matrix) are concentrated on the principal diagonal. Then, the further off the principal diagonal, the less (monotonically) the numbers $K(T_0, T)$. Computational experiment (Fomenko, 1981b) has shown for real narrative texts that, with a chronologically correct ordering of chapters in a text X, the numbers $K(T_0, T)$ decrease, on the average, monotonically not only with respect to the rows of the matrix $K\{T\}$, but also with respect to its columns; see Fig. 2(b).

In other words, the frequency of names (persons) of prior origin, from the earlier chapters $X(T)$ mentioned in the fragment $X(T_0)$, gradually decreases as the generation T creating them moves farther from the generation T_0 under investigation. An increase of the age of a historical character (name) almost always decreases the frequency of mentioning this person (name) in the subsequent chapters $X(T_0)$. To estimate the rate and character of a frequency damping graph for name mentioning, we can make use of the following averaged graph, namely, of

$$K_{av}(t) = \left\{ \sum_{i-T_0=t} K(T_0, i) \right\} \Big/ (n-t) \quad (t = 0, \ldots, n-1).$$

It is clear that it is obtained by averaging the square matrix $K\{T\}$ with respect to all diagonals parallel to the principal diagonal.

Certainly, the experimental graphs $K(T_0, T)$ may turn out not to be coincident with the theoretical graph for a real text; see Fig. 3.

It is obvious that, on varying the original numbering of chapters $X(T)$, the matrix $K\{T\}$ and its entries also vary. As a matter of fact, there occurs a rather complicated redistribution of the names first appearing in a certain chapter $X(T_0)$. Let us change the order of chapters of the text X by means of various permutations which we denote by σ. We also designate by σT the new chapter numeration corresponding to a permutation σ having been performed. While calculating the new matrix $K\{\sigma T\}$ for each of these chapter permutations, we will seek such σ, i.e. such an order σ of the text chapters, that all or almost all frequency graphs of occurrences of the names $K(T_0, T)$ will have almost the theoretical form shown in Fig. 1. In particular, we will seek to make the graph $K_{av}(t)$ maximally close to the ideal, monotonically damping graph in Fig. 1. *The order to textual chapters, for which the deviation of the experimental matrix from the theoretical (damping) is the least, would be taken as chronologically correct and required.*

This method of chapter ordering permits us to date ancient events. In fact, let a certain narrative text Y be given, about which it is known only that it describes some events from an historical epoch (A, B). Assume that we already have another dated text X describing the same epoch more or less completely. Let X be separated into chapter-generations $X(T)$. How can we learn exactly which generation has been described in the text Y in question? We shall make use of the text X. Add Y to the collection of chapters $X(T)$ of X, for which it suffices to assume that Y is a new chapter of X, and ascribe a certain number T_0 to it; i.e. insert the chapter Y in place of T_0 in the text X. Then, employing the above method, we find the optimal, i.e. chronologically correct order of all the chapters of text X with chapter Y added. At the same time we shall, therefore, find a chronologically correct place for the new chapter Y. That relative position which the text Y will occupy among other chapters of X should be, evidently, taken as the solution of the dating problem: we date the text Y (with respect to the chapters of the text X). We thereby date the ancient events described in Y relative to the chapters of the text X.

This dating method has been checked against narrative texts with an a priori known dating of the events described. The efficiency of the method has been fully confirmed (Fomenko, 1981a,b,c; 1983a,b).