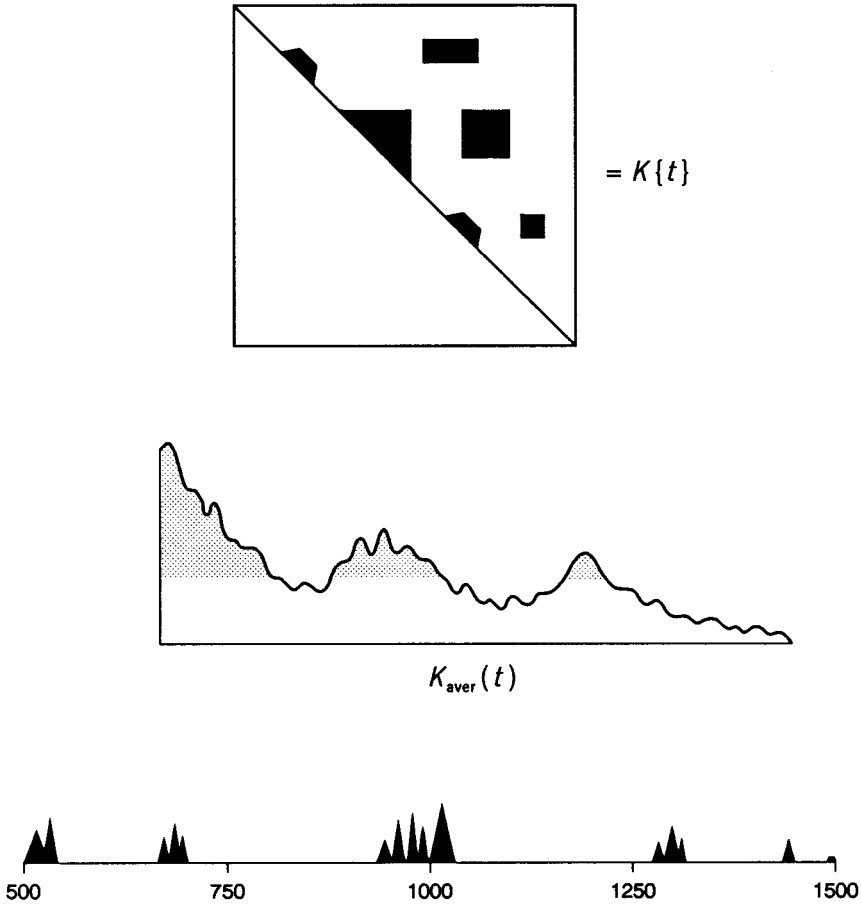

Figure 68. Square frequency matrix for the names of the Roman popes. Averaged graph. Frequency of the name "John" in the dynastic stream of popes

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