EMPIRICO-STATISTICAL METHODS FOR ANALYSIS OF NARRATIVE AND NUMERICAL SOURCES WITH APPLICATIONS TO THE PROBLEMS OF ANCIENT AND MEDIEVAL HISTORY AND CHRONOLOGY

Volume one: The Development of the Statistical Tools. ISBN 0-7923-2604-0
Volume two: The Analysis of Ancient and Medieval Records. ISBN 0-7923-2605-9
ISBN 0-7923-2606-7 (Set of two volumes)
Kluwer Academic Publishers, 1994.

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These two volumes represent a major, unique work which is the first of its kind published in the English language. A comprehensive set of new statistical techniques is presented for the analysis of historical and chronological data. These techniques constitute a new important trend in applied statistics.

The first volume concentrates mainly on the development of statistical tools and their applications to astronomical data: of ancient eclipses, of the *Almagest*, etc. The second volume analyzes ancient and medieval chronicles and records (Egyptian, Byzantine, Roman, Greek, Babylonian, and European). An astonishing wealth of historical data is presented. The surprising conclusions are drawn from the new approach to the historical chronology designed in an entirely different time scale. [The conventional chronology can be restored from the one proposed by Fomenko by using special "time shifts."] They will certainly provoke controversy and serious debates. In particular, in this scenario, ancient Rome and Greece are placed in medieval times. The book provides all necessary backgrounds and materials for intelligent participation in such debates.

Audience: Statisticians, historians, astronomers, archaeologists, and others with an interest in the integrity of the historical data with the use of modern science.

An excerpt from the contents to volume one.

1. Global Chronological Diagram of ancient and medieval history.
2. Computation of second derivative of Moon's elongation and statistical regularities in distribution of certain astronomical data.
 - 2.8. Example: evangelic eclipse described in the New Testament and connected with the Crucifixion.
 - 2.9. New graph of D'' oscillates about one and the same value.

No non-gravitational theories are necessary.

- 2.10. Three rigid "astronomical shifts" of ancient eclipses.
- 2.11. Complete picture of astronomical shifting.
- 2.12. Coincidence of the astronomical shifts with the three basic chronological shifts on the Global Chronological Diagram.
3. Traditional chronology of the flares of stars and the dating ancient horoscopes.
4. Certain statistical regularities of information density distribution in texts with scale.
 - 4.1. Text with scale. General notion.
 - 4.3. Theoretical model describing the distribution of local maxima for the volume function of a historical text. Primary stock. Information density conservation law.
 - 4.4. Correlation of local maxima for the volume graphs of dependent historical chronicles. Surviving stock graph.
 - 4.5. Mathematical formalization. Numerical coefficient $d(X,Y)$ which measures "the distance" between two historical texts X and Y .
 - 4.6. Mathematical formulas for computing $d(X,Y)$. Mathematical corrections of maxima correlation principle.
 - 4.7. Verification of maxima correlation principle against a concrete historical material.
 - 4.8. New method for dating historical events.
 - 4.9. Discovery of dependent (parallel) historical epochs traditionally regarded as different.
 - 4.10. Dynasty of rulers and durations of kings' rule as important informative function.
 - 4.11. Frequency distribution of those kings' rules who lived in 1,400 - 1,800 A.D. and in 3,000 B.C. - 1,800 A.D.
 - 4.12. Concept of statistical parallel historical texts and epochs.
 - 4.13. "Written biography" or enquête-sode of a historical character.
 - 4.14. Method of comparing the sets of informative functions for two historical epochs.
 - 4.15. Computational experiment.
 - 4.16. Remarkable decomposition of the Global Chronological Diagram into the sum of four practically indistinguishable chronicles.
5. Method of duplicate recognition and some applications to the chronology of ancient dynasties.
 - 5.1. Process of measuring random variables.
 - 5.2. Distance between two random vectors.
 - 5.3. Dynasty of rulers. Authentic dynasty and numerical dynasty. Dependent and independent numerical dynasties. Small distortion principle.
 - 5.4. Basic errors leading to controversy among chroniclers as to the duration of kings' rule.
 - 5.5. Experimental frequency histogram for kings' rule duration.
 - 5.6. Virtual dynasties and mathematical model for an errors of the chronicler made in measuring of the rule duration.
 - 5.7. Small distortion principle and computer experiment.
 - 5.8. Pairs of dependent historical dynasties earlier regarded as independent.
 - 5.9. Distribution of dependent dynasties in the "Modern Textbook of Ancient History".

- 5.10. Dependent dynasties in the Bible and parallel with the European history.
6. New empirico-statistical procedure for historical text ordering and its application to problem of dating.
 - 6.1. Chapter-generation.
 - 6.2. Frequency damping principle.
 - 6.3. Method of finding the chronologically correct order of chapters in a historical chronicle.
 - 6.4. Frequency duplicating principle and method of duplicate recognition.
 - 6.5. Distribution of old and new duplicates in the Old and New Testament. Striking example: the Revelation of John.
 - 6.6. Epochs-duplicates in the "Modern Textbook of Ancient History".
7. New experimental and statistical methods for dating ancient history events and application to global ancient world and medieval chronology.