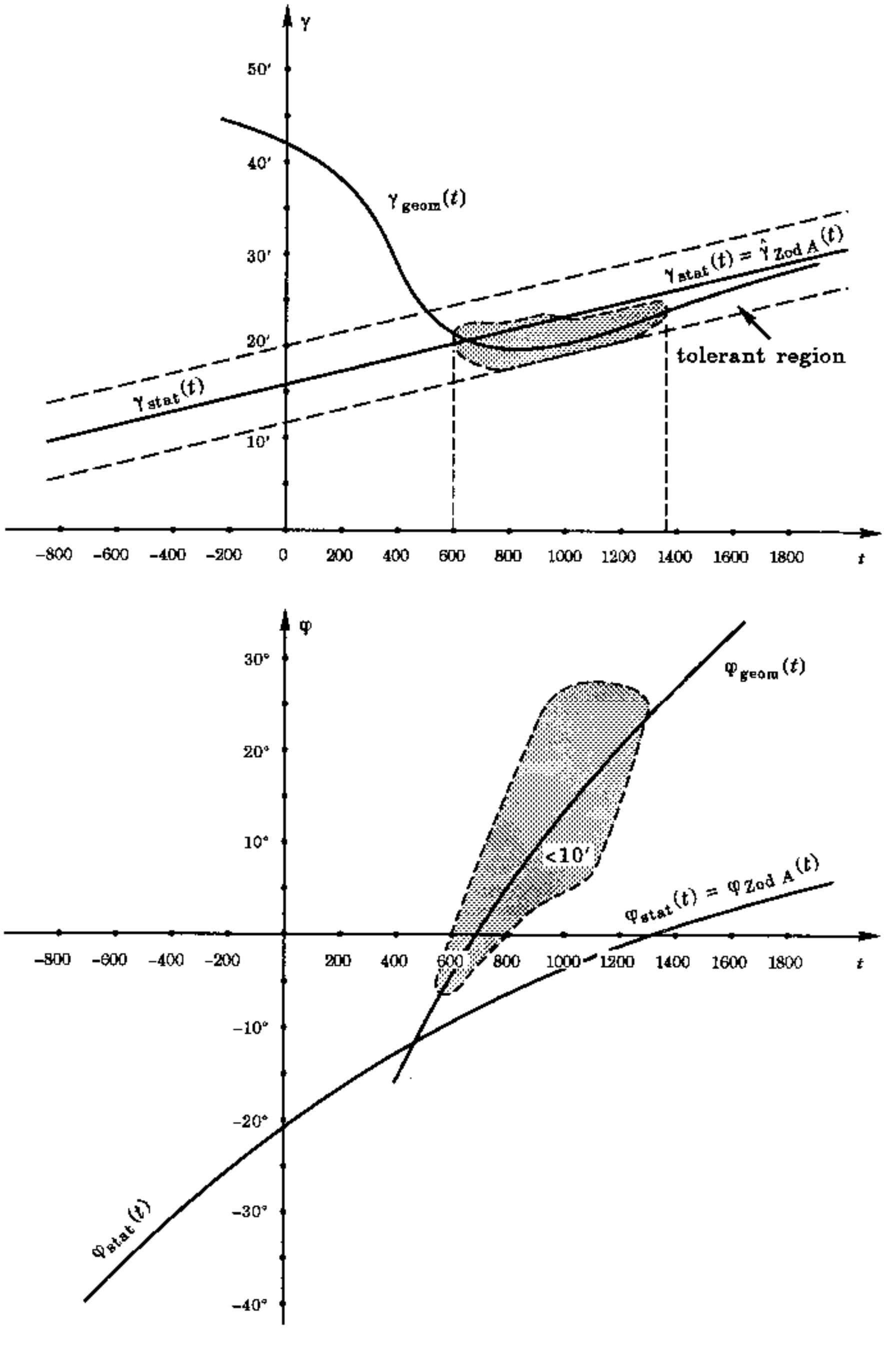


Figure 116. The proof that the region Zod A is the most well-measured one in the Almagest star atlas. The tolerance set

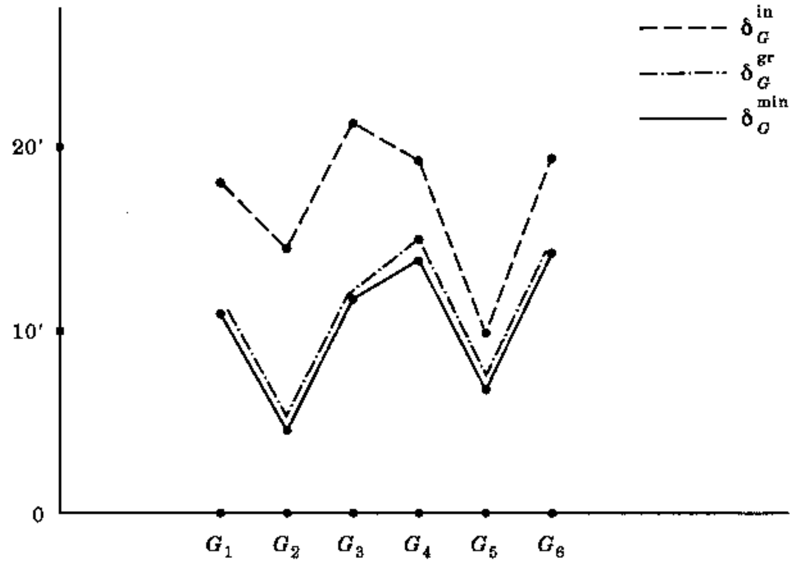


Figure 117. The proof that the systematic error determined by our calculations is common for all constellations in Zod A

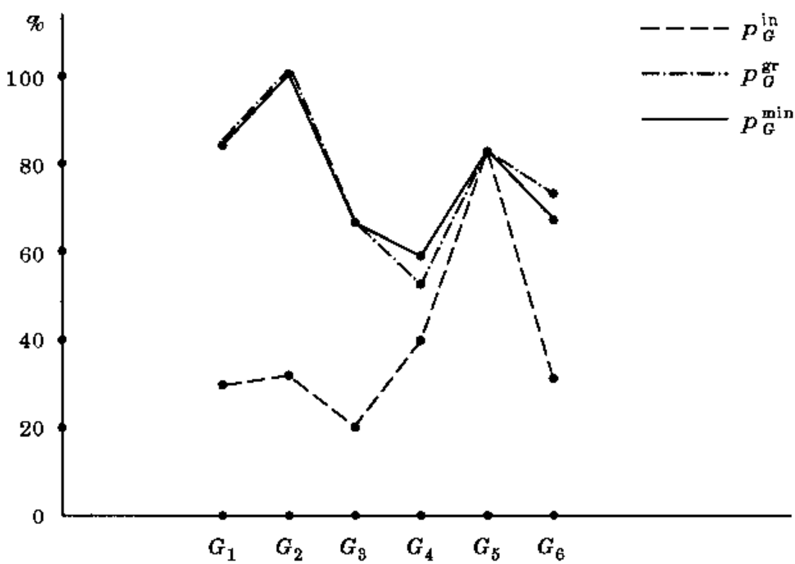


Figure 118. Another proof that the systematic error determined by our calculations is common for all constellations in Zod A. The graph of the percentages of the stars

are not sufficient to determine reliable group errors for neighbourhoods of only two stars: Aquila and Sirius. This was the reason why we excluded them from further consideration.

8. The Dating of the Almagest Star Catalogue

8.1. Statistical dating procedure. Let I be the set of eight named stars (see above) and

$$\Delta(t,\gamma,\varphi)=\max_{i\in I}|\Delta b_i(t,\gamma,\varphi)|.$$

We base our dating procedure on the hypothesis that the latitudes of *all* named stars from I must have *individual* errors of not more than $10'$ in the year t^* of the observations. In other words,

$$\Delta(t^*,\gamma,\varphi)\leqslant 10',$$

and the value γ belongs to the statistical tolerance interval (see Fig. 116). Corresponding adoptable values of γ are "marked" by points in Fig. 116. Consequently, *we claim that the time interval* 600 A.D. $\leqslant t^* \leqslant$ 1300 A.D. *can be considered as a dating interval.* Of course, this interval depends on different parameters in general: claiming accuracy ($10'$), confidence probability ϵ, and some others. The stability of the method will be analysed in Section 9 below.

8.2. Geometrical dating procedure. Though we have determined a dating interval, some doubts about it can appear due to the statistical nature of some of the assertions. In reality, we based our assertions on the fact that group errors for neighbourhoods of the eight named stars are the same. This fact was proved with the help of statistics. Hence, there is some positive probability (though it is very small) that this fact is wrong.

Let us again consider the value $\Delta(t,\gamma,\varphi)$ and find for every t the quantities

$$(\gamma_{\text{geom}}(t),\varphi_{\text{geom}}(t))=\arg\min_{\gamma,\varphi}\Delta(t,\gamma,\varphi)$$

and

$$\Delta_{\min}(t)=\Delta(t,\gamma_{\text{geom}}(t),\varphi_{\text{geom}}(t)).$$

These quantities depend only on the position of the eight named stars, whereas $\hat{\gamma}_{\text{Zod}\,A}(t)$ and $\hat{\varphi}_{\text{Zod}\,A}(t)$ *do not depend on them* (they depend on the position of all stars in Zod A). It is clear that $\Delta_{\min}(t)\leqslant 10'$ if 600 A.D. $\leqslant t\leqslant$ 1300 A.D. But it turned out that $\Delta_{\min}(t)\leqslant 10'$ *if and only if* 600 A.D. $\leqslant t\leqslant$ 1300 A.D. (see Fig. 119). Besides, $\gamma_{\text{geom}}(t)\approx\hat{\gamma}_{\text{Zod}\,A}(t)$ for these t (see Fig. 116). Hence, *this confirms without any statistical arguments that the above interval is a dating interval. There do not exist a* γ *and* φ *such that the inequality*

$$\Delta(t,\gamma,\varphi)\leqslant 10'$$

holds when $t<600$ A.D. *or* $t>1300$ A.D. We confirmed also that the systematic error calculated with the help of statistics (using the coordinates of all stars in Zod A)

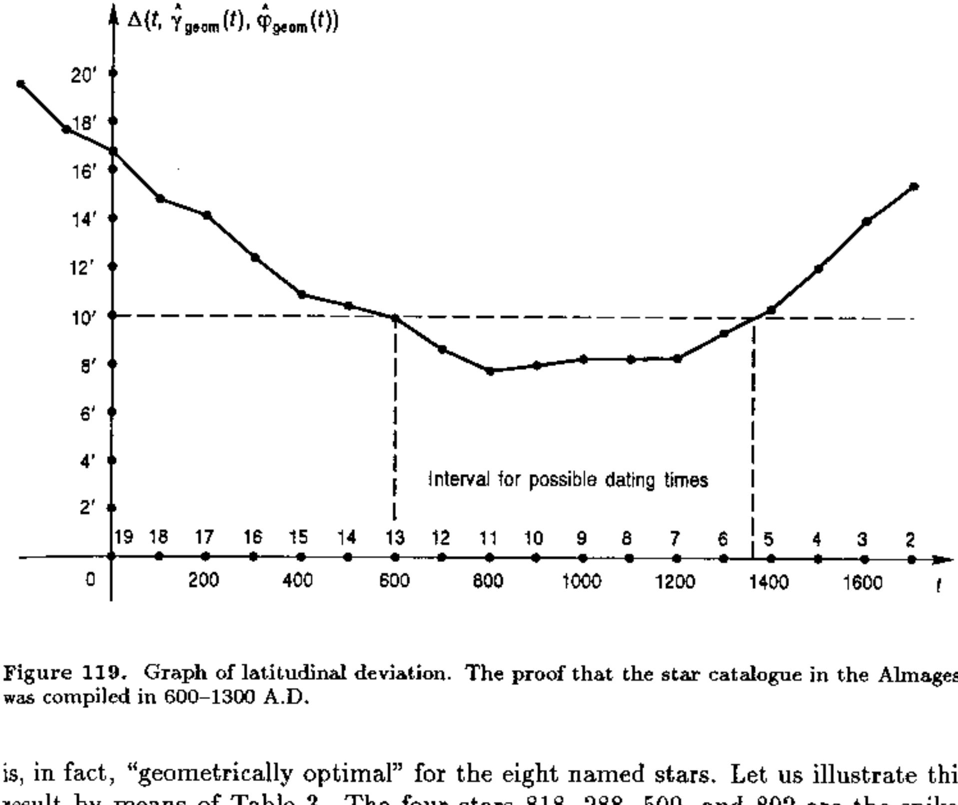


Figure 119. Graph of latitudinal deviation. The proof that the star catalogue in the Almagest was compiled in 600–1300 A.D.

is, in fact, "geometrically optimal" for the eight named stars. Let us illustrate this result by means of Table 3. The four stars 818, 288, 509, and 892 are the spikes which were previously removed from consideration.

Figure 120(1) shows graphs of individual latitudinal deviations dependent on t for the eight stars, given that $\gamma = 21'$, $\beta = 0$.

Hence,

(1) we confirmed the accuracy claimed by the compiler of the Almagest star catalogue;

(2) we calculated the time interval containing the actual date of observation. We also proved that the catalogue could not have been compiled (on the basis of actual observations) outside this time interval;

(3) we proved that the compiler made an error in the determination of the position of the ecliptic pole and calculated it ($\gamma = 20'$); besides, he made an error in the determination of the position of the equator ($\beta < 5'$). It is also important to note that the systematic error γ explains the existence of a strange "Peters' sinus" in latitudinal deviations for zodiacal stars [320, p. 6];

(4) we defined the information kernel (eight named stars) in accordance with the accuracy of the measurements of the coordinates.

Table 3

	t					
No.	1	5	10	15	18	21
110	29.9	15.3	2.3	20.0	30.5	41.0
818	44.2	39.2	32.7	25.9	21.8	17.5
288	27.0	28.7	30.7	32.5	33.5	34.4
509	15.6	14.9	13.8	12.6	11.8	11.0
553	13.3	11.0	8.5	6.2	4.9	3.7
452	13.2	10.2	6.5	2.9	0.9	1.1
848	8.1	4.0	1.2	6.7	10.1	13.5
469	6.1	3.5	0.4	2.7	5.1	6.2
510	5.1	4.9	4.4	3.7	3.3	2.7
149	5.1	6.7	8.5	10.0	10.8	11.5
222	1.3	1.5	2.1	2.9	3.5	4.2
892	71.5	75.0	79.2	83.1	85.4	87.6

9. Stability of the Method

1. Our calculations showed that the decreasing of the confidence probability ε (beginning with $\varepsilon = 0.2$) does not shift the time interval of probable dating. We also obtained that this interval does not depend on the assumption of normality of the distribution of random variables ξ_i (a kind of robustness).

2. Let us show how the final results depend on the content of the group of named stars (information kernel). Namely, let us consider a subset of this group. Of course, the dating time interval will be changed (more exactly, it will increase). For example, if we remove Arcturus (the fastest star in the group), then the left boundary of the dating time interval shifts to approximately 350 A.D. but it still does not touch the traditional period of Ptolemy. Some useful information about the dependence on the content of the group of named stars is contained in Fig. 121. There, for some fixed t, the empirical distribution functions

$$F^{(t)}(x) = \#\{i\colon\ |\Delta(i,t,\gamma,\varphi)| < x\}/12$$

are shown.

We see that the "best" distribution function corresponds to $t = 10$ (i.e., $\approx$ 1000 A.D.) and $\gamma = 21'$. This confirms the assertion above.

3. Let us change the accuracy level Δ. Recall that we started with $\Delta = 10'$. Then the "epoch of Ptolemy" will be included only when $\Delta = 25'$.

4. Now consider not only the "rigid rotation" of the celestial sphere (as group errors), but also an arbitrary diffeomorphism of the coordinates (which is, however,

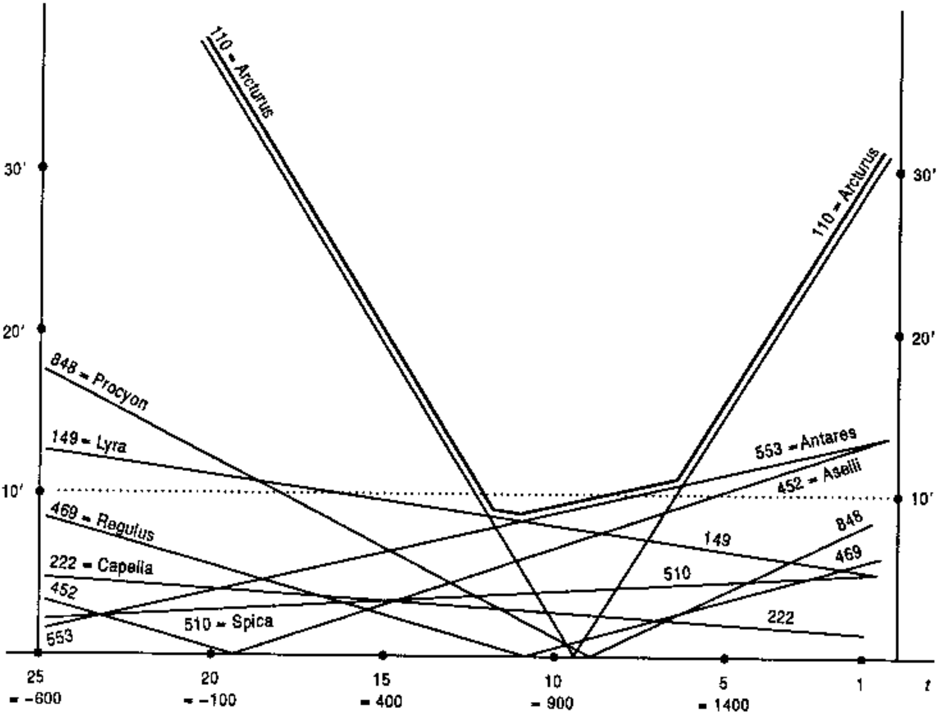


Figure 120(1). Individual latitudinal deviations for named stars from the Almagest star catalogue

close to an identity mapping) reflecting possible distortions (deformations) of the astronomical instruments. Then it occurs that we can reach the "epoch of Ptolemy" only for such deformations which are implied by about a 4% deviation of real instruments (e.g., the armillary sphere) from ideal ones. This is quite impossible, even for usual "common" instruments (let alone scientific ones).

Consequently, our results are stable with respect to the different deviations of both the numerical data and the proposed assumptions.

10. Dating of Other Catalogues

10.1. Tycho Brahe's catalogue. The observations of Tycho Brahe were made at the end of the 16th century; in the edition used for this study [324], the catalogue is reduced to the year 1600. We choose the following 14 bright named stars as the information kernel of the catalogue: Arcturus (110), Spica (510), Lyra [Vega] (149), Aquila (288), Antares (553), Castor (424), Sirius (818), Pollux (425), Procyon (848), Denebola (488), Capella (222), Caph (189), Regulus (469), and Shiat (317).

This list is not the same as the total list of named stars in the catalogue; these

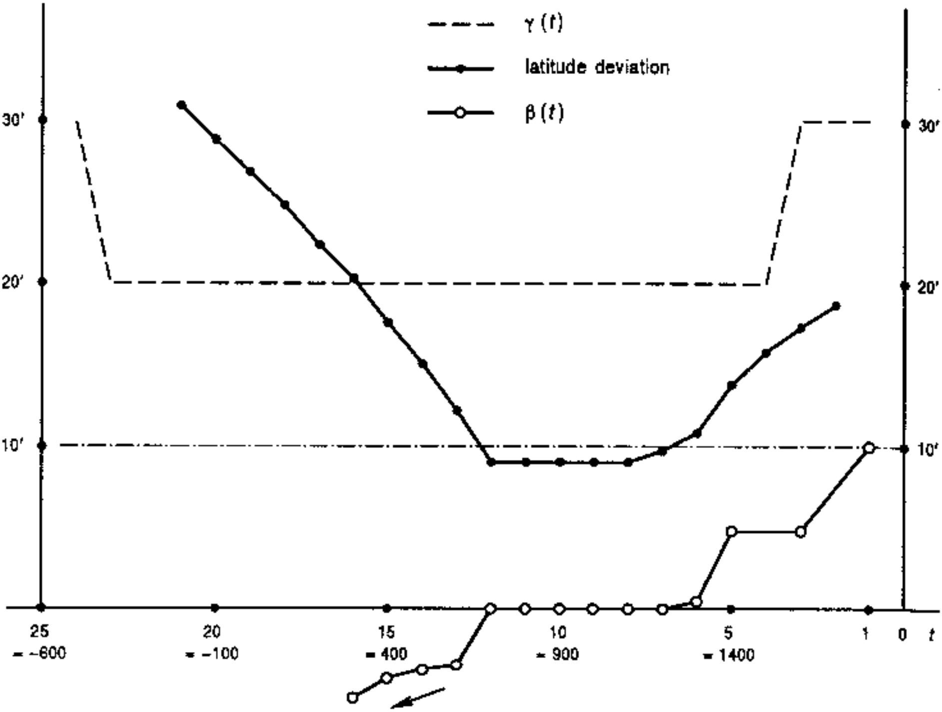


Figure 120(2). The graph of maximal latitudinal deviation for eight well-measured bright stars in the Almagest

particular stars have been chosen because most of them are also named stars in the Almagest. It is very interesting to compare the results of our calculations for the two catalogues.

In Fig. 122 we show the graphs of latitudinal deviations for the named stars listed above. These graphs were calculated for the optimal values $\gamma = 0$ and $\beta = 0$, as determined for the catalogue of Tycho Brahe, using the statistical dating procedure. The same values $\gamma = 0$ and $\beta = 0$ were determined using the geometrical dating procedure. Tycho Brahe did not make any significant systematic error in his determination of the position of the ecliptic pole. This is not surprising for an astronomer working in the 16th century. On the other hand, the $1'$ accuracy claimed by Tycho Brahe for his catalogue is not achieved even for the well-known named bright stars. In fact, his accuracy is about $3'$ for the set of named stars listed above. Thus our result confirms the opinion of other experts that the actual accuracy of Tycho Brahe's catalogue is about $2'$ or $3'$, but not as little as $1'$.

Taking the "claimed accuracy" $\Delta = 3'$, we obtain two solutions for the date of the catalogue with respect to the total a priori time interval $0 \leqslant t \leqslant 6$; namely, between 1400 A.D. and 1500 A.D., and between 1500 A.D. and 1620 A.D. The first solution

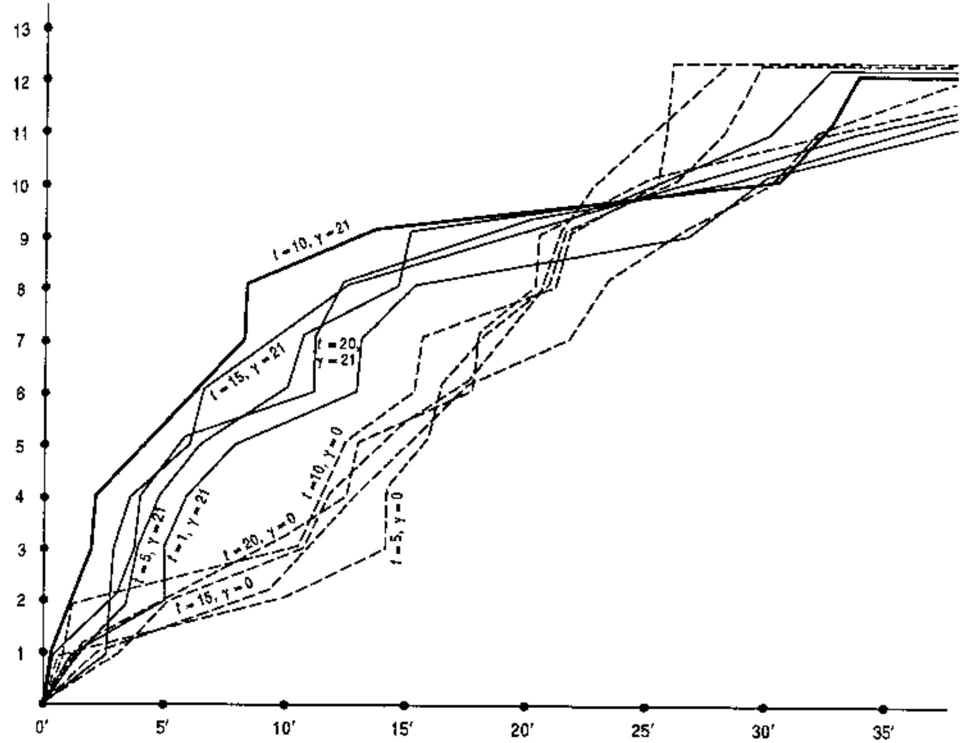


Figure 121. Empirical distribution functions for the Almagest star catalogue. All twelve named stars are presented here

is obtained if we eliminate Arcturus, the second by eliminating Antares. The second solution is preferable to the first because it realizes the absolute minimum of the mean deviation in latitude. Moreover, the value $\Delta_{\min}$ in the second interval is less than in the first interval.

The traditional date assumed for Tycho Brahe's observations is about 1580 A.D., which is within the second time interval.

If we consider as the a priori interval the entire 16th century (i.e., $3 \leqslant t \leqslant 4$), then we obtain a unique solution which corresponds to $\Delta = 1'$ (i.e., to the accuracy claimed by Tycho Brahe). This solution is 1589 A.D. ±10 years (Fig. 122).

The method of dating which is based on the distribution function of the errors yields the following optimal date for the observations: $t^* = 3.5$ (i.e., about 1550 A.D.) as shown in Fig. 123. It is obvious that the curve $t = 3.5$ is the optimal curve because at almost every point it is higher than the other curves (corresponding to smaller or larger values of t).

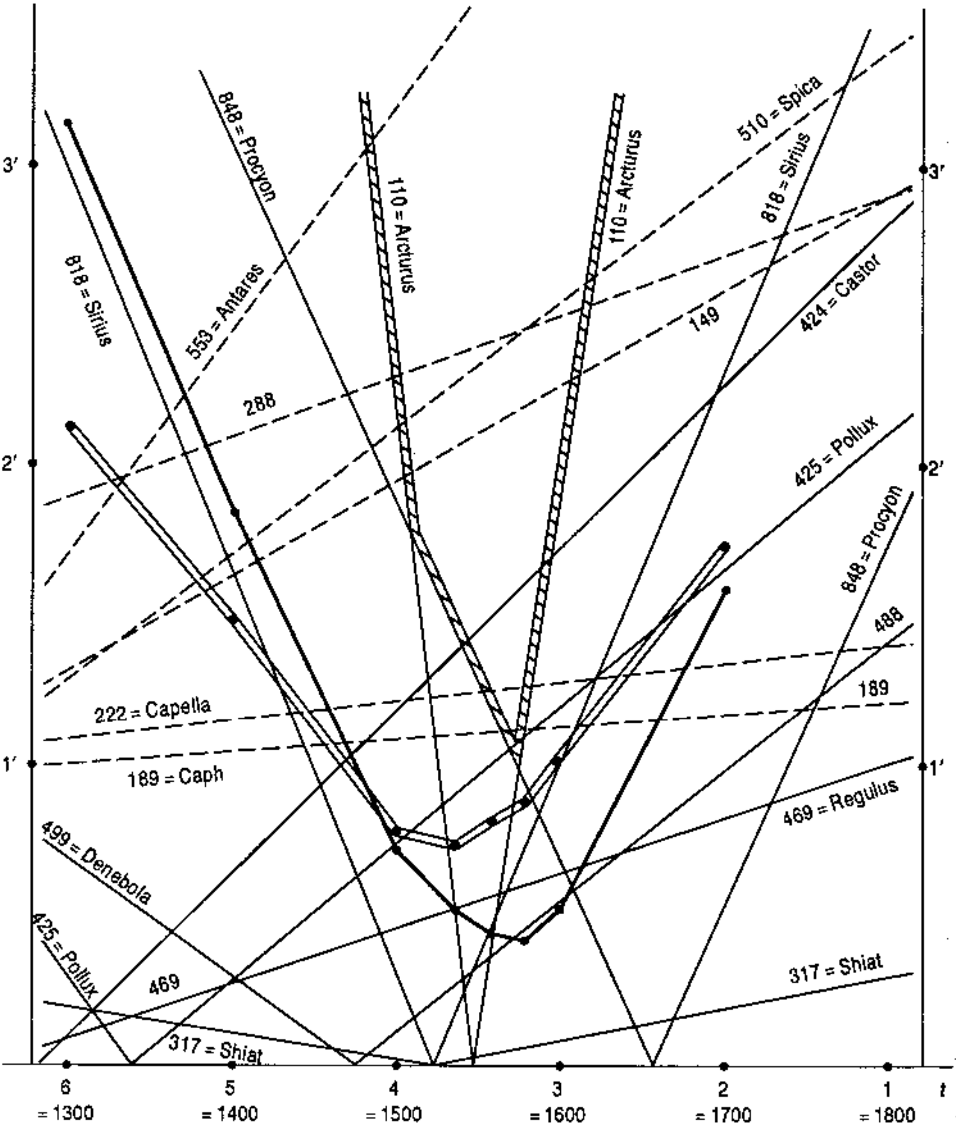


Figure 122. Individual latitudinal deviations in Tycho Brahe's star catalogue (for optimal values of the parameters)

Thus:

1. Tycho Brahe's catalogue does not contain any systematic errors (i.e., $\beta = \gamma = 0$).
2. Our method gives us a date for the observations which is practically the same as the traditional date of 1580 A.D.

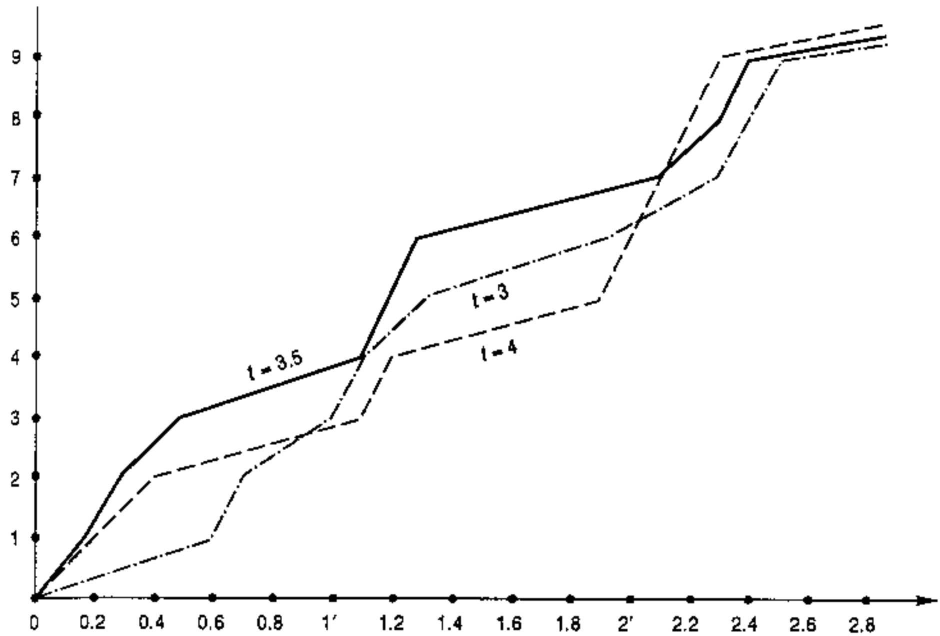


Figure 123. Empirical distribution functions for Tycho Brahe's star catalogue

10.2. Hevelius' catalogue. The version of Hevelius' catalogue used here is that of Baily [324]. The traditionally accepted date for this catalogue is the second part of the 17th century. We consider the information kernel of this catalogue to be almost the same as that of Tycho Brahe's catalogue, namely the twelve stars: Arcturus (110), Spica (510), Lyra [Vega] (149), Aselli (452), Antares (553), Castor (424), Sirius (818), Pollux (425), Procyon (848), Capella (222), Regulus (469), and Previndemiatrix [Vindemiatrix] (509).

Our calculations show that the optimal values for β and γ are $\beta = 0$ and $\gamma = 0$, meaning that *Hevelius' catalogue does not contain any systematic errors.* The graphs of individual latitudinal deviations in the time interval $1 \leqslant t \leqslant 4$ are shown in Fig. 124. It is obvious that the actual accuracy of the latitudes in this catalogue is about $2'$, and not the $1''$ claimed by Hevelius. The scale unit in this catalogue is also said to be $1''$. Apparently Hevelius made an incorrect estimate of the accuracy of his catalogue (i.e., of his observations). The dating time interval becomes stable (relative to changes in Δ) when $\Delta \geqslant 2.2'$. For example, if $\Delta = 2.5'$, then $T_2 = (2.5 \leqslant t \leqslant 3.0)$, i.e., from 1540 to 1650 A.D. If $\Delta = 3'$, then $T_2 = (2.35 \leqslant t \leqslant 3.85)$, i.e., from 1515 to 1650 A.D.

The method of dating, which is based on the distribution function of the errors (see formula (10)), gives us $t^* = 3 \pm 0.5$, i.e., from 1550 to 1650 A.D.

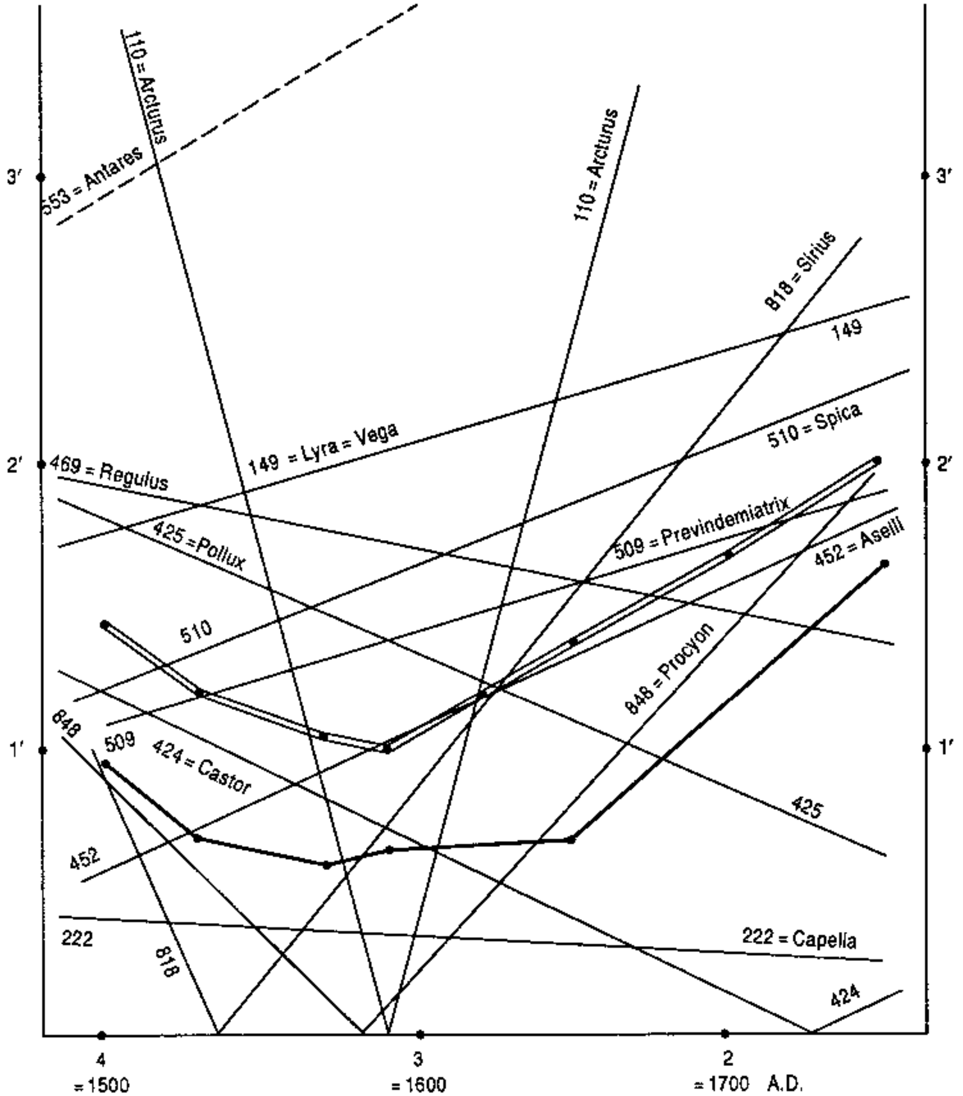


Figure 124. Individual latitudinal deviations in Hevelius' star catalogue

It is possible that Hevelius used not only personal observations but also previous catalogues, perhaps that of Tycho Brahe.

10.3. Ulugbeck's catalogue. The application of the proposed statistical and geometrical procedures to Ulugbeck's catalogue [324] gave a dating interval 700–1400 A.D., which contains the real data of the compilation. Besides that, we found that a significant part of Ulugbeck's catalogue has a systematic error coinciding with that of the Almagest. It is very probable that this part was taken from the Almagest.

10.4. Al-Sufi's catalogue. As for al-Sufi's catalogue [330], *it is, in fact, the Almagest star catalogue*: latitudes for almost all stars are the same (even for the fast stars) and longitudes differ by exactly $12°42'$! So there is no need to date this catalogue.

Acknowledgements

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APPENDIX 3

Dating of the Almagest Based on the Occultation of the Stars by Planets and Lunar Eclipses

1. Introduction

This work was done by A. T. Fomenko, V. V. Kalashnikov, G. V. Nosovsky and is a natural extension and continuation of the authors' results in the astronomical dating problem of the Almagest (see Appendix 2).

The dating obtained above evidently contradicts the standard date of the creation of the Almagest, presumably 137 A.D. Thus, a serious problem arises: "Is the star catalogue of the Almagest "a late insertion" in the ancient and authentic text, or was the whole text of the Almagest (or its major part) written later than 600 A.D. and finally edited only in the late Middle Ages (1200–1300 A.D.)?"

The astronomical observations collected in the Almagest were recently studied (in detail and professionally) by Robert R. Newton [321]. The result of his analysis can be formulated briefly as follows:

1) The Almagest contains the theory of the moon's motion, the sun's motion, planetary motion, and precession theory.

2) A large part of the astronomical data (for example, many "observations") collected in the Almagest can be *theoretically calculated* on the basis of Ptolemy's theory.

3) A large part of these astronomical "observations" is indeed nothing more than the result of such "pure theoretical calculations", which were made (according to R. Newton's results and opinion) by Ptolemy himself.

Consequently, it is senseless to use these "data" for any independent astronomical dating of the Almagest, because it implies only a reconstruction of the opinion (or conjecture) of some late author (Ptolemy? or some medieval astronomer?) about the date of occurrings of these astronomical events. The medieval authors sometimes solved the following problems: in which month of some ancient year (epoch) did some concrete astronomical event take place?

But fortunately the Almagest contains some astronomical observations which can be calculated not only on the basis of Ptolemy's theory but also on the basis of the latest medieval astronomical theories. The first among them are the ecliptical *latitudes* of 1020 stars in the star catalogue of the Almagest (see above).

Later it turned out that the Almagest also contains some other "non-calculable" (in the Middle Ages) observation data.

A) Four observations of the occultation of stars by moving planets;

B) Twenty one observations of lunar eclipses, mentioned in the Almagest.

The present work is devoted to the dating of the Almagest on the basis of the observation data A and B. Let us emphasize that here we actually date the *text of the Almagest itself* (and not only its star catalogue as in [310, 312–314, 317, 319]). We obtained the following results:

1) The observation data A (i.e., the occultation of the stars by planets) can be dated to the historical interval from 887 A.D. to 1009 A.D. It is remarkable that this time interval agrees with the interval obtained in [312–314] as a result of the star catalogue's independent dating.

2) The observation data B (i.e., lunar eclipses) are distributed, according to the Almagest, over a long time interval (its length is about 900 years). It turned out that it is the historical interval from 492 A.D. to 1350 A.D. Moreover, the most "dense" collection of the observations of lunar eclipses occurred in the 11th century A.D. And again we see an ideal correspondence with the results of the independent dating of the star catalogue of the Almagest and of the observation data of type A (see above).

3) In both cases, A and B, Ptolemy assigned observations of types A and B to the same "era" (the so-called "era of Nabonassar"). It is clear that now, after the dating of all observations A and B, we can obtain the *beginning* (*the initial point*) *for this era* by two *independent* methods. It is remarkable that these two methods lead to the same result: *the beginning of Nabonassar's era is about* 490 *A.D.* Let us recall that the traditional dating of this initial point (which is common today) is 747 B.C.

It is important that the numerical data comprising, i.e.,

the latitudes in the star catalogue of the Almagest,
the information about the occultation of the stars by planets, and
the observations of lunar eclipses in the Almagest,

are *completely independent*. Thus, an excellent coincidence of all these datings in all three cases is a serious argument in favour of the opinion that the Almagest is the entire (genuine) document (text) which was originally created in the 10–11th centuries A.D. and then extended and enlarged in the middle of the 14th century A.D.

2. Dating of the Occultation of the Stars by Planets

The Almagest contains the description of only four occultation of stars by the planets [321], [327]. Ptolemy says:

1) "*Of the old observations, we took one which Timocharis records thus: In the year 13 of Philadelphus, Egyptianwise Mesore 17–18 at the twelfth hour, Venus appeared to have exactly overtaken the star opposite Vindemiatrix*" [327, p. 319; Section X.4].

2) "*We took one of the old observations, according to which it is quite clear that in the year 13 according to Dionysius, Aigon 25 in the morning, Mars seemed to occult Scorpion's northern forehead*" [327, p. 342; Section X.9].

3) "*We again took one of the ancient observations very faithfully recorded, according to which it is quite clear that in the year 45 of Dionysius, Parthenon 10, Jupiter at sunrise occulted the Southern Ass*" [327, p. 361; Section XI.3].

4) "*We took for this again one of the faithfully recorded ancient observations, according to which it is clear that in the year 82 of the Chaldeans, Xanthicus 5, in the evening, Saturn was 2 digits below the Virgin's southern shoulder.*" [327, p. 379; Section XI.7].

According to the traditional identifications of Ptolemy's stars with the modern ones [321], we have the following information about occultations:

1) Venus covered the star η-Virgo at about midnight.

2) Mars covered the star β-Scorpio in the morning.

3) Jupiter covered the star δ-Cancer at sunrise.

4) Saturn was "2 digits (2 units ?)" below the star γ-Virgo.

We checked all these traditional identifications and they were confirmed. For the calculation of the planets' locations in the past, we used a modern theory and concrete values of the averaged elements of the planets' orbits from the well-known book by G. N. Duboshin [346]. The accuracy of the calculations of latitudinal position is equal to $1'$ (1 minute). Let us comment on how one needs to understand the words: "a *planet occulted the star*".

It is well known that the regular human eye can distinguish two points at an angular distance of about $1'$. Extremely sharp eyes can distinguish two points at an angular distance of about $30''$ (30 seconds). Consequently, the occultation ("coincidence") of the star by some planet means in reality that the angular distance between them (from the point of view of the astronomer on the earth's surface) is equal to about $1'$. It is clear that it was impossible for Ptolemy to calculate (even in principle) this remarkable astronomical event, because the accuracy of his theory was about $10'$! The modern theory allows us to calculate the latitudinal positions of Venus and Mars in the past (for the historical time interval under consideration) with the accuracy of $1'$. The accuracy of the calculations of the longitudes of Mars and Venus is equal to about $3'$. It is quite sufficient for us because actually only the value of the latitude determines the occultation of the star by the planet. The longitude of the planet changes rapidly (in comparison with the latitude), and we can assume that the longitude is proportional to time. Consequently, the small error in the calculation of the longitude implies only a small error in the calculation of the covering time. Thus, in the cases of Mars and Venus, the covering described by Ptolemy can be calculated with great accuracy on the basis of modern theory.

The theory of the motion of Jupiter and Saturn is more complicated and less accurate than for the case of Mars and Venus. V. K. Abalakin writes: "*The averaged elements of the orbits of Jupiter, Saturn, Uranus, Neptune, Pluto cannot be used for solving the stability problem and cannot serve over a period of millions of years... They are suitable for several centuries of our epoch*" [328, p. 302].

But the situation in the Almagest's case is such that we do not need very exact formulas for Jupiter and Saturn. Really, according to the Almagest, the observation of Saturn has only auxiliary meaning because Saturn did not cover the star but was at a distance of uncertain "two units (digits)" from the star. What Ptolemy meant here by the term "digit" (unit)—is not quite clear. Consequently, it is senseless to calculate here the position of Saturn with an accuracy of $1'$.

In the case of Jupiter, Ptolemy states that "*Jupiter covered (occulted) the star*". But our computer calculations based on modern theory shows that the angular distance between Jupiter and δ-Cancer has never been less than $15'$ (!) in the entire historical time interval. Consequently, we can try to find such moments only when the distance between Jupiter and δ-Cancer is about $15'$–$20'$. We do not need the high accuracy of the formulas for this purpose. The accuracy which is guaranteed by the modern theory is sufficient for us.

Let us discuss the question of how Ptolemy distributes the astronomical events (1)-(4) over the time axis. The universal "era" for Ptolemy is "the Era of Nabonassar". Usually, Ptolemy assigns different astronomical events to the dates in terms of this era, though sometimes he uses other eras. Table 1 contains all datings of the coverings according to Ptolemy. One can see that Ptolemy used (at least twice) the following three eras: Nabonassar, "after the death of Alexander", Dionysius.

Table 1

The occultation of the star by the planet	Year according to Ptolemy		
	Era of Nabonassar	Era "after the death of Alexander"	Era of Dionysius
1. Venus	406		
2. Mars	476	42	13
3. Jupiter		83	45
4. Saturn	519		

A study of this table shows that the chronology of Ptolemy contains some errors (disagreements). The time distance between the occultations of the stars by Mars and Jupiter is equal to 41 years if we use the era of Alexander. But the same distance is equal to 32 years if we use the era of Dionysius. This implies two versions in terms of the era of Nabonassar: 517 and 508 years. We consider both versions.

Thus, we can now formulate an exact mathematical problem. Namely, we must find the year N, launching the following chain of astronomical events:

1) In the year N, Venus covered the star η-Virgo about midnight.

2) In the year $N+70$, Mars covered the star β-Scorpio in the morning.

3) In the year $N+111$ (or $N+102$), Jupiter covered the star δ-Cancer at sunrise.

4) In the year $N+113$, Saturn was near the star γ-Virgo (below).

Let us discuss the accuracy which is to be met for the time distances between the different occultations. It is clear that we need to take into account possible errors because of Ptolemy's reduction of all the dates to the same era (Nabonassar). It is evident that this recalculation can lead to errors of 1–2 years only because the different eras used different beginnings of the calendar year. It is well known that the beginning of the year in different eras was in March, August, September, October, January etc. (sometimes even a variable starting point of the year was used!). So, it is not surprising to encounter errors of several years. The best solution we found has an error of 4 years.

Statement 1. There exist only two solutions for the time interval 500 B.C.–1600 A.D. First solution (*medieval*):

1) *At midnight Greenwich time on September 9, 887 A.D., Venus covered the star* η-*Virgo* (*the calculated distance between them is less than* $1'$).

2) *At 6.50 AM Greenwich time on January 27, 959 A.D., Mars covered the star* β-*Scorpio* (*the calculated distance is equal to* $3'$).

3) *At 5.15 AM Greenwich time on August 13, 994 A.D., the distance between Jupiter and the star* δ-*Cancer was about* $20'$. *This distance is close to the absolute minimum of a possible distance between Jupiter and the star* δ-*Cancer in the time interval under the consideration.*

4) *At 4.50 AM Greenwich time on September 30, 1009 A.D., Saturn was at a distance equal to* $50'$ *from the star* γ-*Virgo* (*below the star*).

Second solution (*ancient*):

1) *At 7.45 PM Greenwich time on September 1, 329 B.C., Venus covered the star* η-*Virgo* (*the calculated distance is less than* $1'$).

2) *At 5.10 AM Greenwich time on January 17, 257 B.C., Mars covered the star* β-*Scorpio* (*the calculated distance is less than* $1'$).

3) *At 4.15 AM Greenwich time on September 9, 229 B.C., Jupiter was at a distance of about* $15'$ *from the star* δ-*Cancer. This distance is close to the absolute minimum for the distance between Jupiter and this star in the entire historical time interval.*

4) *At 3.10 PM Greenwich time on September 6, 229 B.C., Saturn was at a distance equal to* $127'$ *for the star* γ-*Virgo* (*below the star*).

For both solutions the error for the time intervals between successive observations (*events*) *relative to Ptolemy's time intervals is less than or equal to 4 years. If we omit Saturn, then for the first* (*medieval*) *solution, we obtain a time error of only 3 years. To obtain some other* (*additional*) *solutions, we must extend the time error to 10 years.* (*This is the statement about the stability of our result*).

All dates in Statement 1 are given in terms of the Julian calendar, with the beginning of the year being on January 1.

The "solution" of this problem which is usually suggested by chronologists of the 16–18th centuries (we took it from the book of R. R. Newton [321]) is as follows:

1) 272 B.C. (-271), October 12. Venus "touched" the star η-Virgo, but the distance between Venus and the star did not exceed $15'$ (!).

2) 272 B.C., January 18 (or 16). Mars "touched" the star β-Scorpio. But actually the distance between Mars and the star was about $50'$ on January 18, and about $15'$ on January 16 (!).

3) 241 B.C., September 4. Jupiter "covered" the star δ-Cancer. But the calculation shows that the distance between Jupiter and the star at this moment was more than $25'$.

4) 229 B.C., March 1. Saturn was at a distance of "2 units" (digits) from the star γ-Virgo. But (as we have discussed above) the authenticity of this observation depends of the meaning of the term "digit".

It is quite clear that this cannot be considered as a solution of the problem. We must state that the chronologists (who studied the Almagest) did not satisfy the conditions of Ptolemy. Besides, they based their "solution" not on the correspondence between the data given by Ptolemy and modern calculations, and not even on the time distances between successive observations given by Ptolemy, but on the doubtful interpretation of the names of the months which were given by Ptolemy. They also based their "solution" on astronomical characteristics (such as longitude of the sun, the time of the observation, the longitude of the planet, etc.) *calculated by Ptolemy* with the help of his approximate theory (he wrote that he *calculated* these characteristics). Consequently, all these latest calculations of Ptolemy were added by him to the ancient information about these occultations. Of course, such calculations cannot be used for independent datings of ancient observations. Besides, as we have seen from our analysis, the chronologists have totally ignored the real ancient data which were *quoted* by Ptolemy and which he did not calculate. These data are: the year of the occultation and the fact of the occultation itself.

Let us note that the first (medieval) solution ideally agrees with the independent dating of the star catalogue of the Almagest [312–314]. Let us recall that this dating of the star catalogue was obtained on the basis of a very detailed and consistent statistical analysis of the whole star catalogue. If we consider the Almagest as the entire scientific text (as historians do), we must consider only the first (medieval) solution as the real one. But it would be dishonest to hide the second (ancient) solution, which is at a distance of about 1200 years from the first one and whose existence can lead to further hypothethes. Note that this solution does not coincide with the traditional one. Its appearance can be explained by different reasons, e.g., by a periodicity in the effect of the occultations of stars by planets. Namely, the plane configuration of the earth and the planets changes with time in accordance with an approximately periodic law. This configuration determines such astronomical events as occultations of the stars by planets (which are visible from the earth). Thus, it is quite natural that we have found two solutions to our problem (Fig. 125).

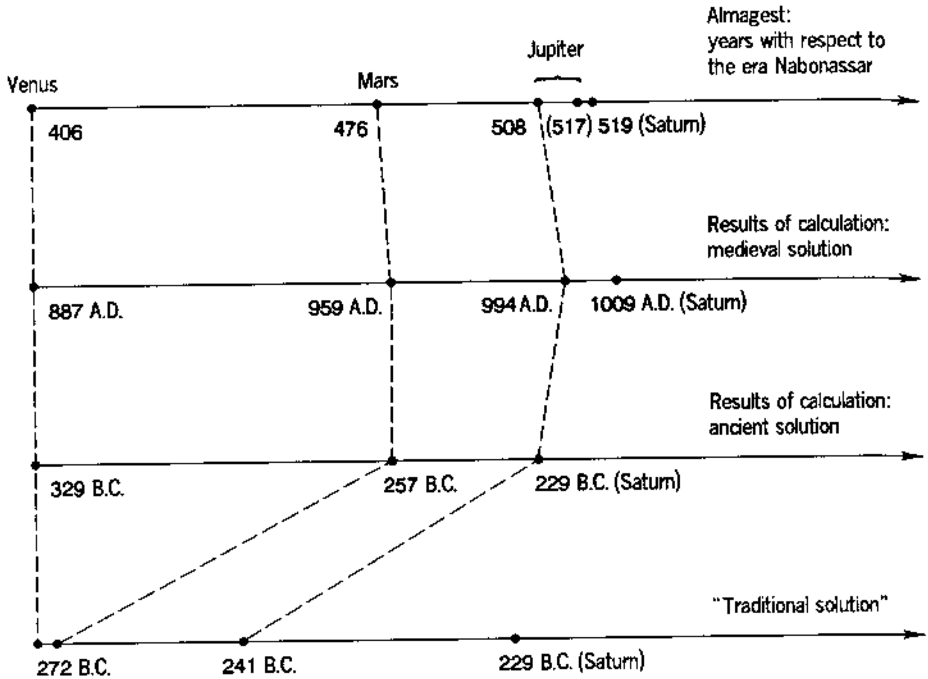

Figure 125. The dating of the occultations of the stars by planets according to the Almagest. Correct medieval solution, doubtful ancient solution and incorrect "traditional solution"

COROLLARY. *The first solution of the dating problem* (*see Statement 1*) *implies that the beginning of the era of Nabonassar* (*in the chronology of the Almagest*) *must correspond to 480–490 A.D.*

3. Dating of the Lunar Eclipses

Twenty one lunar eclipses mentioned in the Almagest were observed by different astronomers approximately during the time inteval from 26 to 881 years in the era of Nabonassar. Ptolemy listed the following characteristics of the eclipses:

1) The year of the eclipse in terms of some chronological era, which was given in the ancient document used by Ptolemy. Usually, after this, Ptolemy recalculated this year in the era of Nabonassar. In several remaining cases, this recalculation (to the era of Nabonassar) can be easily done on the basis of the relations between the different eras which are listed in the Almagest.

2) The phase of the eclipse according to the ancient document which is quoted by Ptolemy. Let us recall that the Almagest contains the theory of the moon's motion. But this theory did not allow Ptolemy to calculate the phase of the eclipse

This is the reason why Ptolemy quoted the phase from the ancient text without any comments. A more advanced theory of the moon's motion allowing to calculate the phase of lunar eclipses was created only in the 19th century A.D.

3) The date of the eclipse and the time of the "middle of the eclipse". These data are the result of Ptolemy's calculations (he mentioned this). Consequently, these "calculated data" are not of any interest for an independent dating problem.

4) The place of the observation of the eclipse. Note that any lunar eclipse is visible from half of the earth's globe. Hence, the indication of the place is not of serious significance.

Thus, only the data of 1) and 2) are really important for the dating problem, because Ptolemy did not calculate these data and simply extracted them from the ancient documents.

Hence, we use the following data:

1) the year of the eclipse in terms of some chronological era (the beginning of which we assume to be unknown, but we calculate it after the solution of the dating problem);

2) the phase of the eclipse.

Table 2

The table of the Almagest's lunar eclipses.

1)	[327, p. 123, book IV.6]	2)	[327, p. 123 book IV.6]
3)	[327, p. 123, book IV.6]	4)	[327, p. 172, book V.14]
5)	[327, p. 172, book V.14]	6)	[327, p. 137, book IV.9]
7)	[327, p. 136, book IV.9]	8)	[327, p. 140, book IV.11]
9)	[327, p. 140, book IV.11]	10)	[327, p. 141, book IV.11]
11)	[327, p. 141, book IV.11]	12)	[327, p. 142, book IV.11]
13)	[327, p. 142, book IV.11]	14)	[327, p. 196, book VI.4]
15)	[327, p. 80, book III.1]	16)	[327, p. 196, book VI.4]
17)	[327, p. 80, book III.1]	18)	[327, p. 136, book IV.9]
19)	[327, p. 129, book IV.6]	20)	[327, p. 129, book IV.6]
21)	[327, p. 129, book IV.6]		

Let us recall that the phase of an eclipse is equal to the maximal part of the diameter of the moon which is shadowed; this part is measured in units equal to 1/12 of this diameter. For supertotal eclipses, we need to calculate the length of the earth's shadow which is crossed by the moon. The total eclipse starts from 12 units (all eclipses with a phase more than 12 units are total). Ptolemy does not mention the phase for 3 eclipses out of 21. But at each point of the earth's surface, one can observe at least one lunar eclipse a year (with some phase). Consequently, a mention of these eclipses without their phases does not bear any real astronomical information. Thus, we are forced to exclude these three eclipses and finally work with the 18 eclipses listed in Table 3.

Table 3

No. of eclipse	Year of the era of Nabonassar	Hour of the middle of the eclipse in Alexandria (Ptolemy's calculation)	The phase of the eclipse (in standard units)
1	26	21	total
2	27	23	3
3	27	20	6
4	127	5	3
5	225	22	6
6	246	24	3
7	256	23	2
8	366	6	1
9	367	23	total
10	546	19	9
11	547	1	total
12	547	2	total
13	574	2	7
14	607	22	3
15	870	20	2
16	878	23	total
17	880	22	10
18	881	4	6

The problem of independent astronomical dating of the lunar eclipses in the Almagest can be stated as follows. We need to find in the past (based on the modern theory of the moon's motion) the set of 18 lunar eclipses which satisfy the following conditions.

1) Each eclipse must have the phase which is given in the Almagest (with an accuracy of 1 unit). The phases of the eclipses were determined by medieval astronomers sufficiently accurately (from visual observation), and after this they have not been changed by recalculations. Thus we can assume that the phase of the lunar eclipse in the Almagest is quoted correctly with an accuracy of 1 unit (because the value of the phase is represented in the Almagest by an integral number of units).

2) The "inter-eclipse times" must correspond to the distances which are listed in the Almagest. But because Ptolemy used several different ancient documents the years of some eclipses are given relative to different eras. It is impossible to demand an accuracy of better than 2 years (between eclipses). The reason is (see the discussion above) that different eras can employ a different beginning of the year. Hence, the recalculation from one era to another can produce a natural error of 1 year. Consequently, for the difference between two dates, this error can be equal to 2 years.

We solved this numerical problem with the help of computer calculations and the modern theory of the moon's motion. We also tested our results by comparing them with the well-known Canons of eclipses [172, 177]. We considered *all* eclipses of the historical interval from 900 B.C. to 1600 A.D. The result obtained is as follows.

Statement 2. There exists a unique solution of the above-mentioned problem of dating of lunar eclipses in the Almagest which satisfies with an accuracy of 3 years all conditions imposed on inter-eclipse times and which have the necessary phases. This is the set of eclipses compiled in Table 4. It turned out that all these eclipses are medieval.

Table 4

No. of the eclipse	Date of eclipse				Phase of eclipse	Coordinates of the zenith point of the eclipse on the earth	
	year A.D.	day	month	hour (Greenwich)		longitude	latitude
1	491	5	8	16	11.1	110	−17
or							
	492	30	1	16	16.7	123	17
2	494	5	6	1	2.0	−28	−22
3	496	6	11	21	5.0	27	17
4	594	6	8	23	4.0	16	−17
5	693	27	3	14	5.6	138	−4
6	717	28	6	13	3.0	155	−23
7	728	27	5	21	2.5	31	−22
8	840	20	5	5	1.4	−77	−21
9	843	19	3	19	14.1	73	−1
10	1019	16	9	23	9.4	10	−1
11	1020	12	3	7	18.1	−111	1
12	1020	4	9	23	18.7	13	−6
13	1046	23	4	7	6.6	−116	−14
14	1079	20	1	3	4.0	−48	19
15	1344	23	9	1	2.4	−31	3
16	1349	30	6	23	21.7	1	−23
17	1349	25	12	12	9.8	178	23
18	1350	20	6	17	5.8	103	−23

This unique solution is stable with respect to variations of time. Ptolemy used different ancient documents describing the lunar eclipses. These documents sometimes use different chronological eras. For example:

- the eclipses Nos. 1–3 are dated in the ancient documents (as Ptolemy says) by dates of the era of Mardokempad;

- the eclipses Nos. 4–5—by dates of the era of Nabonassar;

- the eclipses Nos. 6–7—by dates of the era of Darius;

- the eclipses Nos. 8–9—by dates of the Athenian magistracy;
- the elipses Nos. 10–12—by dates of the 3rd Callippic period;
- the eclipse No. 13 is assigned to the era of Philometor;
- the eclipses Nos. 15–18—by dates of the era of Hadrian.

As we can see, Ptolemy made some errors (sometimes of about 10 years) when recalculating from one era to another. This means that Ptolemy, generally speaking, does not have the exact position of the initial points for different eras. Consequently, the time distances (separation) between the eclipses which are given in terms of the same era must be considered to be more reliable in comparison with the distances between the eclipses assigned to different eras. The reason is that, in the first case, Ptolemy simply extracted the time differences from some ancient document, and consequently these values do not depend on the position of these eclipses on an absolute time scale. But in the second case, the time distances depend on Ptolemy's recalculations of dates belonging to different ancient eras for those belonging to the "era of Nabonassar". These recalculations can produce additional errors.

This is the reason why we decided to continue our computer calculations to study the problem: "Are there any other solutions of our problem if we permit possible errors in time distances to increase?" We decided to leave the accuracy of 3 years for inter-eclipse times belonging to the same chronological era, and to permit the accuracy to increase up to 30 years (!) for inter-eclipse times "connecting" eclipses assigned to different eras. Remark: the eclipses assigned (in the Almagest) to the same era form some compact groups on the time axis, i.e., they are located inside sufficiently small time intervals. But distances between successive eclipses, assigned to different eras, are about tens and hundreds of years. In other words, the eclipses form some concentrations on the time axis. It is clear that each such concentration is the reflection of some homogeneous set of observations, which were made (according to the Almagest) by the same scientific school, maybe in the same place (more or less). Consequently, it is natural to think that the mutual position of the eclipses inside each "homogeneous group" must itself be more precise than the mutual position (on the time axis) of the concentrations. The location of these concentrations on a common time scale is evidently the result of more recent chronological work and recalculations.

Statement 3. Let us consider an *accuracy of 3 years for inter-eclipse times for successive eclipses assigned to the same era, and* an *accuracy of 30 years for inter-eclipse times for successive eclipses assigned to different eras. Then the solution found in Statement 2 still remains unique for the entire historical time interval under consideration.*

If we extended the accuracy (error) up to 4 years for all cases, then a new solution would appear with the first eclipse at 721 B.C. This solution is close to the traditional one (suggested by historians and chronologists) but does not coincide in details with traditional datings. Figure 126 shows two histograms which demonstrate the distribution of the deviation (in comparison with the Almagest) of inter-eclipse times for both solutions. It is clear that the first (medieval) solution is considerably better than the second one (ancient).

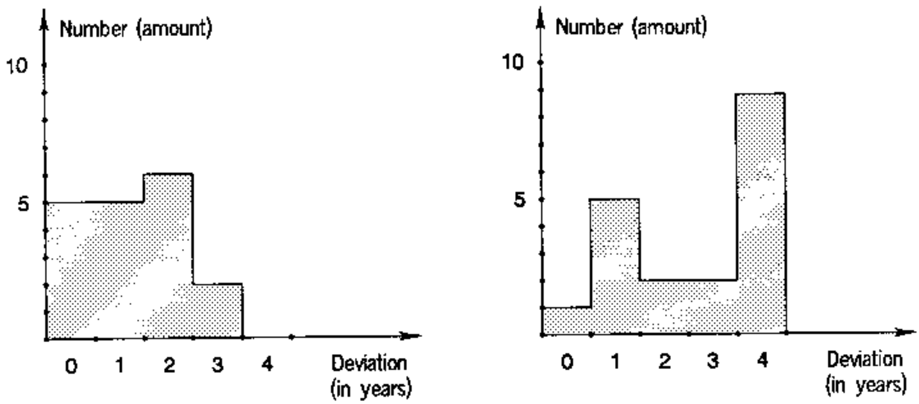

Figure 126. Comparison of the medieval and the ancient solutions

Here (as in the case of star occultations) we also have the periodicity in the lunar eclipses. The existence of the second (ancient) solution is explained by the approximate periodicity in the evolution of the configuration consisting of sun, earth, and moon. This period is equal to several hundreds years. But the periodicity has only approximate character and it follows that the second (ancient) solution is considerably worse that the first (medieval) one.

4. The Chronology of the Almagest

According to our dating of the star occultations by the planets, the era of Nabonassar in the Almagest starts in 470–490 A.D. More precisely, the exact dates for this starting point, obtained on the basis of different star occultations and on the basis of different versions related to the 11-year disagreement in the internal chronology of the Almagest, are as follows: 447 A.D., 481 A.D., 483 A.D., 486 A.D.

The dating on the basis of the collection of lunar eclipses in the Almagest gives 465 A.D. as the first year of Nabonassar. What can we say about the accuracy of this value? The comparison of the time configuration of the eclipses in the Almagest with the real time configuration, discussed above, shows that the global chronology of the Almagest contains some errors (displacements), which have the same value as for the case of star occultations (the maximum chronological displacement is equal to 11 years). Consequently, the typical accuracy of the relative positions of the basic points for the different eras (their initial points) in the Almagest is 10–15 years.

The agreement between our datings resulting from star occultations and lunar eclipses is ideal. They both lead to the same interval, i.e., 460–490 A.D., which is supposed to contain the beginning of the era of Nabonassar.

Now we can reconstruct the global chronology of the Almagest. In the Almagest, Ptolemy mentions the dates (in terms of the era of Nabonassar) of the following events from the history of Assyria, Egypt, Rome:

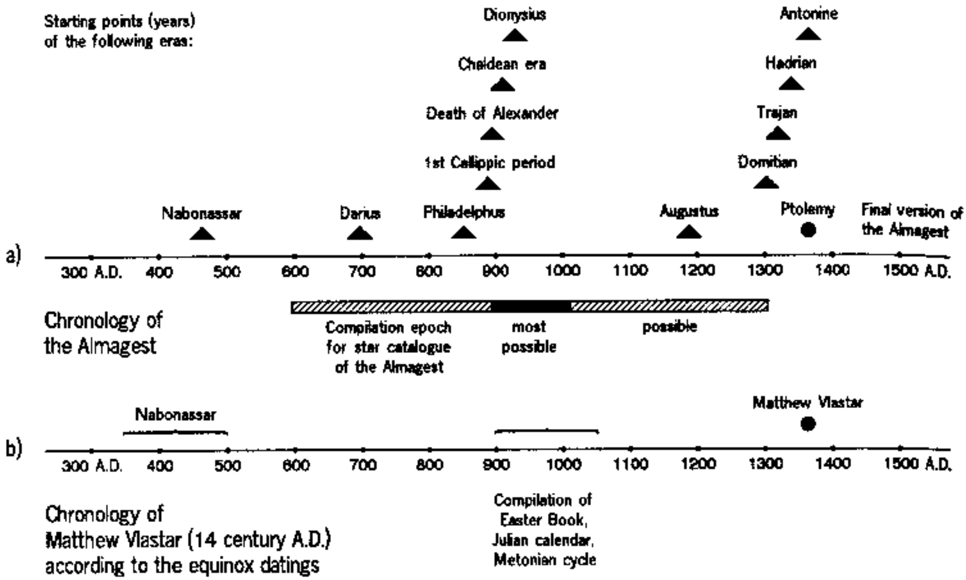

Figure 127. Chronology of the Almagest and its comparison with the chronology of Matthew Vlastar (see Appendix 4)

1) the rule of Darius,
2) the rule of Philadelphus,
3) the beginning of the Callippic periods,
4) the death of Alexander (it is usually assumed that here Ptolemy means Alexander of Macedonia, but Ptolemy really speaks simply about some "Alexander"),
5) the beginning of the Chaldean era,
6) the beginning of the era of Dionysius,
7) the rule of Augustus,
8) the rule of Domitian,
9) the rule of Trajan,
10) the rule of Hadrian,
11) the rule of Antoninus.

For all these events, we automatically obtain the following dates (the time intervals are considered with an accuracy of 5 years):

0) the beginning of the era of Nabonassar: 460–490 A.D.,
1) the rule of Darius: 685–715 A.D.,
2) the rule of Philadelphus: 840–885 A.D.,
3) the beginning of the Callippic periods: 875–910 A.D.,

4)	the death of Alexander:	885–915 A.D.,
5)	the beginning of the Chaldean era:	900–935 A.D.,
6)	the beginning of the era of Dionysius:	915–945 A.D.,
7)	the rule of Augustus:	1175–1205 A.D.,
8)	the rule of Domitian:	1290–1320 A.D.,
9)	the rule of Trajan:	1310–1340 A.D.,
10)	the rule of Hadrian:	1310–1345 A.D.,
11)	the rule of Antoninus:	1330–1365 A.D.

Summary

1) The reconstructed chronology of the Almagest (Fig. 127) ideally corresponds to the dating of the star catalogue of the Almagest: 600–1300 A.D. (where the most plausible time interval of the creation of the catalogue is the 10th century A.D.). According to this chronology, the following events (mentioned in the Almagest) took place during the 9–10th centuries A.D.:

– all observations of the star occultations by the planets;

– the most massive concentrations of the observations of the lunar eclipses;

– starting points of the most important chronological eras such as: the era of Philadelphus, the Callippic periods, the era of Alexander, the Chaldean era, the era of Dionysius,—5 eras in all of the 11 mentioned in the Almagest.

2) The time interval for the death of Alexander (885–915 A.D., according to the reconstructed chronology of the Almagest) practically coincides with the rule of the *unique* emperor Alexander 912–913 A.D. in the history of Byzantium (and Western Europe).

3) The time interval for the beginning of the Callippic periods covers the starting point of the Great Indiction in 877 A.D. Let us recall that the starting points of the Great Indictions are at a distance of 532 years one from one another. This is the time period after which the combinations of medieval calendar characteristics of the year (such as indict, moon's cycle, sun's cycle) are repeated. But a shorter period was used for cycles too. It is the so-called Callippic period (cycle), which is equal to 76 years. One Great Indiction consists of an integral number of Callippic periods. Consequently, it is natural to expect that the Callippic period is simply a subdivision of the Great Indiction and, hence, the beginning of the Great Indiction must coincide with the beginning of the 1st Callippic period. It turns out that this natural conjecture is completely confirmed in the reconstructed chronology of the Almagest: the 1st Callippic period started in 877 A.D.—exactly in the year marking the beginning of the Great Indiction.

APPENDIX 4*

The Dating of the First Oecumenical Council of Nicaea and the Beginning of the Christian Era

G. V. Nosovsky

1. A Date for the Council of Nicaea from the Easter Book

1.1. The accepted point of view. It is commonly accepted nowadays that the church calendar, used by the Orthodox Church till now, was canonized by the First Oecumenical Council, held in the town of Nicaea in Vafin in 325 A.D., in the reign of Emperor Constantine. The calendar consists of two parts, the flexible and the fixed one. The fixed part is the Julian calendar (the so-called "old style") with fixed festivals its dates. The flexible part is the Easter Book, which determines the position of Easter, changing from year to year, in the Julian calendar, and consequently the count of weeks and the position of flexible festivals. The two parts of the calendar together determine church services for every day of the year; thus, the canonization of the calendar is of fundamental significance for the Church. This makes the common opinion that the church calendar was canonized at the First Oecumenical Council look quite plausible. So it was thought in the Middle Ages, and so it is accepted today.

Not many, however, know that this opinion *sharply contradicts the present traditional dating of the Council of Nicaea to 325 A.D. (and any of the 4th century A.D.)*. Meanwhile, this contradiction was already noticed by paschalists at the beginning of 20th century. However, this contradiction hitherto received no perspicuous explanation.

Note that the dating of the Council of Nicaea is of exceptional importance because this date is a basis for all chronology assumed today of the events since the 4th century A.D. This date also provided a reason for the Gregorian calendar reform conducted by the Roman Church at the end of the 16th century (so-called "new style").

Thus, a revision of dating of the Council of Nicaea entails a revision of the entire chronological scale at least from the 4th to the 14th century. Apparently, this is the reason why those who noticed the contradictions between the contents of the Easter Book and the date of the Council of Nicaea did not decide to make any conclusions. We, however, digress for a while from these difficulties and consider the problem of dating the Council of Nicaea according to the Easter Book, leaving alone the chronology of other events.

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*This Appendix contains the remarkable results of G. V. Nosovsky obtained in 1990. The short version of this work was published in 1992 (see [347]).

Let us begin with several quotations from the book by I. A. Klimishin "Calendar and Chronology", which reflects the modern point of view on the origins of the Easter Book.

"The problem of "combining" lunar and solar (Julian) calendars faced Christian theologists in all its magnitude in the 2nd century A.D., when the Christian tradition of celebrating Easter began to be established ... They compiled a schedule of lunar phases ("ages") for calendar months of 19-year cycles. In other words, a specific kind of "perpetual calendar" was framed, in which the new moons of each year were associated with concrete dates of calendar months. This schedule was used for centuries for calculating the dates of Easter as well as for dating events ..." [335, p. 74].

"The schedule of new moons for a 19-year cycle, used invariably for the determination of Easter lunar phases till now, had been already framed by the 5th century A.D." [335, p. 87].

"... In the 3rd century A.D. reliable methods for calculating the dates of Easter had been already worked out ... Thus, from the 4th century A.D. on, the Christian church connected its annual cycle of festivals to the Julian calendar, and the most important of them, Easter (and it accompanying cycle of feasts and "transitional" festivals), with the lunar–solar calendar" [335, p. 214].

Thus, the modern tradition presumes that the rules for calculating the dates of Christian Easter began to be established in the 2nd century A.D. and assumed the modern form in the 4th century A.D. Moreover, all reference books assert quite definitely that the rules had been canonized at the First Oecumenical Council of Nicaea:

"At the (First Oecumenical) Council it was decreed that Easter should be celebrated on the first Sunday after the first spring full moon" [God Law, Holy Trinity Monastery, Jordanville, N.Y., U.S.A., 1–987].

"The controversy lasted until the Oecumenical Council of Nicaea, which ... determined ... that Easter should be celebrated by Christians certainly separately from Israelites and certainly on Sunday after full moon. Appropriate calculations had been done in order to make determination of Easter for each year more precise" [Encyclopaedia of Brockhauz–Evfron, "Easter"].

"The original text of the Nicene decree of the Council of Nicaea did not survive. It was already absent in the archives of the Church of Constantinople in the early 5th century. As an official document, only the message of Emperor Constantine from Nicaea to the bishops absent at the Council is available. The message asserts that 'it appeared to the Council unbeseeming to perform the Holy Festival in the custom of Israelites'" [335, p. 212].

Nevertheless, a serious chronological problem is hidden here. Let us cite several quotations from papers of specialists dealing with the Easter Book and with chronology.

"Calendars, text-books and treatises on compiling the Orthodox Easter Book contain references to the determination of the First Oecumenical Council that prescribes to celebrate Easter on the first Sunday after Passover, which in its turn is performed on the arrival of the first spring full moon. But, as is known, there is no such rule available among rules of the First Oecumenical Council. The Antiochian Council also refers to the prescript of the First Oecumenical Council ... but gives no concrete instructions for the time to celebrate Easter, as if the prescript of the First Oecumenical Council confined itself to the prohibition of celebrating Easter at the same time as the Israelites ... Russian paschalist archipriest D. Lebedev characterizes the requirements, usually ascribed to the Church fathers of the First Oecumenical Council and traditional for our Easter Book, as 'a later formulation of the principle of the Alexandrite Easter Book' " [337].

"The question on the time when the rule of celebrating Easter only after the spring equinox was formulated remains open" [335, p. 213].

"What did the decisions of the First Oecumenical Council on the celebrating Easter consist of? A detailed account *of this problem* ..." [337].

What does the difficulty of this problem consist in? The question seems clear. Although the original rule of the Council of Nicaea did not survive, it is known that the Council did determine that rule; moreover, it did it in 325 A.D., when a "reliable methods for calculating the dates of Easter had been worked out" and the schedule of Easter dates had been already compiled, which later "was used for centuries". The latter is quite natural because "every 532 years the Christian Easter recurs in the same order ... Easter tables for all 532 years were known" [336, p. 4]. Thus, calculation of a new 532-year Easter Book reduces to a mere shift of the preceding one by 532 years. This rule obtains till now: the last great indiction (as the 532-year period of the Easter Book is called) began in 1941 and is a shift of the preceding one (1409–1940) which, in its turn, can be obtained by shifting the indiction of 877–1408, and that one by shifting the indiction of 345–876.

Thus, the original form of the Easter Book can easily be restored. Besides, the rules lying at the basis of the Easter Book are well known from the ecclesiastical tradition. In "The Collection of Rules of the Holy Fathers of the Church" of Matthew Vlastar (Constantinople, 14th century), an account of enactments of the oecumenical and regional councils, it is said:

"The rule on Easter includes two restrictions: not to celebrate together with the Israelites and to celebrate only after the spring equinox. Two more were added to them by necessity: to perform the festival after the very first full moon after the equinox, and not on any day but on the first Sunday after the full moon. All these restrictions except the last one have been kept firmly till now, but now we often change for a later Sunday. Namely, we always count two days after the Passover (i.e., the full moon—G. Nosovsky) and then turn to the following Sunday. This happened not by ignorance or inability of the Church fathers who confirmed the rules, but because of the lunar motion ..." [331; 340, part P].

That is, the Church fathers of Council, who established the Easter Book, added to the two basic (apostolic) rules, not to cocelebrate Easter with the Israelites and to celebrate it after the spring equinox, two more rules: to perform the celebration after the first spring full moon (i.e., after Passover), and not on any day but on the next Sunday. According to Vlastar, the first three of the four rules are kept strictly, but the 4th rule, demanding that the Easter Sunday should be the one following the full moon, is infringed due to the discrepancy between the Easter lunar cycle ("circle for the moon") and the length of the Julian year; there are at least two days between the full moon and Easter (in the times of Vlastar, 14th century). This happened because of the slow (and apparently unknown to the Fathers of the Council) shift of the full moons away from the dates fixed in the "circle for the moon" (as we now know, this shift amounts to twenty-four hours per 300 years). The fourth rule is infringed, for example, if Passover falls on a Saturday. Indeed, by the 4th rule, the Easter should fall on the next day, the Sunday. But because of ensuing two-day shift, Easter is placed by the Easter Book to be a week later, on the next Sunday.

The above excerpt from "Rules" by Matthew Vlastar contains a complete set of rules the Easter Book is based on. Thus, we know much about the Easter Book, i.e., almost all. What, then, is the difficulty that worries the specialists?

The difficulty arises from the fact that the above data on Easter Book contradict the accepted date of the Council of Nicaea, that canonized the Easter Book. This contradiction can be easily seen from a very rough and simple calculation: if a one-day difference between Easters and the true full moons accumulates in 300 years, and by the times of Vlastar (approximately 1330) it had accumulated to 2 days, then the Easter Book had been compiled approximately in 730 (because $1330-300\times 2=730$), and canonized still later. This does not agree with the date of 325 A.D. Note that Matthew Vlastar himself perceives no contradiction (though he knew about "1-day-in-304-years" shift of the "circle for the moon" and could do this obvious calculation). He merely did not yet know about the dating of the Council that established the Easter Book 325 A.D.!

The contradiction is so obvious that it could not be left unnoticed by researchers. It was noted in the form of seemingly strange reservations:

"The fact that the Council of Nicaea passed no firm prescriptions on celebrating Easter only after the spring full moon can be seen from the history of the celebration of Easters in the first years after the Council" (i.e., passed, but not "firm" ?—G. Nosovsky).

"By the way, it should be noted that in the Alexandrite lunar cycle, the 14th day of the return of the moon (i.e., full moon) always fell one or two days earlier than the real full moon" (?!—G. Nosovsky) [337].

But the new moon, and so the full moon, can be easily determined by merely looking at the sky. A systematic 2-day error in full moons looks inexplicable not only for the 4th century but even for the time of the caveman.

"To determine Easters according to the rules of the Orthodox Easter Book, it is important to assure that Easter should not coincide with Passover ... The tables ... provide dates of Passovers from 900 A.D. on" (?!—G. Nosovsky) [338, p. 14].

But why from 900 A.D. only? Is it not because the coincidences in question only ceased to occur in 8th century (see below)?

So, when was the Easter Book really compiled?

1.2. A date from the Easter determination rule. A computer experiment. The apostolic (i.e., the basic) rule on Easter requires that Easter should not coincide with Passover. The ecclesiastical tradition tells that Passover is the first spring full moon (see, for example, [331]). Nowadays the dates of full moons can be calculated very precisely. To that end we used the well-known Gauss formulas, with the help of which we calculated (using a computer) the Julian dates of *all* spring full moons from the 1st century A.D. until today and compared them with the dates of the Orthodox Easter indicated in the Easter Book. As a result we come to the following conclusion.

Statement 1. The Council that established the Easter Book (in medieval and modern tradition, the First Council of Nicaea) could not have taken place before 784 A.D., because only after this year (due to slow shift of the lunar phases) the coincidences of "calendar" Easters (i.e., the determined by the Easter Book) with the "lunar" Passovers ceased to occur. The last such coincidence occurred in 784, and since then the dates of Passovers and Easters diverged forever. Therefore, the Council of Nicaea could not have canonized the Easter Book in the 4th century A.D. when the calendar Easters coincided with Passovers 8 (!) times—in the years 316, 319, 323, 343, 347, 367, 374 and 394, and 5 times came even two days earlier (which is forbidden by the 4th rule on Easter): in the years 306, 326 (one year after the

Council!), 346, 350 and *370.*

Thus, if we follow the modern tradition, we find ourselves forced to accept that the very first celebration of Easter after the Council of Nicaea infringed roughly three of four rules according to which the Council established this celebration. And only 500 years after the Council, that established the Easter Book, it began to conform faultlessly to the rules that determined it! This does not look plausible. Note that Scaliger, as he compiled in 16th century the chronology hitherto accepted, could not defect this nonsense, because in his time calculation of the full moons for the distant past was an extremely difficult problem. The incongruity had been observed much later, when the Scaliger version of chronology had been already canonized and called "scientific", and any changes in it had become intolerable.

1.3. A date from Easter full moons. The fact that, when the Easter Book was compiled Easter was defined as the first Sunday after the first spring full moon is not only known from the ecclesiastical tradition; it ensues also from the Easter Book tables. Among them there is a table of Julian dates of Passovers (the spring full moons) for all years of the 19-year lunar cycle, the "circle for the moon". The Easter Book is based on the assumption that the dates of spring full moons punctually recur every 19 years. The date of Easter is determined as the first Sunday after such a (calendar!) full moon. To find the date of Easter, one is to find the "circle for the moon" for the year, then to determine from the Easter table the date of the corresponding full moon and finally turn to the next Sunday.

The compilers of the Easter Book regarded the schedule of spring full moons they used (the "circle for the moon" or "the Metonian cycle") as *perpetual*; they canonized it and based the entire Easter Book on it. This implies at least that *in their time the real "circle for the moon" was exactly as they canonized it.* That they did not suspect any inaccuracy of the Metonian cycle and believed that the "circle for the moon" would ever correspond accurately to real full moons observable in the sky, is also noted by ecclesiastical tradition (Matthew Vlastar, see above). But today we know that the Metonian cycle is in fact not precise. Real spring moons shift slowly to earlier dates of the Julian calendar (the shift amounts to approximately 24 hours per 300 years). Clearly, this gives us a possibility to estimate (roughly) the date when the Easter Book was compiled: it suffices to compare the table of Easter full moons with the precise modern tables of lunar phases and to find the time interval in which the coincidence is satisfactory. Note that the modern theory enables us to calculate lunar phases for the past very precisely (within minutes), but we only need the dates of full moons, so we used the formulas of Gauss.

Statement 2. A satisfactory coincidence (within 1 day) of Easter full moons with real astronomic full moons occurred only between 700 and *1000 A.D. Before 700, real full moons always came later than the Easter ones, and after 1000, vice versa, real full moons (i.e., Passovers) came earlier than the Easter full moons. The beginning of the 13th great indiction (in 877 year) is the time of the IDEAL coincidence of real and Easter full moons.*

Thus, the Easter Book could have been compiled between the 8th and 10th centuries, and could not have been compiled at any other time.

Consequently, if we regard the Council of Nicaea as the Council that established the Easter Book, then it had to take place in the 8–10th centuries, *most probably in the end of the 9th century (after 877).* Indeed, the Council established the Easter Book for immediate usage and for usage for as long as possible without additional recalculations. Therefore, the Council had to compile the table for the whole 532-

year great indiction. We see that the beginning of one of the great indictions (877) falls *exactly* into the interval of the most probable time of compilation of the Easter Book (when Easters and astronomical full moons coincided best). Probably, it was the Council that established the Easter Book that *appointed* 877 as the beginning of the great indiction. Clearly, this year could be the year of the Council or a year soon after (it would be strange to compile a 532-year table and to use it only a few dozen years later—by the way, this is what was suggested by Scaliger for the case of the Council of Nicaea: according to Scaliger, the Easter Book was established in 325, and the great indiction began 20 years later, in 345!).

Remark. It is commonly accepted that the system of chronology since Adam (since the creation of the world) came into use in the 4th century, soon after the Council of Nicaea:

"Two Byzantic eras ... took an important place in chronological calculations. In the first of them, the time is counted from Saturday, September 1, 5509 B.C. This era was created in the reign of Emperor Constantius (who ruled from 337 to 361) ... Since the 6th century, in Byzantium, another era "since the Creation of the World" came into use, with the epoch starting on March 1, 5508 B.C." [335, p. 238].

Apparently, in Scaliger's chronology the time when the era since Adam (since the creation of the world) came in use "fell in the past" together with the time of the canonization of Easter Book. Probably, this era had been established together with the beginning of the great indiction (877) by counting 12 complete great indictions to the past ($876 - 532 \times 12 = -5508 = 5509$ B.C.; a one-year difference comes from the peculiarity of "historical" chronology arising at the crossing of the epoch of the era). However, this is only a conjecture, and the question of what is primary, the era since Adam or the beginning of the great indiction in 877 A.D.—requires a special investigation, which we did not carry out.

1.4. A date from the "Damaskine palm". Without a single exception, the Easter Book contains no names of its compilers. Among others, there is an Easter table that enables us to perform auxiliary calendar calculations with the help of numbers imaginarily placed along the articulations of the fingers of a palm, the "Damaskine palm". Without going to the roots of these calculations, note only that they are unnecessary if you have a ready Easter Book. The Damaskine palm is not an addition to the Easter Book but a convenient method of calculation, which could be used for elaboration of the Easter Book, but before the compilation of the final Easter tables and their canonization. The lifetime of Rev. Iohann Damaskine was 673–777 (that is one of the versions; other versions do not differ too much from this), which is more than 300 years later than the date of the canonization of the Easter Book (according to Scaliger, 325 A.D.). It is impossible to understand what the device for calculating "by palm" was needed for if there were ready (and used for 300 years) Easter tables which could give without any calculation everything the "Damaskine palm" gives.

It is more natural to think that the "Damaskine palm" *preceded the canonization of the Easter tables. But then the canonization could not take place before 700 A.D.* (because Damaskine was born in 673). In different words, traditional (Scaliger's) date of the canonization of the Easter Book contradicts the traditional dates of Rev. Iohann Damaskine's lifetime. If we admit as above that the Council of Nicaea that canonized the Easter Book took place at the end of 9th century, we lift this contradiction. Quite a natural picture arises: the Easter Book had been worked out in the 8–9th centuries (with collaboration of Iohann Damaskine) and was canonized at the end of 9th century.

1.5. An explicit date of Matthew Vlastar. It is striking that the "Collection of the Holy Father's Rules" of Matthew Vlastar (Constantinople, 14th century), the book referred to by all researchers of the Easter Book, *contains an explicit indication of the date of the compilation of the Easter Book: after 743 A.D.*, and this dating remained "unnoticed" (?!) by all researchers. Still more striking is that citations of the most frequently quoted excerpt from the book of Vlastar concerning the rules for calculating the dates of Easters break off immediately before this explicit indication. We cite here this paragraph completely:

"There are four regulations concerning our Easter. The first two are contained in the apostolic rules and the other two are known from the tradition. The first regulation is to perform Easter after the spring equinox. The second is not to celebrate Easter together with the Israelites. The third—not merely after the equinox but after the first full moon after the equinox. And the fourth—not merely after the full moon but on the first Sunday after the full moon ... Our Church fathers compiled the present Easter Book and delivered it to the Church presuming that it contradicts none of the above regulations. They compiled it in the following way: they took consecutive years from the year 6233 since the creation of the world (= 725 A.D.—G. Nosovsky) till the year 6251 (= 743 A.D.—G. Nosovsky) and looked when in each of them the first full moon after the spring equinox occured. It follows directly from the Easter Book that when the Fathers did this the equinox fell on March 21" [331, sheet 190; 340, p. 333).

Thus, the "circle for the moon", the basis of the Easter Book, was established from observations in the years 725–743, and so the Easter Book itself could not have been compiled (not to say canonized by a Council) before this time.

Matthew Vlastar himself has no doubt having the Church fathers established the Easter "circle for the moon" after the year 743. He already knows that astronomic full moons shift to earlier dates of the Julian calendar at the rate of 1 day in approximately 304 years, and he writes:

"As we consider the 19-year cycle 304 years after the Fathers had established it—the seventeenth, beginning in the year 6537 (= 1029 A.D.—G. Nosovsky), we see that the first spring full moons in it come one day earlier than in the first 19-year cycle ... Similarly, as we consider the 19-year cycle, which is separated from the first one by the same distance and begins in the year 6842 (= 1333 A.D.—G. Nosovsky), we discover in it the anticipation of full moons for one additional day ... That is why the two days are now added to Passover" [331, sheet 191; 340, part P].

As we have already shown (see Statement 2), this argument of Vlastar is confirmed completely by modern astronomic calculations: the Easter full moons indeed came on an average two days later than the real ones in 1333, one day later in 1029 and coincided with them in the second half of one 8th century when (in Vlastar's opinion, but not in the opinion of now predominant chronological school) they were compiled.

1.6. Comparison of the dates. Thus, we obtain that the Easter Book was compiled
not before 784 (by the essence of the determination of Easters);
not before 700 (by the coincidence of Easters and astronomic full moons);
not before 700 (by the "Damaskine palm");
not before 743 (by Matthew Vlastar and hence by all Orthodox Byzantine tradition).

Therefore, the Easter Book had been first compiled not before the second half of the 8th century (but not in the 2nd–5th centuries, as Scaliger's tradition tries to make us believe).

1.7. The "first and second" Oecumenical Council. Canonization of the Easter Book. It is known, however, that the Easter Book was not canonized by the Church Council as soon as it had been compiled (and this is quite natural). Consequently, the complete Easter tables for 532 years (the great indiction) were not compiled at once. It is likely that the tables were piled right at the Council which canonized the Easter Book, or on the instructions of the Council. The same Council had to appoint the beginning of the great indiction, the year that began the first complete 532-year table. Since the Easter Book was not compiled before the 8th century, this could have been only the year 877 (the beginning of the 13th indiction; the beginning of the next, 14th indiction falls already into the year 1409).

A natural question arises: Could the date of the Council that canonized the Easter Book be near 877? If it is so, then all contradictions are eliminated and everything becomes quite natural: compilation of the Easter Book in the second half of the 8th century and the establishment of the great indiction at the end of 9th century. Specialists think just the same: the Easter Book had been compiled approximately 100 years before its canonization [335, 337].

877 A.D. is in the middle of the reign of Basil I Macaedonian (867–886), the founder of a new (Greek) dynasty in Byzantium. It was under Basil I that the so-called first and second (!) Oecumenical Council was held which, in particular, discussed the questions of chronology (!) and of ordering (canonization?) of the Church Books [331, sheet 12; 4].

Hypothesis. This is probably the point where medieval chronologists got confused. The fact is that the "first and second" Oecumenical Council was placed by Matthew Vlastar (i.e., by Constantinople tradition of the 14th century) as the last one in the rank of Oecumenical Councils, after the 7th. This is, probably, the result of a chronological mistake made in the 12–14th centuries, when attempts were made in Byzantium to date Oecumenical Councils. The "first and second" Oecumenical Council (two Councils constituting one because of a break) was placed correctly to the end of 9th century, and the 3rd to 7th Councils were attributed to dates too far in the past. As a result, the first and second Council appeared once more in the beginning (now as two separate Councils divided by 52 years). In the 16th century, Scaliger and his collaborators did not understand the essence of the matter and attributed the canonization of the Easter Book, carried out ecclesiastical tradition by the 1st Oecumenical Council not to the 9th century but to the 4th century, where they placed the 1st Oecumenical Council, leaving its "original", i.e., the "first and second" Council, in the 9th century.

Remark. Note that "Collection of the Holy Father's Rules" by Matthew Vlastar, which reflects Orthodox tradition of the 14th century, gives no explicit dates before the 8th century A.D. No dates of Oecumenical or local Councils are indicated in this book. It contains only some indications of time intervals between some of the Councils, of the durations of reigns of some of the emperors and of the positions of years of Councils with respect to the beginnings of the reigns of emperors. All these uncoordinated chronological data are insufficient for constructing a continuous chronological scale. There is an impression that the work on the compilation of global chronology had begun, but was never finished (apparently, some contradictions arose, and the work reached a deadlock). However, 200 years later this incomplete chronological scheme was taken as a basis by Scaliger, evidently without any analysis, and was brought by him to absolutely precise dates (year, month, day, sometimes the hour!) of all principal events of human history. This Scaliger chronology is commonly accepted in modern historical science. However, modern text-books contain, as a rule, only the Scaliger–Petavius years of events (and omit months, days and hours) and do not mention that almost all these dates had been *calculated* in the 16–17th centuries. Below (in Sec. 3) we suggest a possible reconstruction of Scaliger's "method" that enabled him to mount the main landmarks of contemporary chronology.

1.8. The Gregorian calendar reform. Above we spoke only about the Julian calendar used in Orthodox Easter Book. This Easter Book was common for all Christians till the 16th century. But at the end of the 16th century the Roman Church changed to a new calendar, which was called Gregorian because it was introduced under Pope Gregory XIII. The Gregorian calendar is now adopted as a secular calendar (the so-called "new style"). After the adoption of the new calendar in the West, orthodox believers and catholics began to celebrate Easter on different days. The Gregorian reform of the calendar was carried out on the basis of the project of the Italian "physician and mathematician" Luigi Lilio.

"In a special bull *Inter gravissimas* of February 24, 1582, the Pope says the following: 'Our care was not only to reinstate the equinox in its long ago nominated place from which it has deviated since the Council of Nicaea approximately by ten days, and to return the 14th moon (ecclesiastical notation of full moon—G. Nosovsky) to its place, from which it has deviated by four and five days, but also to settle such modes and rules according to which future equinoxes and the 14th moon would never move off their places ... Therefore, in order to return the equinox to its proper place established by the Church fathers of the Council of Nicaea on the 12th day before the April calends (March 21), we prescribe and enjoin concerning October of the current year, 1582, that ten days, from the third day before nonas (October 5) to the eve of the ides (October 14) inclusive, be deleted'. Thus the spring equinox was moved to March 21, "to its place". And in order to prevent further accumulation of the error, it was decided to delete 3 days every 400 years" [335, p. 216].

The text of the bull makes a strange impression. It contains two errors of astronomical nature: first, the difference between Easters and the true (astronomic) full moons that had accumulated by the end of the 16th century was determined incorrectly; second, a wittingly unsolvable problem to correct the calendar in such a way that "equinox and the 14th moon would never move off their places" was raised. This problem is unsolvable because the date of the spring equinox and the cycle of full moons (14th moon) shift at *different rates*, so it is impossible to stop both of them. And indeed, though due to the Gregorian reform the date of the equinox became almost fixed, the 14th moon began to shift one and half times faster, though in the opposite direction (forward in the calendar). See Fig. 128.

Note that neither of these errors could have been made by a skilled mathematician of the 16th century. Perhaps, L. Lilio was only a physician?

In his bull, the pope expresses confidence in the fact that in the time of the Council of Nicaea (i.e., the First Oecumenical Council) the equinox fell on March 21. Where is this known from? Indeed, "the original text of the Nicene decree did not survive. It was already absent in the archives of the Church of Constantinople in the early 5th century" [331, sheet 212]. Evidently, this is a conclusion from the text of the Easter Book itself. Indeed, according to the Easter Book, the earliest Easter falls on March 22, and the earliest spring full moon (Passover) on March 21. Consequently, according to the rules for Easter the Church fathers who established the Easter Book had to presume that the spring equinox (in their time) occurred *not later than*

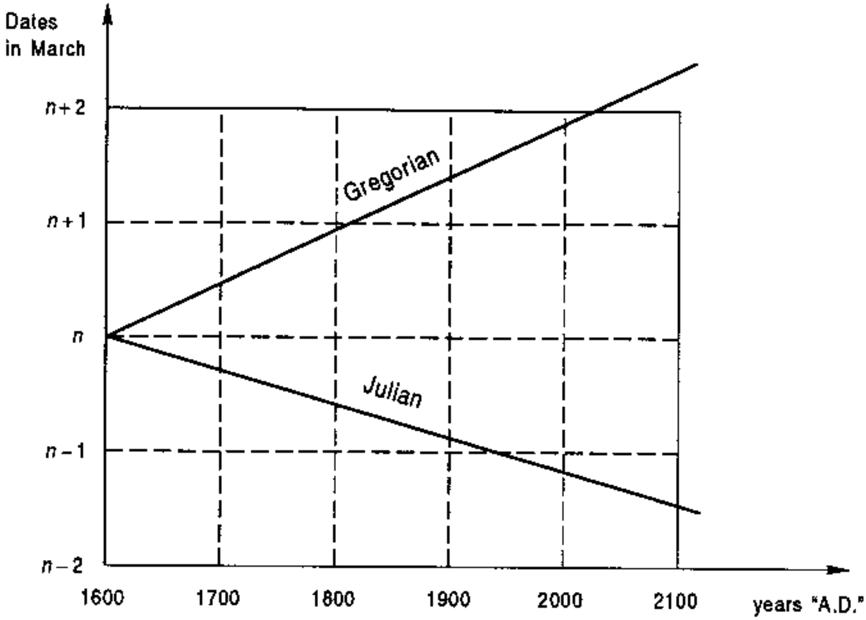


Figure 128. Julian and Gregorian drifts of the "14th moon" in the Metonian cycle

March 21. Apparently, this was the reason for the traditional conclusion that the Church fathers of the Council of Nicaea assumed that the equinox fell *exactly* on March 21. A similar conclusion was drawn by Matthew Vlastar [331, sheet 190]. But, first, such a conclusion, strictly speaking, does not ensue from the Easter Book; we only can imply that the Church fathers of the Council who established the Easter Book assumed the spring equinox to occur no later than March 21. Second, the date of the spring equinox presumed by the Church fathers *could differ from the date of the true (astronomic) equinox!* There is nothing surprising about that; for example, even in the 14th century, Matthew Vlastar determined the contemporary spring equinox with a 6-day (!) error. The spring equinox is an astronomic event not so easy to determine. An exact determination of it requires special astronomic equipment and (in Middle Ages) long-time observations. Thus, there is nothing surprising about the fact that it was not determined quite accurately even in late Middle Ages. The problem is that an inaccurately determined date of the spring equinox used for dating its determination brings about an error amounting to hundreds and even thousands of years.

Apparently, we come across an example of such dating in the case of Scaliger's (nowadays accepted) dating of the First Oecumenical Council, which established the Easter Book, to the 4th century A.D. The following considerations could lie at the basis of this dating.

1) The earliest Easter falls on March 22, hence the Church fathers of the First Oecumenical Council assumed the spring equinox to fall on March 21 (this is the way Matthew Vlastar could reason).

2) The true (astronomic) spring equinox fell on March 21 in the 3rd and 4th

centuries, therefore this was the time of the First Oecumenical Council. This was, apparently, the way the chronologists of the 16th century (Scaliger) reasoned. But while the first of these considerations is doubtful (it does not ensue directly from the Easter Book), the second is erroneous because it presupposes that the Fathers of the Council of Nicaea had at their disposal an exact date (in the 4th century) for the spring equinox, while in the 14th century this date was sometimes determined with a 6-day error.

1.9. Where the date for the Council of Nicaea came from. The date of the Council of Nicaea we derive above from the Easter Book differs essentially from the traditionally accepted one. In this connection it is useful to retrace the way the tradition to assign the Council of Nicaea to 4th century A.D. was established. Recall that the acts of the Council of Nicaea did not survive, and no available acts of the posterior Councils contain the dates they were held at. Thus, dating the Oecumenical Councils is far from easy.

We begin our review of dating the Council of Nicaea with a quotation from the chronological introduction to the "Rules" by Matthew Vlastar (Constantinople, 14th century A.D.):

"On the First Oecumenical Council of Nicaea. The First Oecumenical Holy Council of 318 Church fathers gathered in Nicaea, in Vafin, in the year 20 of the reign of Constantine the Great. As many years had passed since the human incarnation of our Lord, apparently, as there were Church fathers at the Council, that is, 318" [331, sheet 6].

Matthew Vlastar writes that since the human incarnation of Christ (i.e., since the birth of Christ) as many years had passed, as there were Church fathers present at the Council, that is, 318. This "method of dating" (Vlastar does not particularly insist on it) could seem insubstantial to the modern reader. We should not, however, be too supercilious about Vlastar's dating because this very date is at the basis of the modern "scientific" dating the Council of Nicaea. After the 14th century this date only got a slight specification (correction).

First, a 7-year correction was done (Scaliger, 16th century): "The First Oecumenical Coucil was the Nicaean one gathered after an order of tzar Constantine the Great in Nicaea in Vafin on May 20 of the Christian year 325. 318 bishops were present there ..." [334, sheet 183].

The second correction amounted to several weeks (20th century, Encyclopaedia of Brockhaus–Evfron, "Council of Nicaea"):

"On July 4 or 5, the Emperor arrived at Nicaea (325 A.D. is meant—G. Nosovsky) and the next day the inauguration of the Council took place in the grand hall of the emperor's palace ... The Council decided the question of the time of celebrating Easter ..."

Not dwelling on the analysis of these specifications, let us ask a question: On what did the founder of the "scientific" chronology, I. Scaliger, base his confirmation of the "rough" dating the Council of Nicaea to 4th century A.D.? Recall that the activities of I. Scaliger were at the time of the Gregorian calendar reform. We have already observed that the reform leaned heavily upon the conviction that the Council of Nicaea had canonized the Easter Book just in the 4th century A.D. This assignment to the 4th century conformed to the astronomical analysis (rather superficial) of the contents of the Easter Book (a more thorough analysis refutes this assignment, see subsection 8). Evidently, this conviction was shared by Scaliger. But this means that his dating the Council of Nicaea (or, at least, the "scientific" part of this dating) *is based on the date of compilation of the Easter Book.*

Conclusion. "As a rough approximation" contemporary dating of the Council of Nicaea existed as an "insufficiently well-founded hypothesis" in the 14th century already. Its "scientific" grounds are connected with the astronomic contents of the Easter Book. Therefore, *today's traditional "scientific" dating of the Council of Nicaea is a dating from the Easter Book. This dating is based on an insufficiently thorough analysis of the matter.*

1.10. The main conclusions. Thus, we have shown that:

1) The Easter Book, based on events of astronomic nature, "contains" the date of its compilation (that is, it admits independent dating);

2) This date is later than is usually assumed: it is at least a few centuries later than 325 A.D.;

3) This very date, not the now accepted in Scaliger's chronology, was known in Constantinople in the 14th century and, consequently, is a part of the Orthodox tradition.

2. The Birth of Christ and 1 A.D.

2.1. History of the problem. It is well known that no continuous count of the years was done from the first year A.D. till nowadays. The first year of the Christian era was calculated much later than the year of the birth of Christ. It is considered that the Roman monk Dionysius Exiguus (= the Little) was the first who calculated this year in the 6th century, more than 500 years after the event he dated. Moreover, Dionysius first calculated the date of the First Easter (the resurrection of Christ), and then used the legend according to which Christ was crucified on the 31st year since his incarnation. The date of the First Easter, according to Dionysius, falls on March 25, 5539 since Adam, and the year of the birth of Christ, consequently, is 5508 since Adam (in the Byzantine era; all other eras "since the creation of the world" appeared later, when the era "since the birth of Christ" had been already commonly accepted).

The calculations of Dionysius gave rise to doubts in the West up to the 15th century, and they were never considered canonical in Byzantium.

"This era (of Dionysius) was approved in 607 A.D. by Pope Boniface IV, and it appears also in documents of Pope John XII (965–972). But since the time of Pope Eugeny IV (1431), the era "since the birth of Christ" is used regularly in documents of the popes' chancellery ... The discussion on the date of the birth of Christ continued in Constantinople right up to the 14th century" [335, p. 250].

Moreover, today we know that the calculations of Dionysius are in fact incorrect (because of the insufficient development of astronomy in that time). Its incorrectness was already known in the 16th–17th centuries, and since then several attempts were made to recalculate after Dionysius and to correct the dates of the birth of Christ and of the First Easter. For example, one can read in a chronograph of the end of the 17th century:

"There are many (more than 40) opinions concerning the year when Christ was born" [334, sheet 102].

Let us list some of the attempts "to correct Dionysius":

– Christ was resurrected on April 3, 33 A.D., on the 35th year of his life [334, sheet 109];

– Christ was resurrected on April 5, 33 A.D., on the 34th year of his life (this is the most popular opinion today; it appeared in the 19th or 20th century);

– Christ was resurrected on April 9, 30 A.D., and was born a few years before 1 A.D. (the modern point of view of the Roman Church, see also [339]).

But why does one obtain different dates when trying to correct the calculations of Dionysius? Dionysius obtained his date of the First Easter as the date that satisfies certain "First Easter conditions". These conditions are also known today (see below). Let us recalculate after Dionysius, using modern data of astronomy, to obtain a definite result. Where do the different results come from?

The matter is that none of the solutions mentioned above satisfies the "First Easter conditions" of Dionysius. Moreover, there are no dates near 1 A.D. (within 100 years) that satisfy the "First Easter conditions" of Dionysius. It means that if Dionysius had known modern astronomy, he would not decide to place the date of the birth of Christ where he had placed it, at 1st century A.D. (he would have placed this date not before the 5th century A.D., see below).

Unfortunately, when astronomical data sufficient for understanding this had accumulated (which happened not until the 18th century), "our era" ("new era") and the date of "the birth of Christ" were already popular in the West and canonized by the Roman Church, and later also by the Orthodox Church. Besides, the date of the birth of Christ is closely connected to the chronological scale of Scaliger (and this, probably, is the main), and a large shift of this date ruins all chronological constructions of Scaliger (in other words, "it contradicts modern traditional chronology").

Therefore, the researchers who tried to "correct" Dionysius had very little freedom, as they could alter the date of the birth of Christ only by as much as a few years (and only back, in order not to increase the 3–4-year gap in Scaliger's chronology between the date of the birth of Christ and the dates of reign of August and Herod, see, for example, [335, p. 244]).

Consequently, they were forced to ignore some of the conditions used by Dionysius, and also to resort to strained interpretations in order to obtain the date close to 1 A.D.

2.2. The "First Easter conditions". Ecclesiastical tradition, in accordance with the New Testament, tells that Christ was resurrected on March 25 on Sunday, on the next day after Passover, which, therefore, fell in that time on March 24 (Saturday). These are exactly the conditions used by Dionisius in his calculation of the date of the First Easter.

It is absolutely clear from The Gospel according to St. John of the New Testament that Christ was resurrected on the following day Passover.

It is clear from the ecclesiastical tradition that Christ was resurrected on March 25. We saw that the calculations of Dionysius the Little were based on the assumption that the First Easter fell on March 25. It is known that all eastern ecclesiastical writers unanimously affirmed that Christ was resurrected on March 25 (see, for example, [335]).

A complete list of calendar conditions that accompanied, according to the tradition, the resurrection of Christ can be found in "Collection of the Church Father's Rules" by Matthew Vlastar (14th century):

"And God suffered for the sake of our salvation in 5539, when the "circle of the sun" was 23, the "circle of the moon" was 10, and Passover fell on Saturday (as the evangelists write), March 24. On the next day to this Saturday, on Sunday, March 25, Christ was resurrected. The legitimate Passover is celebrated on the equinox on the 14th moon (i.e., on the full moon), from March 21 till April 18. As for Easter, it is celebrated on the Sunday following Passover" [331, sheet 185].

The year of Christ's crucifixion Matthew Vlastar indicates (5539 since Adam) is the year calculated by Dionysius. Substracting 31 year, the time of the earthly life of Christ, Dionysius obtained the beginning of the era (1 A.D.), i.e., the year 5508 since Adam. Moreover, Matthew Vlastar gives the following calendar conditions for the First Easter:

(1) Circle of the sun 23,

(2) Circle of the moon 10,

(3) On the eve, on March 24, there was Passover, which is celebrated on the day of 14th moon (i.e., full moon),

(4) Passover fell on Saturday, but Christ was resurrected on Sunday.

Is it possible to calculate the year of the First Easter from these data?

The answer is: *yes.*

2.3. A date for the First Easter from the complete set of the First Easter conditions. We have carried out the calculations for all years in the interval 100 B.C.–1700 A.D. The days of the spring full moons (the 14th moons, or Passovers) were calculated by the Gauss formulas (using a computer), and Easters, circles for Sun and circles for moon are from the Easter Book. Like Dionysius (and Matthew Vlastar), we assumed that the day of the First Easter is an Easter day according to the Easter Book.

Statement 3. The First Easter conditions (1)–(4), *associated by the ecclesiastical tradition of the 14th century with the date of the crucifixion and the resurrection of Christ, were satisfied in the interval 100 B.C.–1700 A.D. ONLY ONCE: in 1095 A.D.*

Remark 1. The date (1095 A.D.) fits ideally the non-Scaliger chronology constructed in the papers of A. T. Fomenko [21], [318]. Comparing it with the date of the First Oecumenical Council in Sec. 1, we see that the First Oecumenical Council could have taken place before the incarnation of Christ. Does this contradict the ecclesiastical tradition? This question turned out to be far from easy. *We have found no such contradiction.* The fact of the precedence of the First Oecumenical Council (i.e., the establishment of the Orthodox Church) to the birth of Christ contradicts only the point of view on the history of the Church which formed not before the 14–15th centuries, and was canonized in the West only in the 16th century.

Remark 2. The above excerpt from Matthew Vlastar that dates the First Easter, and the First Easter conditions show that we should regard very cautiously the ancient dates contained in medieval sources (and mechanically rewritten, owing to the Scaliger school, into modern textbooks). Many of these dates are results of calculations based on a still insufficiently developed science and can contain errors amounting to many centuries. It is exactly these enormous errors, but not an inaccuracy of several years, that come from the calendar calculations based on inexact medieval astronomy. For example, in the above excerpt from Matthew Vlastar, the date (5539 since Adam) and its calendar characteristic (First Easter conditions) are given. This date was obtained by medieval chronologists (by Dionysius ?) from its characteristic in accordance with the level of the chronologist's knowledge. Today, accurate calculations show that this date is erroneous in at least 1000 years! But fortunately, here we have the conditions that enable us to reestablish the date. In case such conditions are not available, it is already impossible to check such a date as well as to admit, without an additional research, that the date is precise (even approximately). This means that the now accepted Scaliger's chronology based on non-critical usage of sources and requires an accurate examination by the methods of modern science. This work has been done by A. T. Fomenko, who constructed the "optimal statistical chronology" of the ancient and medieval world. The present work confirms the conclusions of A. T. Fomenko [21], [318].

2.4. Dates for the First Easter from the reduced set of the First Easter conditions. Let us look more closely at the First Easter conditions (1)–(4). They are not all equivalent. The conditions (3) and (4) are known from many sources and constitute a stable tradition (see quotations, for example, in [335]). The conditions (1) and (2) look like specific calendar instructions. What can we obtain if we try to satisfy only the conditions (3) and (4)?

Statement 4. The First Easter conditions (3) *and* (4) *are satisfied only in the following years in the interval 100 B.C.–1700 A.D.:*

1) *43 B.C.,*
2) *53 A.D.,*
3) *137 A.D.,*
4) *479 A.D.,*
5) *574 A.D.,*
6) *658 A.D.,*
7) *753 A.D.,*
8) *848 A.D.,*
9) *1095 A.D. (satisfies the entire set of conditions* (1)–(4)),
10) *1190 A.D.*

One can easily see that this list contains no solution satisfying the chronologists of the Scaliger school. Thus, we can make the following conclusion.

The popular legend (tradition), clearly reflected in the Gospel according to St. John (the first three Gospels in the New Testament mention the First Easter conditions quite vaguely; the Gospel according to St. John does not admit different interpretations) and in the works of numerous ecclesiastical writers, can not be conformed with the date of the birth of Christ near 1 A.D. In order to obtain such a concordance, it is necessary to move the date of the birth of Christ back by not less than 70 years or forward by not less than 20 years.

2.5. On the lifetime of Dionysius Exiguus. It is supposed that Dionysius the Little have lived in the 6th century and made his calculations in the following way:

"There exists a conjecture [173] that Dionysius, as he composed his era, took into account the legend that Christ had died in the 31st year of his life and was resurrected on March 25 ... The year 279 of the Diocletian era (563 A.D.) was the nearest when, according to Dionysius, the Easter fell on March 25 again. Comparing his calculations with the New Testament, Dionysius could suggest that ... the First Easter had been celebrated 532 years before the year 279 of the Diocletian era ... that is, that the year 279 of the Diocletian era is the same as the year 563 from the birth of Christ" [335, p. 242].

Dionysius supposedly conducted all these arguments and calculations working with the Easter Book. Having discovered that in the contemporary year 563 (the year 279 of the Diocletian era) the First Easter conditions held, he made a 532-year shift back (the duration of the great indiction, the shift after which the Easter Book entirely recurs) and got the date for the First Easter. But he did not know that Passover (the 14th moon) could not be shifted by 532 years (because of the inaccuracy of the Metonian cycle) and made a mistake:

"Dionysius failed, though he did not know that. Indeed, if he really supposed that the First Easter fell on March 25, 31 A.D., then he made a rough mistake as he extrapolated the inaccurate Metonian cycle to 28 previous cycles (that is, for 532 years: $28 \times 19 = 532$). In fact, Nisan 15, the Passover festival, in the year 31 fell not on Saturday, March 24, but on Tuesday, March 27!" [335, p. 243].

That is a modern reconstruction of what Dionysius the Little did in the 6th century. It would be all right, but it presupposes that near Dionysius' date of 563 A.D. the 14th moon (Passover) *really fell on March 24.* It could be that Dionysius was not aware of the inaccuracy of the Metonian cycle and made the mistake shifting Passover from 563 to the same day of March in 31 A.D. But he could not have been unaware of the date of Passover in the the almost contemporary year 563! To that end it was sufficient to apply the Metonian cycle to the coming 30–40 years; the inaccuracy of the Metonian cycle does not show up for such intervals. *But in 563 Passover (the 14th moon) fell not on March 24, but on Sunday, March 25,* that is, it coincided with Easter as determined by the Easter Book. As he specially worked with the calendar situation of almost contemporary year 563 and as he based his calculation of the era "since the birth of Christ" on this situation, Dionysius could not help seeing that, first, the calendar situation in the year 563 did not conform to the Gospels' description and, second, that the coincidence of Easter with Passover in 563 contradicts the essence of the determination of Easter the Easter Book is based on (see above Sec. 1).

Therefore, it appears absolutely incredible that the calculations of the First Easter and of the Birth of Christ had been carried out in the 6th century on the basis of the calendar situation of the year 563. It was shown in Sec. 1 that the Easter Book, used by Dionysius, had not been compiled before the 8th century and had been canonized only at the end of the 9th century. Therefore, *the calculations carried out by (or ascribed to) Dionysius the Little had not been carried out before the 10th century.*

Hypothesis. We have already seen (in Sec. 1) that it is told in the "Church Fathers' Rules" of Matthew Vlastar that the equinox "this time" fell on March 18. In fact, the spring equinoxes in Vlastar's time fell on March 12, and they fell on March 18 in the *6th century. Therefore, if we date Vlastar's text by the equinox, we get the 6th century.* Apparently, the same late medieval text was included both in the "Rules" of Matthew Vlastar and (in Latin transcription) in the treatise of Dionysius the Little. Probably, the text was written by Vlastar himself or by one of his predecessors in the 12–14th centuries. It contains, as we saw, the dating of the resurrection of Christ, but not a single word on the date of the birth of Christ. Probably, exactly this text of Vlastar was soon thereafter used by Dionysius the Little, who subtracted 31 years from the date of Christ's resurrection, thus obtaining the date of the "birth of Christ", and introducing new era. If that had happened in the 14th century, this is an explanation why the systematic usage of this era in the West began only in the 15th century (the year 1431). Later (apparently in the 17th century), Dionysius' Latin text was dated by the equinox to the 6th century, and the aforecited reconstruction of his calculations appeared. The name "Dionysius the Little" is, apparently, merely the name of the 17th-century chronologist Dionysius Petavius (Petavius = the Little), who concluded the construction of Scaliger's chronology (this has been already noted by A. T. Fomenko [21]).

3. On Modern Tradition

3.1. The extremity of modern dating ("the more ancient the better"). In Sec. 1 and Sec. 2 we have shown that Scaliger's dating of two epochal events of antique and medieval history (the global chronology of antiquity and the Middle Ages is based to a considerable extent on these two events), the birth of Christ and the First Oecumenical Council, contradicts the data on these events available from the ecclesiastical tradition. Let us stress once more that *these data are primary, but not the dates we got used to today*. These two reached us "from the depth of centuries", and all the dates of ancient, antique and early medieval history we "know" today are the result of calculations which began, apparently, not before the 13th century, were accomplished in the 17th century (Dionysius Petavius) and canonized in general at the Council of Trent of the Roman Church at the end of the 16th century (1545–47, 1551–52, 1562–63).

It is important to note that the Council of Trent canonized the result of incomplete chronological work. Scaliger's chronology, which is commonly accepted now and therefore seems the only one possible and ever known, was in the 16th century, when it was canonized, only one of several possible versions of global chronology (see, for example, [21]). It is even possible that Scaliger's chronology was the most widely spread version among the scientists of Rome and Western Europe, but this does not mean that it was true, even though roughly. It is rather doubtful that a true view of the general chronology of human history *could* come from medieval calculations at all. Modern investigations show that the reconstruction of general chronology from the set of available historical sources is a very complicated scientific problem, which requires application of modern scientific methods and extensive computer calculations. Unfortunately, the methods of modern chronologists remain for the most part similar to those available at the times of Scaliger and Petavius.

It is interesting to note a particular feature of Scaliger's (and not only Scaliger's) dates: almost all of them follow the rule "the more ancient the better": *when calculating the date of an event, of all admissible dates (the set of solutions), the earliest was chosen*. It looks like the rule is still in force nowadays. We will demonstrate its effect on the accepted dates of the birth of Christ and of the First Oecumenical Council.

Imagine a chronologist of the 16th century who dates these events using their description (see Sec. 1, Sec. 2). What simplest lower boundaries did he have available? In different words, what were the most earliest dates he could use? Recall that in the description of both events, the birth of Christ and the First Oecumenical Council, the day of the equinox (spring point) occurs, the rate of its shift along the dates of the Julian calendar was already known well in the 16th century. The value of this rate was widely used by chronologists (by Scaliger among them).

In case of dating the birth of Christ, a chronologist of the 16th century knew that in the year of this event (and of the First Easter) the spring equinox fell on March 24 (that is, to the eve of Sunday: according to the Gospel, that day was Passover); consequently, the spring point could not come later than on March 24. The spring point fell on March 24 about the year 100 B.C., and before this year it fell on earlier days in March. Hence, our imaginary chronologist could not assign the birth of Christ to an earlier date than 100 B.C. The date a real chronologist fixed was only a hundred years short, but he had to ensure that the rest of the conditions should also be satisfied! Indeed, he used the Easter Book in his calculations (recall that the year 31 B.C. he points out satisfies the First Easter conditions only if the full moons, the

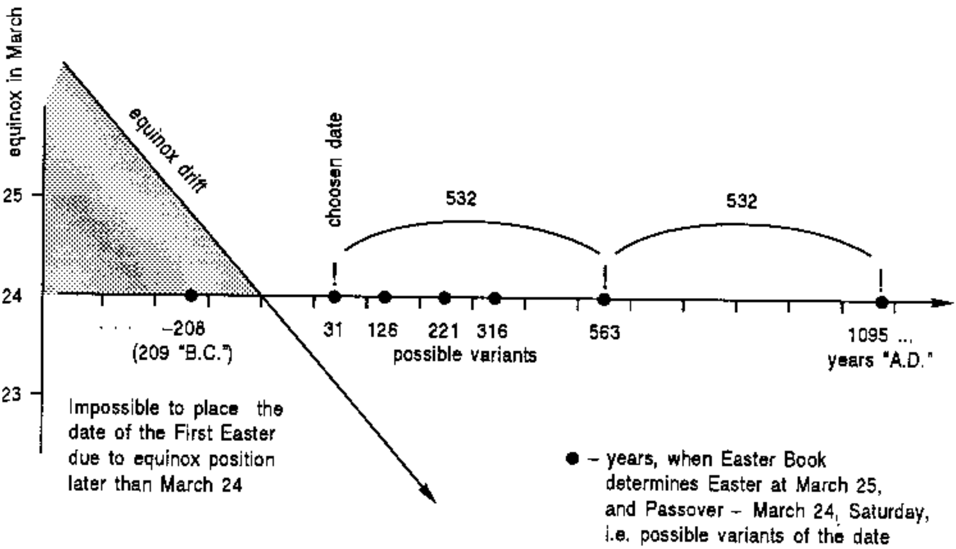


Figure 129. The reconstruction of the medieval procedure for dating the birth of Christ

Passovers, are calculated from the Orthodox Easter Book). But according to the Easter Book, Passovers fell on Saturday, March 24, and Easters on Sunday, March 25 in the years: ... 209 B.C., 31 A.D., 126 A.D., 221 A.D., 316 A.D., ... He could not admit 209 B.C. as the date of the birth of Christ because the equinox that year fell on March 25. The earliest admissible date was 31 A.D., and this date was chosen! (see Fig. 129).

In dating the First Oecumenical Council, the chronologist knew that in the time of the Council the spring point fell not later than on March 21 (otherwise the Easter Book in which the earliest Easter fell on March 22 could not have been compiled because Easter comes at least one day later than the spring equinox—see Sec. 1). The spring point fell on March 21 at the end of 3rd century, and before this time the spring point occurred later. Hence a chronologist of the 16th century *could not* assign the Council of Nicaea to an earlier date than the end of the 3rd century (and he assigned it to the beginning of the 4th century)—see Fig. 130. Thus, we get

Statement 5. The chronologists of the 15–17th centuries could not move the date of the First Oecumenical Council further back than to the 4th century A.D. because in the 3rd century and earlier, the spring equinoxes came before the earliest calendar Easters on March 22 (which is forbidden by the apostolic Easter rule).

Dionysius the Little could not assign the birth of Christ to a date before 1st century B.C. because in the 2nd century B.C. and earlier, the position of the spring equinoxes ruled out the Passovers on March 24, which contradicted the "First Easter condition". *In both cases these easily calculable lower boundaries for the dates were almost reached by the chronologists.*

Remark. Let us stress once more that determination of dates from spring equinoxes is a very attractive method of dating *only at first sight* because of the extreme

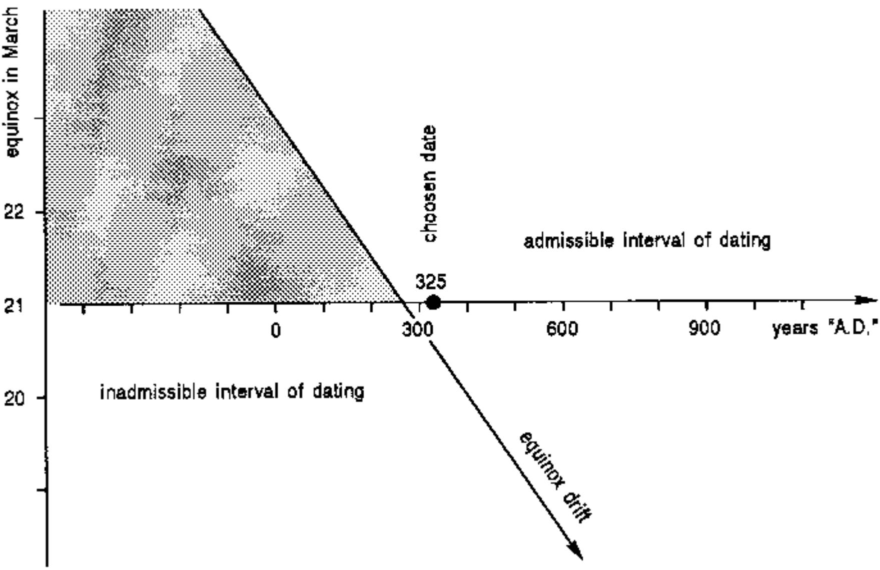


Figure 130. The reconstruction of the medieval procedure for the dating of the First Oecumenical Council

simplicity of the calculations (involving a single arithmetic operation). Probably, the chronologists of the 15–17th centuries confined themselves to this method (where it was possible) and conducted no further investigations. Perhaps, had they been more attentive, we would now have a different chronology.

3.2. Matthew Vlastar's equinoxes and modern chronological tradition. We have already mentioned that the "Collection of the Church Fathers' Rules" of Matthew Vlastar contains an inaccurate theory of the spring equinox; Vlastar assumes that the equinox shifts at the rate of 1 day per 300 years, while the true rate of the shift amounts to 1 day per approximately 128 years (in the Julian calendar). Besides, Vlastar also uses a wrong date for the contemporary equinox: March 18 instead of March 12 (the spring equinox in the beginning of the 14th century fell on March 12).

But the chronology in Vlastar's book is based on the dates of equinoxes alone. Vlastar often does not cite direct dates but only gives the date of the spring equinox contemporary to the event and gives separately a table of spring equinoxes in years since Adam (since the creation of the world). Here is his table:

4156 (1351 B.C.) — March 27, Alexandrite noon;
4456 (1051 B.C.) — March 26;
4756 (751 B.C.) — March 25;
5056 (451 B.C.) — March 23 (in fact the equinox fell at the time on March 24);
5656 (148 A.D.) — March 22 (true: March 21);
5956 (448 A.D.) — March 21 (true: March 19);
6256 (748 A.D.) — March 20 (true: March 17);
6556 (1048 A.D.) — March 19 (true: March 14);
6856 (1348 A.D.) — March 18 (true: March 12).

Further Matthew Vlastar writes that "in the years of Nabonassar the equinox fell on the evening of March 25, but in the years of Philipp Aripheus it fell on midday of March 24, and in the days when Christ mortified Death by his death, the equinox fell on midnight of March 23. And when the Church fathers compiled the Easter Book, the equinox fell on March 21. And now it falls on March 18" [331, sheet 192; see also 340].

Thus, Matthew Vlastar gives five principal chronological landmarks of history according to his scale of equinoxes:

1) The reign of Nabonassar, ruler of Assyria; it is considered that "the era of Nabonassar began in 747 B.C." [335]. (Probably, the reign of Nabopolassar, which belongs to the end of the 7th century B.C., is meant).

2) The reign of Philipp Aripheus (the epoch of Alexander Macaedonian, which belongs, according to Scaliger, in the middle of the 4th century B.C.).

3) The time of crucifixion of Christ (the First Easter).

4) The time of the compilation of the Easter Book (traditionally, at the First Oecumenical Council, although Vlastar does not assert that definitively).

5) The time of Matthew Vlastar himself, the first half of the 14th century (1333 A.D.).

If we now turn to the table of equinoxes adduced in Vlastar's book and consider when, according to this table (i.e., to the opinion of Vlastar), the equinox fell on the days ascribed to the events 1)–5), then we obtain:

1) Nabonassar (equinox on March 25): 900 B.C.–600 B.C.

2) Philipp Aripheus (equinox on March 24): 600 B.C.–300 B.C.

3) Crucifixion of Christ (equinox on March 23): 300 B.C.–1 A.D. (i.e., the beginning of the new era).

4) The First Oecumenical Council (the compilation of the Easter Book) (equinox on March 21): 300 A.D.–600 A.D.

5) Matthew Vlastar (equinox on March 18): 1200 A.D.–1500 A.D.

Let us note at once a good accordance with modern (Scaliger's) tradition: all of Scaliger's dates are within the indicated (by Vlastar) time intervals, except the date of crucifixion of Christ; according to Scaliger, the latter must be set for about 30 A.D., and Vlastar's table of equinoxes gives the upper bound about at 1 A.D.

On the other hand, the equinox chronology of Matthew Vlastar was not only based on the totally wrong theory of the equinoxes but also contradicted all *explicit* dates he cited, with the only exception of the dates of his own life. Vlastar gives explicit dates only for three of the five aforementioned events:

For the year of crucifixion of Christ: 5539 since Adam, i.e., 31 A.D.;

For the time of the compilation of the Easter Book: after 743 A.D. (see Sec. 1, subsec. 5);

For his own time: 6441 since Adam, i.e., 1333 A.D.

But, according to his own table, the crucifixion of Christ could not happen after 1 A.D., and compilation of the Easter Book could not be done later than 600 A.D. And only his own time is indicated by Vlastar without a contradiction.

We have the result of a clearly unfinished work on compiling a chronology, in which even the most obvious contradictions were not eliminated. It is clear that the work was really being carried out in Constantinople in the 14th century, but it was still very far from being finished and canonized. Neither the date for the birth of Christ nor other dates of ecclesiastical history were ever canonized by Orthodox Church in Byzantium. It is clear today that this was a reflection of the sober view of the contemporary state of chronology. But private persons could have their own

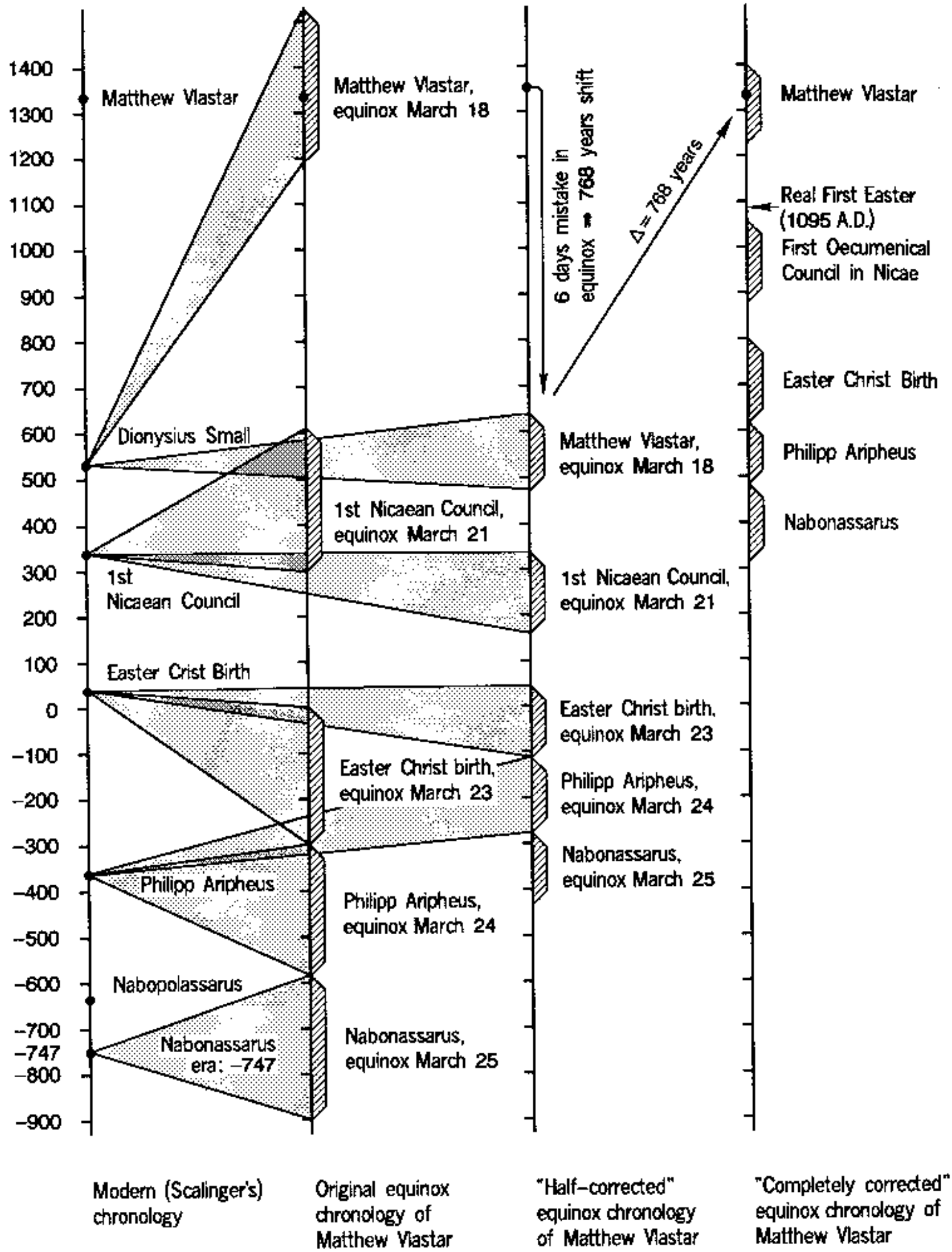


Figure 131. Comparison of four chronological scales: (1) modern (Scaliger's) chronology, (2) original equinox chronology of M. Vlastar, (3) "half-corrected" equinox chronology of M. Vlastar, (4) "completely corrected" equinox chronology of M. Vlastar

opinions of chronology, not always free, as we saw in the case of Matthew Vlastar, of contradictions. I. A. Klimishin writes:

"As for the Eastern Church, it, by evidence of E. Bickermann, avoided using it (the era since the birth of Christ) because the controversy concerning the date of the birth of Christ continued in Constantinople till the 14th century. But probably there were some exceptions. Thus, in the table of Easter dates, compiled in the 9th century for the whole of the 13th indiction (877–1408) by Iohann Presbyter, the years since the birth of Christ were indicated together with the years since the creation of the world, the moon and sun circles and epacts" [335, p. 250].

The agreement of this *unfinished and self-contradictory* chronology with the chronology of Scaliger, which is still accepted today, shows that exactly this chronology, due to Scaliger and his school, served as a basis for the chronological scale of ancient and medieval history we are using today. Figure 131 compares the modern chronology (Scaliger's), the original equinox chronology of Matthew Vlastar, i.e., the chronology of Matthew Vlastar after the correction of one of his two mistakes, namely, the mistake in the rate of the shift of the spring point (note that this causes the lifetime of Vlastar himself to move to the 6th century A.D., where modern chronology "places" Dionysius the Little) and, finally, the equinox chronology of Matthew Vlastar after the correction of both of his mistakes, i.e., the mistake in the rate of the shift of the spring point and the 6-day mistake in the determination of the contemporary equinox.

It can be easily seen that Scaliger's chronology is a "mixture" of Vlastar's original equinox chronology and his equinox chronology with one of the mistakes corrected (compare the second and the third columns in Fig. 131 with the first column). However, Scaliger "specified" all dates, so that they indicated years, months, days, and sometimes hours (!) (modern tradition indicates only the years of Scaliger's dates, omitting the rest). Along with that, for example, in the case of Nabonassar he specified the date within the interval of time as in the original Vlastar's equinox chronology. He "doubled" Vlastar, both leaving him where he was (according to the original equinox chronology—see the second column in Fig. 131) and turning him into Dionysius the Little (by the "half-corrected" chronology in the third column in Fig. 131).

Note that the "completely corrected" equinox chronology of Matthew Vlastar places the most ancient event, the rule of Nabonassar, in the 4th–5th centuries A.D. and gives the interval conforming the above date (the end of the 9th century) for the First Oecumenical Council. But of course, even this "completely corrected" chronology of Vlastar cannot be declared to be close to true unless a thorough investigation is carried out, to say nothing of the "uncorrected" and "half-corrected" versions lying at the basis of the hitherto accepted tradition of Scaliger–Petavius.

APPENDIX 5

The Well-known Babylonian Captivity and the Well-known Avignon Exile of Papacy

In this book we almost completely omitted the material concerning the parallelism, or parallels between some biblical events and the corresponding events of European history. Nevertheless, after a brief exposition of parallels between the kingdom of Israel (the kingdom of Judah) and the Third Western Roman Empire (respectively, the Third Eastern Roman Empire), we shall supplement this material with one more important parallel.

We will discuss here the third basic 1,780- (or 1,810)-year rigid chronological shift, which we call the greco-biblical shift in ancient history. See Fig. 51 (where the value of the shift is equal to 1,838 years) and Fig. 64(2) (where the value of the shift is exactly equal to 1,810 years).

The existence of the basic parallelism between the jet (part) from the Second Roman Empire (and also from the Third Roman Empire) and the Roman Empire in the 10–13th cc. A.D. allows us to check the parallelism between the kingdom of Israel (resp. Judah) and the jet (part) from the Roman Empire in the 10–13th cc. A.D.

One of the basic parallels is shown in Fig. 51.

Let us concentrate our attention on the end of this parallel. We confine ourselves to a single example for illustration.

It has been found out above that there is a parallel between Frederick II (1196–1250) and Theodoric (493–497–526). In medieval documents there exists an essential confusion between Frederick I and Frederick II ([232]; [232*], V. 1, p. 220).

Let us recall: Frederick I Barbarossa (1125–1190) is a Roman emperor (1155–1190) and a German king (1152–1190);

Frederick II (1194–1250) is a Roman emperor (1220–1250) and a German king (1212–1220), king of Sicily (1197–1250) and king of Jerusalem (!) (1229–1250).

It turns out that the above parallels between the kingdom of Judah and the Roman Empire in the 10–13th cc. A.D. are confirmed by medieval chronicles.

The Roman Empire in the 10–13th cc. A.D. (Italy, Rome)	The Third Roman Empire in the 4–6th cc. A.D. (Italy, Rome)	The Bible. Judah chronicle, 2 Kings. Jerusalem
Emperor Frederick I or Frederick II	King (emperor) Theodoric	King Sennacherib

1) Frederick I Barbarossa, a Roman and German emperor (Frederick II—king of Jerusalem).	1) Theodoric, a Gothic and Roman king	1) Sennacherib, an Assyrian king. Note the parallel between Assyria and Germany
2) He is in a war with Rome in 1167 A.D.	2) He is in a war with New Rome (Vitalian really was involved in the war)	2) He is in a war with Jerusalem. See above for the parallel between Rome and New Rome
3) Frederick's enemy is Pope Alexander III in Rome ([44*]; V. 4, p. 483).	3) Theodoric's enemy is the Roman emperor Anastasius in New Rome (the Eastern Empire)	3) Sennacherib's enemy is the Judaic king Hezekiah, whom we have already identified above with Anastasius
4) Frederick I attacks Rome	4) Theodoric (whose army is led by Vitalian) attacks New Rome	4) Sennacherib attacks Jerusalem (see above the identification of Jerusalem with New Rome)
5) Frederick is defeated ([44*]; V. 4, pp. 483–484)	5) Vitalian (and consequently Theodoric) is defeated	5) Sennacherib is defeated (2 Kings, 19:35)

Here is the medieval description (in a medieval chronicle)of this well-known medieval event (based on the fragment from 2 Chronicles): "And the Lord sent an angel, which cut off all the mightly men of valour, and the leaders and captains in the camp of the king of Assyria. So he returned with shame of face to his own land." (2 Chronicles, 32:21). Such a picture, says F.Gregorovius, was presented by Thomas as he congratulated pope Alexander III with the retreat of Sennacherib (Frederick!), whose army was killed by the Lord. F. Gregorovius says that almost all medieval chroniclers(as they describe the defeat of Frederick) tell about the divine punishment ([44]; [44*], V. 4, p. 496, comment 89).

Here is the biblical desription of this well-known (in biblical history) defeat: "And it came to pass that night, that the angel of the Lord went out, and smote in the camp of the Assyrians am hundred four-score and five thousand; and when they arose early in the morning, behold, they were all dead corpses. So Sennacherib king of Assyria departed, and went and returned" (2 Kings, 19:35–36). In the left column (i.e., in medieval history) it is assumed today that all these "medieval parallels" are just references to the Bible,which already existed.But probably, the biblical books of Kings were still being written at the time (or even later on).

Gregorovius describes the content of the medieval chronicles in the following way: Rome became the second Jerusalem (!—A. F.) and emperor Frederick became the odious Sennacherib. On August 2 dark clouds broke into a heavy shower over the city, and then a parching heat set in; malaria, which usually threatens with death here in August, had now assumed a character of plague. The pick of the invincible army perished with ignominious death; horsemen, infantrymen, armour-bearers were taken ill and died, often unexpectedly, when riding or going along the streets ... In 7 days Frederick lost his best heroes ... A lot of noble and ordinary people were taken by death. Rome suffered from plague in the same way ... For many centuries did not the city did not experience so terrible disasters ... The Germans were seized with panic terror: they said that the Lord's punishing hand had struck them because of their attack of the Holy City ... Full of despair, the emperor got under way from his armed camp and set out with the remains of his army in which people were like shadows. On their way he lost no less than 2000 people more ([44*]; V. 4, p. 484). Of course, this "miraculous escape" of Rome from the siege had been (in our opinion) described in the biblical book of Kings. And the fact that medieval chroniclers mention here the obvious parallels with biblical history can be explained from the chronological shifts discovered in our work.

Moving from the left to the right along the biblical chronology we reach to the end of the Judaic kingdom, and we see here the "Babylonian captivity". The parallel (isomorphism) we mentioned above (according to the Global Chronological Diagram) shows that the biblical war with Nebuchadnezzar (whom we have earlier identified with Justinian) is just another version of description of the GTR-war in the middle of the 13th c. A.D. The black triangle on GCD depicting "the war with Nebuchadnezzar and the Sedekiah's captivity" (in the Bible) represents the GTR-war. Since the GTR-war (at least, its basic events) is discovered (according to our results) in the 13th c. A.D., the Babylonian captivity (described in the Bible) should also be at the end of the 13th c. A.D. and at the beginning of the 14th c. A.D. This conclusion (based on GCD) is corroborated by real medieval chronicles. The end of the Judah kingdom matches with 1300 A.D. In the entire Roman history for many centuries only once did the events take place which are identifiable with the biblical Babylonian captivity. This is the well-known "Avignon popes' captivity", which was called "Babylonian captivity" in Middle Ages (!). It turns out that this is exactly the parallel that ensued from our GCD.

S. Lozinsky writes: In 1305 A.D. an insipid, unknown prelate, a Frenchman named Bertrand de Got had become pope Clement V, thus beginning the notorious "Babylonian captivity of papacy" (!—A. F.) ([119], V. 1, p. 112). This election had been held under a pressure from France, and the town Avignon (France—A. F.) was chosen as the new pope's place of permanent residence ([119], V. 1, p. 112). As the archbishop of Bordeaux, he gained the favour of the French king Philip IV, who engineered electing him the pope. He settled (1309) in Avignon, thus beginning the long "captivity" of the papacy. After several hundreds years' residence at Rome, the pope's throne left the city and relocated to France for about 70 years.It returned back to Rome only on January 17, 1376 A.D., i.e., in about 70 years after leaving Italy (and exactly 70 years after 1305 A.D., the first year of Clement's reign) ([74], Table B. XIV, No. 26).

The well-known "Babylonian captivity", which is the end of the history of the Kingdom of Judah. The nation was	The well-known "Avignon captivity", which was called in medieval chronicles the "Babylonian captivity". This is the

exiled from Jerusalem after the war with Nebuchadnezzar. The "captivity of the nation" lasted 70 years (2 Chronicles 36: 20–21). This event is unique in the biblical history.	end of the Roman Empire in the 10–13th cc. A.D., after the GTR-war in Italy in the 13th c. A.D. The Avignon captivity lasted about 70 years. This event is also unique in the Roman history and in the history of papacy.
Resettlement from Jerusalem to Babylon (Persia)	Relocation from Rome to Avignon (France)

There is a lot of literature about these two events; both of them were turning points,for the Kingdom of Judah and in the history of Roman Empire and Roman papacy in 10–14th cc. A.D. Let us recall here that the Bible is a religiously coloured source, and consequently this event is considered in the Bible as being extremely important in the history of the Kingdom of Judah.

The Bible says: "And them that had escaped from the sword carried he away to Babylon; where they were servants to him and his sons untils the reign of the kingdom of Persia." (2 Chronicles 36:20). Let us recall that Avignon is located in France, and France was identified (at least in some biblical texts) with PRS = Persia. Moreover, Charles of Anjou (king of Naples and Sicily: 1266–1285), the victor in the GTR-war of the 13th c. A.D. (in Italy) had also come from France (by the way, he was a brother of Louis IX of France). In particular, this fact gives an explanation for "the relocation and the captivity of popes" to no other country but France = PRS = "Persia" (?).

The Bible continues: "Until the land had enjoyed her sabbaths: for as long as she lay desolate she kept sabbath; to fulfil threescore and ten years." (2 Chronicles 36:21).

The chapter in [119] (S. Lozinsky) that describes the "Babylonian captivity" of popes, is titled: "The papacy in captivity of France" ([119]. V. 1, p. 110). A religious source, as the Bible is, of course attached a great importance to this event concerning the fortune of the Roman religion and the centre of papacy. As we mentioned in Part 1 of our book, some medieval authors confirm our parallel calling the Avignon exile of the popes the "Babylonian captivity" and identifying Rome with Jerusalem (see Dante's letter to Henry, Part 1, Section 13.6.2). Of course, such medieval texts seem to the modern commentators (for example to A. K. Dzhivelegov, see [287]) to be "biblical reminescences", but Dante means about his time and his life.

S. Lozinsky writes: "In France ... the papacy felt much more safely and comfortably under the king who, in fact, at that time settled the popes ... Contemporaries said that in fact Paris dictated his will to Avignon ... Nicholas from Clemange confirms this fact, calling the Avignon's pope "a slave of slaves of French Princes" ... But the method the French kings (PRS—Persians?—A. F.) used demonstrated clearly that at the moment the papacy is no more useful to the French throne, the popes' Avignon residence will become unnecessary and the "Babylonian captivity" will come to its natural end." ([119], V. 1, p. 12). S. Lozinsky and F. Gregorovius listed the following evidences of medieval documents about Rome in the first half of the 14th c. A.D.

In the exact correspondence with the biblical description of Jerusalem (2 Chronicles), medieval Rome, left without centralized political power, was exposed to desolation and ruin. The papacy's stay at Avignon had sad effect also on popes' affairs in Italy. Some powerful feudal lords and small bourgeois republics tore the popes' region to pieces and annexed all being badly kept in the country "left by its own master"... Rome filled with beggars, often dying of starvation in the streets and having no shelter (compare with the Bible—A. F.). Many ancient beautiful buildings Rome was so rich in were neglected and even destroyed ([119], V. 1, pp. 134–135). Global civil war had driven popes' region to terrible misery and starvation. Annalists Campi and Blondus say about pope states' towns and villages having become deserted and about disappearance of all peasant property in some deserted districts. ([119], V. 1, p. 140).

Ezra's biblical book (which follows 2 Chronicles) tells that in 70 years "people come back" to Jerusalem. The initiative of this return is attributed to the Persian king Cyrus (Ezra 1:1–2). Thus, in exact correspondence with the medieval history, the return of the pope's throne is connected with France = PRS. The return took place 4 years before 1380 A.D. This is the first year of French king Charles VI (the Mad, or the Well Beloved) (reign: 1380–1422). Let us note that both "Cyrus" and "Charles" can mean simply "king".

The return to Jerusalem at the 1st year of the Cyrus' reign: "Now in the first year of Cyrus king of Persia..."(Ezra 1:1).	The return to Rome at the 3–4th years before the 1st year of Charles king of France [119].
Persian king Cyrus = CR = Caesar (?) = "king"	French king Charles. Again a parallel between Persia and France

The main persons of "the return to Jerusalem" are Zerubbabel and Jeshua. They are probably the reflection of the main leader of "the return to Rome"—pope Gregory XI (1370–1378) ([119], V. 1, p. 140). Since this part of the Bible duplicates the Roman chronicles, already incomplete and distorted, the events of "the return" could be copied not only from the original in the beginning of the 14th c. A.D., but also from some other duplicate "moved down" in time. It is impossible not to mention that up to the shift by 333 years down, the beginning of Gregory XI (1370 A.D.) practically coincides with the beginning of Hildebrand's activity in Rome in 1049 A.D. (because 1370 − 333 = 1047 A.D.). But Hildebrand is closely connected with the names "Jeshua" and "Jesus" (see above), therefore the Jeshua's appearance in Ezra's book (in the description of "the return") is not surprising.

The "person number two" of "the return" to Rome in the 14th c. A.D. is the "bandit-cardinal Robert from Geneva" ([119], V. 1, p. 137). He is parallel to the "person number two" (described in the Bible), Sheshbazzar, the prince of Judah (Ezra 1:8), who had been the head of the migrants from Babylon to Jerusalem. Robert is called "Geneva's Robert" in the chronicles of the 14th c. A.D., and this name read in the opposite direction might transform into ShShBZR (?). He was the head of the Breton band "hired to maintain an order (during the migration back to Rome—A. F.)" ([119], V. 1, p. 137). The Bible says: "All these (vessels of gold—A. F.) did Sheshbazzar bring up with them of the captivity that were brought up from Babylon unto Jerusalem" (Ezra 1:11). Probably, "Zerubbabel" means just "Babylonian king" (Caesar + Babylon = CSR + BBL = ZRBBL).

After the return of papacy to Rome, a "deep religious crisis" ensued ([119], V. 1, p. 142). Its top was the well-known Constance Council (1414 A.D.) convened not only to put an end to the usurpation of papacy, but also to stop the heresies ([119], V. 1, p. 146). This important medieval event was reflected in the Bible immediately!

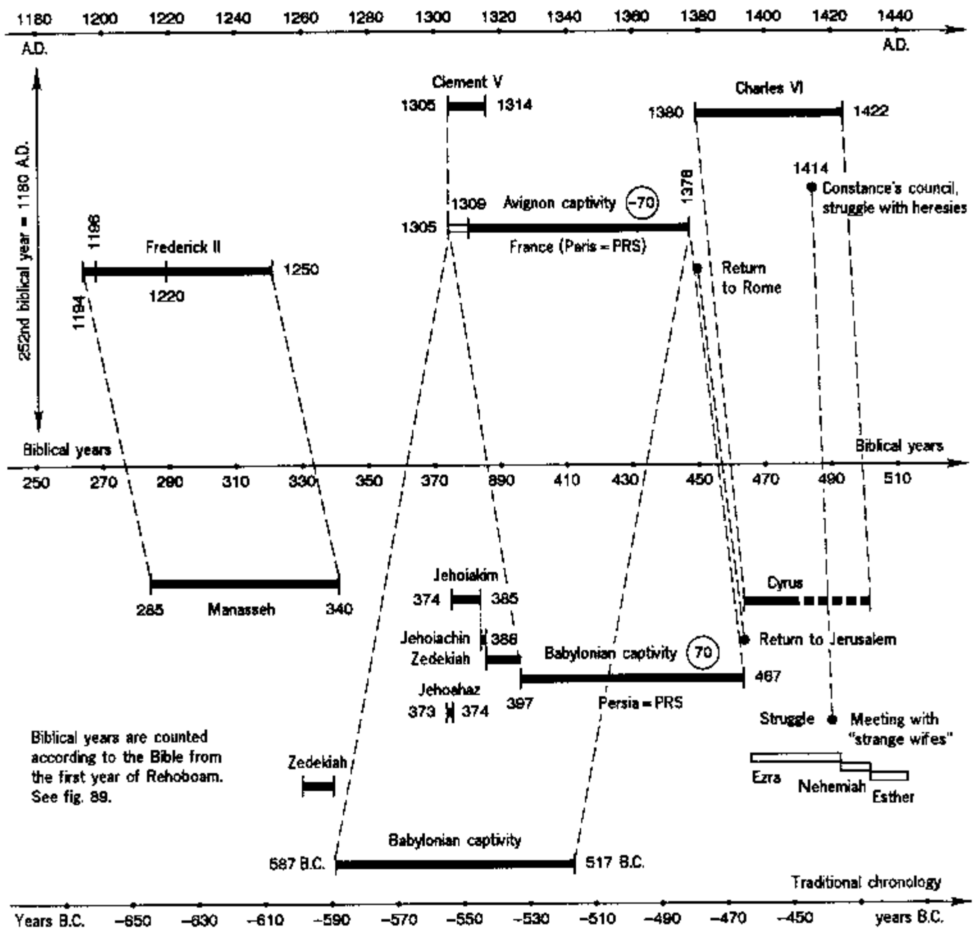
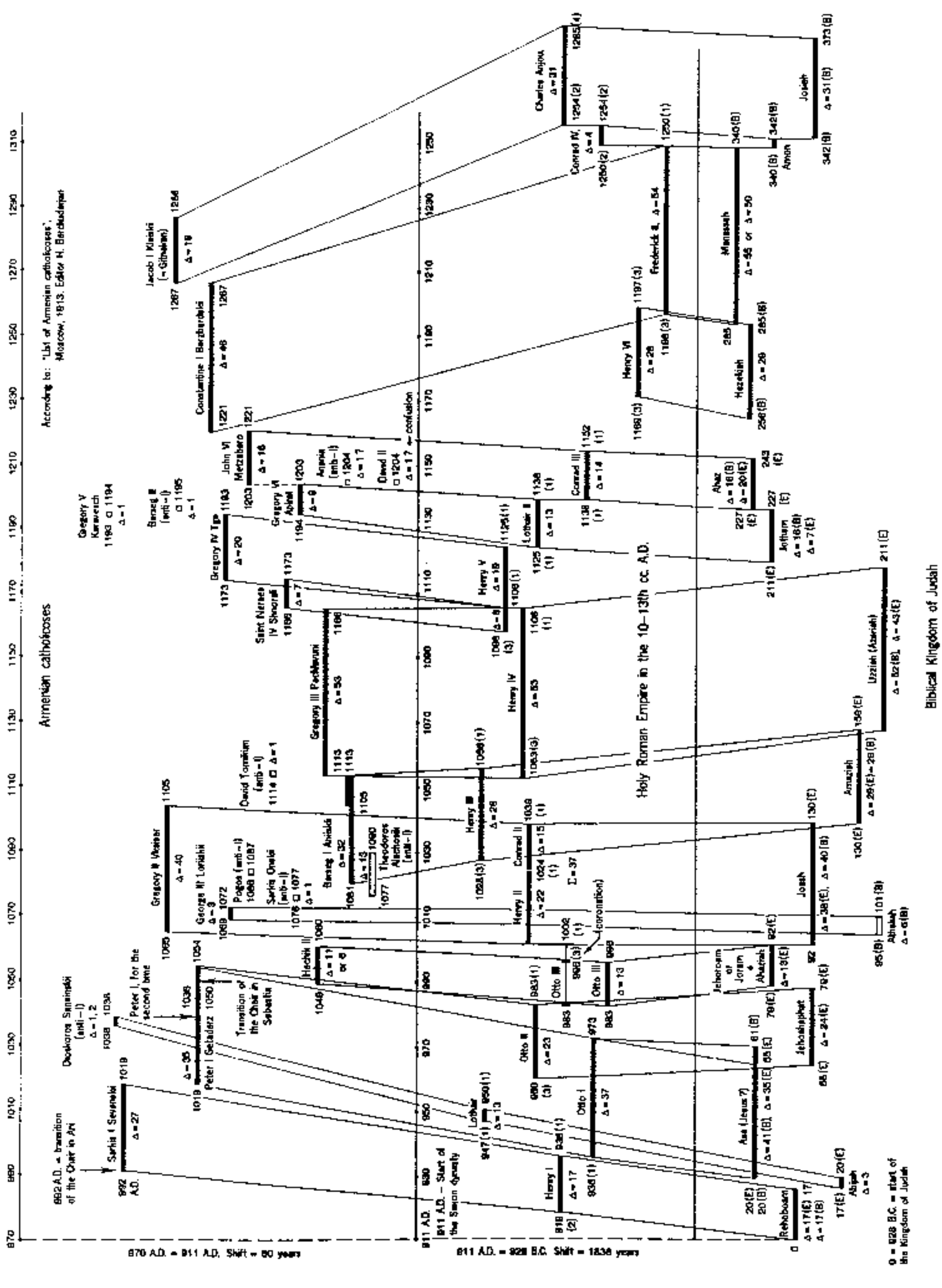


Figure 132. Parallel between ancient Babylonian captivity and medieval Avignon captivity

Let us recall that in religious literature the Church is often called "the wife" and "the bride". The Bible describes (after the return to Jerusalem) a "great meeting" (council ?), at which the struggle against that leaders and people of Judah who had taken "strange wives" (foreign wives ?) was carried on. This means probably the struggle against heresies = "strange wives". The Bible attaches a great importance to this meeting (see Ezra). "For they have taken of their daughters for themselves, and for their sons; so that the holy seed have mingled themselves with the people of those lands: yea, the hand of the princes and rulers hath been chief in this trespass" (Ezra 9:2). Ezra (he was the senior priest, see Ezra:9) prays for the liberation of people of Judah from "the strange wives", and then "assembled unto him out of Israel a very great congregation of men and women and children... then all the men of Judah... Now therefore make confession unto the Lord God of and said with a loud voice, As thou hast said, so must we do." (Ezra 10:1, 9–12).

"And that whosoever would not come within three days, ... all his substance should be forfeited, and himself separated from the congregation of those that had been carried away (see corresponding excommunications of this epoch in 14th c. A.D.—A. F.)" (Ezra 10:8). Then the Bible lists those guilty in taking "strange wives". It would be extremely interesting to compare these biblical lists of names with medieval sources telling about heresies and Constance council.

The biblical books of Ezra, Nehemiah and Esther form the conclusion of the historical narration of Old Testament, so the chain of the events described therein ends about the beginning of the 14th c. A.D.



Armenian catholicoses
According to: "List of Armenian catholicoses", Moscow, 1913. Editor N. Berdudarjan
Holy Roman Empire in the 10–13th cc. A.D.
Biblical Kingdom of Judah
870 A.D. = 911 A.D. Shift = 60 years
911 A.D. = 928 B.C. Shift = 1838 years
0 = 928 B.C. = start of the Kingdom of Judah
911 A.D. – Start of the Saxon dynasty
992 A.D. = transition of the Chair in Ani
Sarkis I Sevanski
Peter I Getadarz
Gregory II Wkaiser
Gregory III Pachlavuni
Constantine I Barzbardski
Jacob I Klaiski
Henry I
Otto I
Otto II
Otto III
Henry II
Conrad II
Henry III
Henry IV
Henry V
Lothair II
Conrad III
Henry VI
Frederick II
Conrad IV
Charles Anjou
Rehoboam
Abijah
Asa
Jehoshaphat
Joash
Amaziah
Uzziah (Azariah)
Jotham
Ahaz
Hezekiah
Manasseh
Amon
Josiah

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SUBJECT INDEX

INDEX OF NAMES