Per annum volume distribution in
The History of the City of Rome in the Middle Ages by F. Gregorovius

We shall now present the volume function *f* that we have calculated for *The History of the City of Rome in the Middle Ages*, a fundamental work by F. Gregorovius ([196], Volumes 1-5). We divide the work [196] into fragments referring to particular time segments. *These time intervals and dates are those given by F. Gregorovius himself.* In cases where he knows the date of an event (in the Scaligerian chronology, naturally), he always provides it. If, however, he is not aware of a precise dating, he will quite frequently provide a rougher reference to a time interval within which the events he describes are located. We have simply calculated volumes based on these descriptions.

Following the dates provided by F. Gregorovius, we shall be referring each time to relevant pages from [196], and cite the volume of a given text fragment. In cases where this volume covers several years instead of falling on a single one, in other words, a certain prolonged time interval, we provide *an average value of volume* falling on one year out of the given interval. That is, we average the volume function by dividing the number of pages by the number of years described therein. We denote text fragment volume by *vol*; length of time interval is indicated by *d*; and the average value of volume function by *f = vol/d*.

IMPORTANT NOTE: At the end of each chapter, F. Gregorovius provides an extensive commentary to the events described there. We considered this text as being *to the entire time interval described in a given chapter.* In other words, we do not assign a comment to a spe-

cific event; we simply 'average' this information by distributing it uniformly over the entire epoch described in the chapter. In other words, we calculate the average volume of comments via dividing their summary volume by the length of the period they spoke to.

1) F. Gregorovius begins his description of the history of medieval Rome from the beginning of the IV century; therefore, when plotting the volume function, we begin the count of time from around 300 A.D. The first two chapters of Volume 1 of [196] are of an introductory character. F. Gregorovius provides a general overview of surviving data on the history of Rome of the IV-V century A.D., and very few specific dates. The narration is of a summarizing and slightly chaotic character, which F. Gregorovius explains by the rather general statement that the history of Rome in those times was fairly tenebrous. The only story F. Gregorovius pays a special attention to is that of the activity of Emperor Constantine I the Great who moved the capital of the Roman Empire to the city of Byzantium, later Constantinople, around year 330 A.D. A special note is made in re the construction of temples around the time of Constantine, or the propagation of Christianity allegedly supported by Constantine openly and legally. Thus, it is Emperor Constantine singled out by F. Gregorovius rather unequivocally as the protagonist of the two first chapters of the first volume of his œuvre. We are citing all the fragments of the first volume of [196] that refer to Constantine, having calculated their vol-

ume and dating them to the period of 330-337 A.D., or starting with the moment of the foundation of Constantinople and ending with the death of Constantine in 337 A.D. ([72], p. 238).

Thus, the time interval of 330-337 A.D. (events related to Constantine I) is described by F. Gregorovius in the following fragments:

a) Vol. 1, pp. 8-13, vol = 5 pages;
b) Vol. 1, pp. 19-20, vol = 1 page;
c) Vol. 1, p. 57, vol = 1 page;
d) Vol. 1, pp. 73-79, vol = 6 pages.

Thus, the total of 5 + 1 + 1 + 6 = 13 pages is dedicated to the epoch of 330-337 A.D. The length of the relevant time interval is d = 8 years; therefore, the average value of function f in the segment 330-337 equals f = 13/8 = 1.6.

2) As we have already pointed out, F. Gregorovius describes the rest of the epoch of 300-499 A.D. from a rather general stance, without any streamlined narration containing specific dates. Therefore, we have simply calculated the average volume falling on one year. We have certainly neither counted pages devoted to the activity of Constantine I, nor taken them in consideration when calculating the average. We proceeded to discover that the time interval 300-499 A.D. was described in Vol. 1, pp. 1-105, i.e. vol = 105 − 13 = 92 pages. We subtracted 13 pages devoted to Constantine; as a result, the average is f = 92/200 = 0.5.

3) The epoch of 403-407 A.D. is described in Vol. 1, pp. 106-113. Its largest part is the story of Emperor Honorius and Commander Stilicho. vol = 8 pages, time interval d = 4 years, the average f = 8/4 = 2.

4) The epoch of 408-409 A.D. is described in Vol. 1, pp. 113-132. The most of it is the story of Alaric. vol = 19 pages, time interval d = 2 years, the average f = 19/2 = 9.5.

5) The epoch of 403-409 A.D. is described in Annexes to chapter 3, Vol. 1, pp. 133-136. vol = 4 pages, d = 7 years, f = 4/7 = 0.6.

6) The epoch of 410 A.D. is described in Vol. 1, pp. 137-155. Seizure of Rome by Alaric, destruction of Rome, withdrawal of Alaric. vol = 19 pages, d = 1 year, f = 19/1 = 19.

7) The epoch of 411-417 A.D. is described in Vol. 1, pp. 156-159. vol = 3.5 pages, d = 7 years, f = 3.5/7 = 0.5.

8) The epoch of 418-423 A.D. is described in Vol. 1, pp. 159-164. vol = 4.5 pages, d = 6 years, f = 4.5/6 = 0.8.

9) The epoch of 424-432 A.D. is described in Vol. 1, pp. 164-167. vol = 4 pages, d = 9 years, f = 4/9 = 0.4.

10) The epoch of 433-439 A.D. is not described. Only the average volume is available from Annexes: 0.4 + 0.5 = 0.9.

11) The epoch of 440-451 A.D. is described in Vol. 1, pp. 168-172. vol = 5 pages, d = 12 years, f = 5/12 = 0.4.

12) The epoch of 452-453 A.D. is described in Vol. 1, pp. 172-176. vol = 4 pages, d = 2 years, f = 4/2 = 2.

13) The epoch of 410-453 A.D. is described in Annexes to Chapter 5, Vol. 1, pp. 177-182. vol = 6 pages, d = 14 years, f = 6/14 = 0.4.

14) The epoch of 454-460 A.D. is described in Vol. 1, pp. 183-204, incl. Annexes. vol = 22 pages, d = 7 years, f = 22/7 = 3.1.

15) The epoch of 461-472 A.D. is described in Vol. 1, pp. 205-210. vol = 5 pages, d = 12 years, f = 5/12 = 0.4.

16) The epoch of 472-476 A.D. is described in Vol. 1, pp. 210-219. vol = 9 pages, d = 5 years, f = 9/5 = 1.8.

17) The epoch of 461-476 A.D. is described in Vol. 1, pp. 221-227, Annexes. vol = 7.5 pages, d = 16 years, f = 7.5/16 = 0.5.

18) The epoch of 477-499 A.D. is described in Vol. 1, pp. 231-260. vol = 30 pages, d = 23 years, f = 30/23 = 1.3.

19) The epoch of 500-513 A.D. is described in Vol. 1, pp. 261-282. vol = 22 pages, d = 13 years, f = 22/13 = 1.7.

20) The epoch of 514-526 A.D. is described in Vol. 1, pp. 282-293. vol = 12 pages, d = 13 years, f = 12/13 = 0.9.

21) The epoch of 500-526 A.D. is described in Vol. 1, pp. 294-306, Annexes. vol = 12 pages, d = 27 years, f = 12/27 = 0.4.

22) The epoch of 527-529 A.D. is described in Vol. 1, pp. 307-314. vol = 8 pages, d = 3 years, f = 8/3 = 2.7.

23) The epoch of 530-535 A.D. is described in Vol. 1, pp. 314-320. vol = 7 pages, d = 6 years, f = 7/6 = 1.2.

24) The epoch of 536 A.D. is described in Vol. 1, pp. 321-329. vol = 9 pages, d = 1 year, f = 9/1 = 9.

25) The epoch of 527-536 A.D. is described in Vol. 1, pp. 330-337, Annexes. vol = 8 pages, d = 10 years, f = 8/10 = 0.8.

26) The epoch of 537 A.D. is described in Vol. 1, pp. 338-358. vol = 20 pages, d = 1 year, f = 20/1 = 20.

27) The epoch of 538 A.D. is described in Vol. 1, pp. 358-363. $vol = 5$ pages, $d = 1$ year, $f = 5/1 = 5$.

28) The epoch of 537-538 A.D. is described in Vol. 1, pp. 364-371, Annexes. $vol = 6$ pages, $d = 2$ years, $f = 6/2 = 3$.

29) The epoch of 539-546 A.D. is described in Vol. 1, pp. 372-395, incl. Annexes. $vol = 17$ pages, $d = 8$ years, $f = 17/8 = 2.1$.

30) The epoch of 547-553 A.D. is described in Vol. 1, pp. 396-423, incl. Annexes. $vol = 28$ pages, $d = 7$ years, $f = 28/7 = 4$.

31) The epoch of 554-566 A.D. is described in Vol. 1, pp. 424-435, incl. Annexes. $vol = 11$ pages, $d = 13$ years, $f = 11/13 = 0.8$.

32) The epoch of 567-568 A.D. is described in Vol. 1, pp. 435-439. $vol = 4$ pages, $d = 2$ years, $f = 4/2 = 2$.

33) The epoch of 569-579 A.D. is described in Vol. 1, pp. 439-441. $vol = 1.5$ pages, $d = 11$ years, $f = 1.5/11 = 0.1$.

34) The epoch of 554-579 A.D. is described in Vol. 1, pp. 442-447, Annexes. $vol = 5$ pages, $d = 26$ years, $f = 5/26 = 0.2$.

35) The epoch of 530-589 A.D. is described in Vol. 2, pp. 3-21. $vol = 18$ pages, $d = 60$ years, $f = 18/60 = 0.3$.

36) The epoch of 590 A.D. is described in Vol. 2, pp. 21-27. $vol = 6$ pages, $d = 1$ year, $f = 6/1 = 6$.

37) The epoch of 530-590 A.D. is described in Vol. 2, pp. 28-33, Annexes. $vol = 6$ pages, $d = 61$ years, $f = 6/61 = 0.1$.

38) The epoch of 590 A.D. is described in Vol. 2, pp. 34-37. $vol = 3.5$ pages, $d = 1$, $f = 3.5/1 = 3.5$.

39) The epoch of 591-599 A.D. is described in Vol. 2, pp. 37-45. $vol = 7$ pages, $d = 9$ years, $f = 7/9 = 0.8$.

40) The epoch of 600-604 A.D. is described in Vol. 2, pp. 45-88. $vol = 42$ pages, $d = 4$ years, $f = 42/4 = 10.5$.

41) The epoch of 605-607 A.D. is described in Vol. 2, pp. 89-90. $vol = 1$ page, $d = 3$ years, $f = 1/3 = 0.3$.

42) The epoch of 608-610 A.D. is described in Vol. 2, pp. 90-94. $vol = 5$ pages, $d = 3$ years, $f = 5/3 = 1.7$.

43) The epoch of 611-614 A.D. is not described. $f = 0.2$ is only available due to Annexes.

44) The epoch of 615-625 A.D. is described in Vol. 2, pp. 94-96. $vol = 2$ pages, $d = 11$ years, $f = 2/11 = 0.2$.

45) The epoch of 626-629 A.D. is not described. $f = 0.2$ is only available from Annexes.

46) The epoch of 630 A.D. is described in Vol. 2, pp. 96-101. $vol = 3.5$ pages, $d = 1$ year, $f = 3.5/1 = 3.5$.

47) The epoch of 631-638 A.D. is described in Vol. 2, pp. 101-107. $vol = 6$ pages, $d = 8$ years, $f = 6/8 = 0.8$.

48) The epoch of 605-638 A.D. is described in Vol. 2, pp. 108-114, Annexes. $vol = 6$ pages, $d = 34$ years, $f = 6/34 = 0.2$.

49) The epoch of 639-651 A.D. is described in Vol. 2, pp. 115-123. $vol = 8$ pages, $d = 12$ years, $f = 8/12 = 0.7$.

50) The epoch of 652-655 A.D. is described in Vol. 2, pp. 123-125. $vol = 2$ pages, $d = 4$ years, $f = 2/4 = 0.5$.

51) The epoch of 656-662 A.D. is described in Vol. 2, pp. 125-126. $vol = 1$ page, $d = 7$ years, $f = 1/7 = 0.2$.

52) The epoch of 663 A.D. is described in Vol. 2, pp. 126-134. $vol = 8$ pages, $d = 1$ year, $f = 8/1 = 8$.

53) The epoch of 639-663 A.D. is described in Vol. 2, pp. 135-140, Annexes. $vol = 5$ pages, $d = 25$ years, $f = 5/25 = 0.2$.

54) The epoch of 664-671 A.D. is not described.

55) The epoch of 672 A.D. is described in Vol. 2, p. 141. $vol = 0.3$ page, $d = 1$ year, $f = 0.3/1 = 0.3$.

56) The epoch of 673-675 A.D. is not described. Only the average volume is available from Annexes: 0.2.

57) The epoch of 676 A.D. is described in Vol. 2, p. 141. $vol = 0.3$ page, $d = 1$ year, $f = 0.3/1 = 0.3$.

58) The epoch of 677 A.D. is not described. Only the average volume is available from Annexes: 0.2.

59) The epoch of 678-687 A.D. is described in Vol. 2, pp. 141-151. $vol = 10$ pages, $d = 10$ years, $f = 10/10 = 1$.

60) The epoch of 688 A.D. is not described. Only the average volume is available from Annexes: 0.2.

61) The epoch of 689 A.D. is described in Vol. 2, pp. 160-163. $vol = 3.5$ pages, $d = 1$ year, $f = 3.5/1 = 3.5$.

62) The epoch of 690-691 A.D. is not described. Only the average volume is available from Annexes: 0.2.

63) The epoch of 692-695 A.D. is described in Vol. 2, pp. 151-154. $vol = 3$ pages, $d = 4$ years, $f = 3/4 = 0.8$.

64) The epoch of 672-695 A.D. is described in Vol. 2, pp. 155-159, Annexes. $vol = 4$ pages, $d = 24$ years, $f = 4/24 = 0.2$.

65) The epoch of 696-700 A.D. is not described.

66) The epoch of 701-705 A.D. is described in Vol. 2, pp. 163-165. $vol = 2.3$ pages, $d = 5$ years, $f = 2.3/5 = 0.5$.

67) The epoch of 706 A.D. is not described. Only the average volume is available from Annexes: 0.4.

68) The epoch of 707 A.D. is described in Vol. 2, pp. 165-169. vol = 3.3 pages, d = 1 year, f = 3.3/1 = 3.3.

69) The epoch of 708-709 A.D. is described in Vol. 2, pp. 169. vol = 0.6 page, d = 2 years, f = 0.6/2 = 0.3.

70) The epoch of 710-711 A.D. is described in Vol. 2, pp. 170-175. vol = 6 pages, d = 2 years, f = 6/2 = 3.

71) The epoch of 712 A.D. is not described. Only the average volume is available from Annexes: 0.4.

72) The epoch of 713-714 A.D. is described in Vol. 2, pp. 176. vol = 1 page, d = 2 years, f = 1/2 = 0.5.

73) The epoch of 701-714 A.D. is described in Vol. 2, pp. 177-182, Annexes. vol = 5.5 pages, d = 15 years, f = 5.5/15 = 0.4.

74) The epoch of 715-725 A.D. is described in Vol. 2, pp. 185-192. vol = 7 pages, d = 10 years, f = 7/10 = 0.7.

75) The epoch of 726-731 A.D. is described in Vol. 2, pp. 193-206. vol = 14 pages, d = 6 years, f = 14/6 = 2.3.

76) The epoch of 732 A.D. is not described. Only the average volume is available from Annexes: 0.2.

77) The epoch of 733-741 A.D. is described in Vol. 2, pp. 207-213. vol = 6 pages, d = 9 years, f = 6/10 = 0.6.

78) The epoch of 715-741 A.D. is described in Vol. 2, pp. 214-220, Annexes. vol = 6 pages, d = 27 years, f = 6/27 = 0.2.

79) The epoch of 742 A.D. is described in Vol. 2, pp. 221-224. vol = 3.5 pages, d = 1 year, f = 3.5/1 = 3.5.

80) The epoch of 743-746 A.D. is not described. Only the average volume is available from Annexes: 0.4.

81) The epoch of 747-751 A.D. is described in Vol. 2, pp. 224-229. vol = 5 pages, d = 5 years, f = 5/5 = 1.

82) The epoch of 752 A.D. is described in Vol. 2, pp. 229-233. vol = 4.5 pages, d = 1 year, f = 4.5/1 = 4.5.

83) The epoch of 753 A.D. is described in Vol. 2, pp. 234-235. vol = 2 pages, d = 1 year, f = 2/1 = 2.

84) The epoch of 754 A.D. is described in Vol. 2, pp. 236-241. vol = 5.3 pages, d = 1 year, f = 5.3/1 = 5.3.

85) The epoch of 755-757 A.D. is described in Vol. 2, pp. 241-251. vol = 10 pages, d = 3 years, f = 10/3 = 3.3.

86) The epoch of 757 A.D. is described in Vol. 2, pp. 261-263. vol = 3 pages, d = 1 year, f = 3/1 = 3.

87) The epoch of 742-757 A.D. is described in Vol. 2, pp. 254-260, Annexes. vol = 6 pages, d = 16 years, f = 6/16 = 0.4.

88) The epoch of 758-765 A.D. is described in Vol. 2, pp. 264-269. vol = 5 pages, d = 8 years, f = 5/8 = 0.6.

89) The epoch of 766 A.D. is not described. Only the average volume is available from Annexes: 0.5.

90) The epoch of 767-768 A.D. is described in Vol. 2, pp. 270-276. vol = 6 pages, d = 2 years, f = 6/2 = 3.

91) The epoch of 769 A.D. is described in Vol. 2, p. 277. vol = 1 page, d = 1 year, f = 1/1 = 1. Year 769 A.D. is also described in Vol. 2, pp. 284-287. vol = 4 pages, d = 1 year, f = 4/1 = 4. The total is: f = 5.

92) The epoch of 757-769 A.D. is described in Vol. 2, pp. 278-283, Annexes. vol = 6 pages, d = 13 years, f = 6/13 = 0.5.

93) The epoch of 770-772 A.D. is described in Vol. 2, pp. 287-295. vol = 8 pages, d = 3 years, f = 8/3 = 2.7.

94) The epoch of 773-774 A.D. is described in Vol. 2, pp. 295-301. vol = 6 pages, d = 2 years, f = 6/2 = 3.

95) The epoch of 775-789 A.D. is described in Vol. 2, pp. 301-315. vol = 14 pages, d = 15 years, f = 14/15 = 0.9.

96) The epoch of 770-789 A.D. is described in Vol. 2, pp. 316-325, Annexes. vol = 9 pages, d = 20 years, f = 9/20 = 0.5.

97) The epoch of 790 A.D. is not described.

98) The epoch of 791-795 A.D. is described in Vol. 2, pp. 326-392. vol = 66 pages, d = 5 years, f = 66/5 = 13.2.

99) The epoch of 796-800 A.D. is described in Vol. 2, pp. 393-434. vol = 41 pages, d = 5 years, f = 41/5 = 8.2.

100) The epoch of 801-813 A.D. is described in Vol. 3, pp. 3-16. vol = 13 pages, d = 13 years, f = 13/13 = 1.

101) The epoch of 814-817 A.D. is described in Vol. 3, pp. 16-28. vol = 13 pages, d = 4 years, f = 13/4 = 3.3.

102) The epoch of 801-817 A.D. is described in Vol. 3, pp. 29-34, Annexes. vol = 5 pages, d = 17 years, f = 5/17 = 0.3.

*   *   *

All that remains to be done is summing up the values of function f on each of the time segments listed above. This shall give us the final graph of the volume function for the part of the work by F. Gregorovius describing the period of 517 years allegedly from 300 A.D. to 817 A.D.

Epoch of 300-330 A.D., f = 0,5
Epoch of 331-337 A.D., f = 2,1
Epoch of 338-402 A.D., f = 0,5
Epoch of 403-407 A.D., f = 3,1

Epoch of 408-409 A.D., $f = 10,6$
Epoch of 410 A.D., $f = 19,9$
Epoch of 411-417 A.D., $f = 1,4$
Epoch of 418-423 A.D., $f = 1,7$
Epoch of 424-432 A.D., $f = 1,3$
Epoch of 433-439 A.D., $f = 0,9$
Epoch of 440-451 A.D., $f = 1,3$
Epoch of 452-453 A.D., $f = 2,9$
Epoch of 454-460 A.D., $f = 3,6$
Epoch of 461-472 A.D., $f = 1,4$
Epoch of 473-476 A.D., $f = 2,8$
Epoch of 477-499 A.D., $f = 1,8$
Epoch of 500-513 A.D., $f = 2,1$
Epoch of 514-526 A.D., $f = 1,3$
Epoch of 527-529 A.D., $f = 3,5$
Epoch of 530-535 A.D., $f = 2,4$
Epoch of 536 A.D., $f = 10,2$
Epoch of 537 A.D., $f = 23,4$
Epoch of 538 A.D., $f = 8,4$
Epoch of 539-546 A.D., $f = 2,5$
Epoch of 547-553 A.D., $f = 4,4$
Epoch of 554-566 A.D., $f = 1,4$
Epoch of 567-568 A.D., $f = 2,6$
Epoch of 569-579 A.D., $f = 0,7$
Epoch of 580-589 A.D., $f = 0,4$
Epoch of 590 A.D., $f = 8,6$
Epoch of 591-599 A.D., $f = 0,8$
Epoch of 600-604 A.D., $f = 10,5$
Epoch of 605-607 A.D., $f = 0,5$
Epoch of 608-610 A.D., $f = 1,9$
Epoch of 611-614 A.D., $f = 0,2$
Epoch of 615-625 A.D., $f = 0,4$
Epoch of 626-629 A.D., $f = 0,2$
Epoch of 630 A.D., $f = 3,7$
Epoch of 631-638 A.D., $f = 1$
Epoch of 639-651 A.D., $f = 0,9$
Epoch of 652-655 A.D., $f = 0,7$
Epoch of 656-662 A.D., $f = 0,4$
Epoch of 663 A.D., $f = 8,2$
Epoch of 664-671 A.D., $f = 0$
Epoch of 672 A.D., $f = 0,5$
Epoch of 673-675 A.D., $f = 0,2$
Epoch of 676 A.D., $f = 0,5$
Epoch of 677 A.D., $f = 0,2$
Epoch of 678-687 A.D., $f = 1,2$
Epoch of 688 A.D., $f = 0,2$
Epoch of 689 A.D., $f = 3,7$

Epoch of 690-691 A.D., $f = 0,2$
Epoch of 692-695 A.D., $f = 0,8$
Epoch of 696-700 A.D., $f = 0$
Epoch of 701-705 A.D., $f = 0,9$
Epoch of 706 A.D., $f = 0,4$
Epoch of 707 A.D., $f = 3,7$
Epoch of 708-709 A.D., $f = 0,7$
Epoch of 710-711 A.D., $f = 3,4$
Epoch of 712 A.D., $f = 0,4$
Epoch of 713-714 A.D., $f = 0,9$
Epoch of 715-725 A.D., $f = 0,9$
Epoch of 726-731 A.D., $f = 2,5$
Epoch of 732 A.D., $f = 0,2$
Epoch of 733-741 A.D., $f = 0,8$
Epoch of 742 A.D., $f = 3,9$
Epoch of 743-746 A.D., $f = 0,4$
Epoch of 747-751 A.D., $f = 1$
Epoch of 752 A.D., $f = 4,9$
Epoch of 753 A.D., $f = 2,4$
Epoch of 754 A.D., $f = 5,7$
Epoch of 755-756 A.D., $f = 3,7$
Epoch of 757 A.D., $f = 6,7$
Epoch of 758-765 A.D., $f = 1,1$
Epoch of 766 A.D., $f = 0,5$
Epoch of 767-768 A.D., $f = 3,5$
Epoch of 769 A.D., $f = 5,5$
Epoch of 770-772 A.D., $f = 3,2$
Epoch of 773-774 A.D., $f = 3,5$
Epoch of 775-789 A.D., $f = 1,4$
Epoch of 790 A.D., $f = 0$
Epoch of 791-795 A.D., $f = 13,2$
Epoch of 796-800 A.D., $f = 8,2$
Epoch of 801-813 A.D., $f = 1,3$
Epoch of 814-817 A.D., $f = 3,9$

*   *   *

We did not go any further, since the text by Titus Livy (whom we compare to Gregorovius) peters out at around the year 460 from *ab urbe condita*, which corresponds to year 760 A.D. when the "ancient" history of Rome is identified with the mediaeval, which is the aftermath of the shift of approximately 1000 years. We continued to calculate volume functions for the books by F. Gregorovius until 817 A.D. only because we had at our disposal the volume functions for the book by Sergeyev describing "ancient Rome" and going somewhat further than Titus Livy.