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### Front cover:

"A Ship Among the Blocks of Ice", a colour drawing from the book 2 of the manuscript Kankai Ibun preserved in the collection of the St. Petersburg Branch of the Institute of Oriental Studies (C 191), fol. 14a, 14.0 × 20.5 cm.

## Back cover:

"Theatre in the Capital of the Russian Empire", a colour drawing from the book 11 of the manuscript Kankai Ibun preserved in the collection of the St. Petersburg Branch of the Institute of Oriental Studies (C 191), fols. 11b—12a, 32.5 × 26.5 cm.

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# TEXTS AND MANUSCRIPTS: DESCRIPTION AND RESEARCH

Val. V. Polosin

# ARABIC MANUSCRIPTS: TEXT DENSITY AND ITS CONVERTIBILITY IN COPIES OF THE SAME WORK\*

I

The copyist of manuscript C 2114 from the collection of the St. Petersburg Branch of the Institute of Oriental Studies [1] has made a mistake. Being probably distracted for a while from his work he then resumed copying of a passage already done by him earlier. Due to this mistake we, for the first time, get some definite material and an opportunity to discuss the regularity of individual handwriting in medieval Arabic manuscripts.

Fig. 1 shows two neighbouring pages of the abovementioned manuscript. The right one (fol. 250b), starting from the last word of the thirteenth line and to the end of the page, contains the text repeated on the next page (fol. 251a) — it is crossed out by the scribe. Both passages take the same number of lines — 22, which makes our find significant as the first and so far the only evidence testifying to the stability and balanced density of handwriting within a single Arabic manuscript.

It is true, of course, that the volume of the text revealing this quality of handwriting is too small to make any fargoing conclusions. Still, however, it is much more representative than it may appear [2], and we do not overestimate the proofing value of the discovered twin-texts. It is enough at least to presume that the density of handwriting in Arabic manuscripts was well-balanced. As for the required full-scale system of arguments, one should admit that any search for longer twin-texts in manuscripts does not promise much. We may try therefore to test the reliability of our suggestion "from the opposite". Let us make several first steps in this direction.

Manuscripts C 958 and C 711 from the same collection of the St. Petersburg Branch of the Institute of Oriental Studies present two copies of the same work — Durar alhukkām fī sharh Ghurar al-ahkām by Mullā Khusraw (d. 885/1480) [3]. One of them (C 711) is incomplete at the beginning, but the remaining text appears in the second copy (C 958) already from the 15th line of its first folio (compare figs. 2 and 3), which means that in manuscript

C 711 only one leaf is missing, with not more than 23 lines of the text [4].

Estimating by codicological methods the maximum possible size of the *lacuna* in manuscript C 711 (not more than 23 lines) we may verify the reliability of our suggestion on the even density of the manuscript text by calculating the size of the same *lacuna* arithmetically.

If the density of handwriting is really a constant value for each manuscript, then the density of two copies of the same text may be compared through linear (line by line) extension of these records — these last can be expected to be proportional in the same way as the proportion of their corresponding density. Let us verify this by calculations. The text taking the first 23 lines in manuscript C 711 (see fig. 4) occupies approximately 22.2 lines in C 958, running from line 15 of folio 2b to line 20 of folio 3a (see figs. 2) and 3), which means that the handwriting of C 958 is slightly more dense (1.036 times) than in C 711 (23:22.2=1.036). This value presenting the relation of two densities is the instrument for the further conversion of linear text volumes (lines, pages, folios), known by one manuscript (in our case — C 958), into corresponding volumes of a different copy of the same work (C 711).

The comparison of the initial parts of manuscripts C 958 and C 711 (see figs. 2 and 4) shows that the missing part of the text in C 711 takes 14 full lines and approximately three quarters of the 15th line in C 958. In all, it makes 14.75 lines. In C 711 it should have taken 1.036 times more space, namely 15 or 16 lines  $(14.75 \times 1.036 = 15.28$  lines).

It is less than the normative volume for one page, for which the standard in C 711 is 23 lines, as the preliminary ruling of the MS proposed. The difference between the results of our calculations and the ruling requirements of the manuscript should not, however, undermine our trust in the validity of these calculations. It was evident from the start that the missing text could not occupy a whole page. The

<sup>\*</sup> The present article represents the English translation of my paper published in Russian in *Peterburgskoe Vostokovedenie*, V (1994), pp. 202—20, with two additional notes included.

explanation is very simple and obvious: probably there was a coloured pattern (' $unw\bar{u}n$ ) above the text occupying the space reserved for the first 7 or 8 lines. The beginning of the second copy of the same work is decorated with ' $unw\bar{u}n$  (see fig. 2) [5].

The case considered here in confirmation of the convertibility of manuscript texts is, of course, elementary, i. e. it could have been interpreted with the same results without any calculations. We selected it to enable the common sense of the reader-specialist to follow the mathematical conversion of the text from one volume into another when discussing the method suggested here. Let us consider now a more complicated case, also, however, with a quite predictable size of the *lacuna*. Another pair of manuscripts from the same collection — C 2114 and C 2023 (see *figs*. 5 and 6) [6] — can be taken for this purpose.

The first of these manuscripts (C 2114) is defective the beginning is missing. The number of the missing folios may be estimated by its pagination, which has been done twice at different periods. One is quite recent, probably done when describing the manuscript for the catalogue, the earlier one had been made either by the scribe or by one of its former Muslim owners, obviously before the beginning of the manuscript was lost. A sample of the two paginations can be seen on fig. 1 at the upper left hand corner, where the present folio 251 of the manuscript is numbered as folio 271 in Arabic. The difference in numbers allows to suggest that 20 folios at the beginning of the manuscript are missing, i. e. two full blocks (kurrāsa) of 10 folios each. This suggestion basing upon the old foliation we are going to verify by calculations, once more testing the practicability of the method.

Like in the former case, to estimate the conversion coefficient of density, we are taking a fragment of text common for the two manuscripts. The fragment selected this time is shown on fig. 5 (C 2023, fol. 22b, line 26 — fol. 23a, lines 1-27) and fig. 6 (C 2114, fol. 1a). The comparison of the two records of this fragment (35 lines in C 2114 and 33 lines in C 2023) gives the conversion coefficient — 35:33=1.06. We can notice also that C 2023 has a more dense text. Now we can approach the estimation of the volume of the missing text in C 2114.

The text missing in C 2114 ends on the 26th line of folio 22b of C 2023 taking in the last one approximately 22 folios. It makes 1364 lines (44 pages, 31 lines on each page). The first page of the manuscript (fol. 1a), however, bears no text. i. e. 31 lines should be subtracted. On the last page (fol. 22b) only 25 of 31 lines corresponding to the

lacuna should be taken into account. Making these corrections we find that the text missing in C 2114 is equivalent to 1327 lines of C 2023. Now, using the conversion coefficient, we can estimate the size of the lacuna in its own measure units:  $1,327 \times 1.06 = 1,406.6$  lines. With the normative of 70 lines per folio  $(35 \times 2)$  for manuscript C 2114 we find the right and, what is important, the expected answer: 20 folios (1,406:70=20.08 folios).

In this way the suggestion of the loss of 20 folios by manuscript C 2114 has been confirmed. It is absolute, if speaking of the number of the leaves of paper bearing the text, or relative, taking into account the text itself — actually, the value estimated was the volume of the text. The matter is that, according to the general rule, the first page of the manuscript could not bear any text, so we could have expected our calculations to show not 20 but 19.5 leaves. It means that, when converting the text, the mistake made around 2.5% of its volume.

Is this error acceptable, or is it too big? In our case, when we actually analyse the contents of the manuscript by blocks, it makes no problem at all. A text written on 39 pages or on 40 pages would equally require 20 leaves of paper. It is, moreover, too early now to discuss errors natural when calculating the volume of a non-typed (handwritten) text. Taking into account the part of psychosomatic factors in the process of writing, one can foresee that the very presence of these errors and their distribution by size following some definite pattern are inevitable. One may happen to compare texts made by scribes of different skill, experience, and even temperament. It is difficult, on the other hand, to estimate the part played by the cursive nature of the Arabic script which is able to be compressed and decompressed without loosing its natural appearance, i. e. these changes are practically undetectable by human eye. At the same time, there are definitely factors maintaining the density of the script within certain limits, especially when it concerns the work done by a professional scribe. One of the most important factors was using of a ruled pattern for the future text, which made the scribes work out a habit for a standard line.

The pattern for ruling Arabic manuscripts (*mistara*) has been described as early as the last century, in particular by English Arabist E. W. Lane (1801—1876): "Paper is ruled by putting underneath it a piece of cardboard paper with cords (*mistara*) glued across it and pressing it slightly" [7]. This primitive but effective device, once widespread over the Muslim East, is directly related to the subject of the present article.

II

The application of *mistara* introduced an important feature into the shaping of a manuscript. It ensured the same length of lines, their equal number and the same distance between them on all pages of the book. It created a number of practical conveniences and possibilities doubtless used by medieval scribes. Let us consider some of them.

First of all, it is the estimation of the volume of text in collections of verse ( $d\bar{n}w\bar{n}ns$ ). The length of the line is of no significance here, because each verse (bayt) occupies a single line, never going to the next one. What is variable and significant in different copies is only the number of lines

per page. In this way a manuscript of 250 folios with a 25-line *mistara* will give us 25 *bayts* per page, 50 *bayts* for a single folio and 12,500 *bayts* for the whole manuscript (in fact, up to 12,500 *bayts*) [8].

Since every bayt takes only one line in the manuscript, hence from follows the rule: the number of bayts in the manuscript corresponds to the number of lines, and, vice verse, the number of lines corresponds to the number of bayts. This simple relation turns collections of verse into a special category of manuscripts: calculations over them produce results freely convertible from one mistara to another with no additional information required. For this rea-

son, versified text in a 21-line manuscript, as compared with the above-mentioned versified text of 250 folios with a 25-line *mistara*, will occupy not 250 folios but 596 pages, i. e. 298 folios (12,500: 21 = 595.23 pages; 12,500: 42 = 297.6 folios). In a 19-line manuscript the same text will take 329 folios (658 pages), etc.

The convertibility of the formula "the given number of folios by the given number of lines each" from one *mistara* to another is applicable only for versified texts. In this very field we are going to provide an example of its real use. It is the fourth/tenth-century bibliographic work *Fihrist* by Ibn al-Nadīm (d. 380/990).

In the foreword to one of the chapters of Fihrist, which, citing its title, "contains the names of new, as well as early Muslim poets, also evidence on the number of their verse that were introduced into circulation", Ibn al-Nadīm writes: "We ourselves aim to present the names of the poets and the amount of poetry written by each poet among them, especially by the more recent ones, and also the variations occurring in their poems, so that whoever desires to collect books and poems can have this information and an insight into the matter. If we say that the poetry of a certian man fills ten leaves, we mean Sulaymānīyah ones, holding twenty lines, I mean on each side of the leaf" [9]. After this introduction the author names a great number of Arabic poets, giving in the account system mentioned above, i. e. in sulaymānī folios, exact or approximate figures representing the amount of verse written by them, though one should think that the anthologies actually circulated could have different number of lines on their pages [10].

One of the practical consequences of this connection between the contents of Arabic manuscript (i. e. text) and its material embodiment (manuscript folio) was the possibility to adjust the volume of a new manuscript when making a copy — to estimate beforehand the required amount of paper and ink and in that way to affect the expenses of production. Though, one of the principal factors making the price is still not quite clear, we mean the scribe's labour. Was it estimated directly from the executed copy (considering the length of its lines, the number of lines per page, and the total number of folios) or by converting it to the price of a conventional folio, like the sulaymānī folio which appears in Fihrist by Ibn al-Nadīm?

Prosaic texts can not be converted in the same way. The reason for this is the very characteristic of *mistara* which in the former case was of no significance — the length of the line.

The matter is that in prosaic texts, unlike in verse, the length of the line is not an account unit indifferent to the length of the textual fragment. In this case the length of the line is no longer a self-standing unit measuring the completeness or incompleteness (defectiveness) of the whole text, the instrument of getting the quantitative estimation of the text in question as a sum of units-lines. Prosaic text, of course, is also divided into mistara lines. It has, however, no internal measure like the metrical unit which in the first case determined both the length of the line and the equal total number of lines in all copies of the poetic work in question. Prosaic text is divided into lines after the external, and for this reason irregular measure — the length of the line in this or that mistara. Versified text always gives the same total number of lines, no matter what kind of mistara is used. Prosaic text gives a different number of lines, depending on different *mistaras* [11].

Prosaic lines, however, can also be converted, as it has been demonstrated above.

In spite of the different width of different letters of the Arabic alphabet the text of Arabic manuscripts reveals the ability to maintain approximately the same number of letters in all lines of a whole codex. This number is only slightly shifting around some numeral presenting an average value for the lines of the given codex [12]. This quality, so far as I know never mentioned in literature, allows to convert prosaic texts from one *mistara* to another.

The method of finding the average density for one line of the text is the usual one. As for the conversion coefficient also required in this case, it presents a proportion expressing the relation between the average density of the text in the lines of two manuscripts, juxtaposed copies of one and the same work. The way of obtaining this value could be either abstract or relevant. When applying the abstract method we first find (by characters-letters) the average density of the text (handwriting) in the lines of two juxtaposed manuscripts, then we calculate the conversion coefficient itself by dividing, say, the greater value of density into the smaller one. The relevant method omits the first stage (working out the average density), namely: one and the same fragment of text is selected in two copies (its volume is taken at random, but with a whole number of lines, pages or folios in one of the manuscripts, accepted as a unit of measure); then, like in the first case, the greater value is divided into the smaller one; the figure obtained is the conversion coefficient we were looking for.

It is impossible, unfortunately, to demonstrate the convertibility of prosaic texts using published, i. e. available to everyone, materials. The matter is that facsimile reproductions of manuscripts, of which there are many now, and which could have been used to arrange a public demonstration of the method, all these are publications of unique manuscripts. To demonstrate the method and the way it works we need at least two copies of one and the same work. That is why the mistake made by the copyist and reproduced at the beginning of this article was so fitting.

It is possible to presume that medieval scribes used the convertibility of prosaic texts, like in the case with versified texts, also mainly to estimate the amount of paper required for making a copy with a different *mistara*. We do not know how it actually worked in those times, but now specialists can use the convertibility of texts to achieve other aims, for example, to locate quickly selected fragments from some work in any manuscript or printed edition. Textologists and those who work on literary sources constantly encounter such problems, and a conversion coefficient for each pair of manuscripts may be used, if necessary, as a concordance of their pagination. A search for the same fragments by looking through numerous pages of "blind" text (with no paragraphs, etc.) in many cases would be less productive.

The best way to develop the method of converting text from one *mistara* to another is to work on a scholarly publication of Arabic sources involving several manuscripts at once. In this case the problem can be studied indirectly, not distracting one's attention from other tasks but ensuring a more profound study of current materials along separate lines, within the frame of the standard set of operations forming the technique of preparing a critical text.

Not all manuscripts and all texts within them are equally convenient for the study and practical application

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لما وليارًا البئي عليم السلام دخل على موبطن بيوده فرجاره بصلى ويرفو الم عود ا تحد عليه مُنزع لا مل من يُدمن كان في بل و فنا سيما البيع رض المرجيل معرد لسنت کا ن ا وم کسی و ن فا ن فعل و لای نبطران کان مختص اسد للرکوع نزالهی د خفض من الكوع جازت صل كه وال كال المخفض كاستدولكن بوصع العرو عرجيتن ليرتخترصك نزلائه لوموجل سجودواع بمائم احتلاوا أفاهل بعد سجود اوا بما فاحت لعصلى بوسجود وفاك لعظم المهوا منا ويواكا صوفان كانت العاتم) و م موصوعة على الأرص وكان بسجد عليم جا لات صلا نه فقل حجال ے سکی رحیا اللہ کا نت تشیحل علیمسرنفسری موضوعہ بہنے عہد) لعلمہ کانت يه) وَ لِمَ كَمِنْ عَلِيمَ السَّلَاحِ مِنْ دُولِكَ فَالسَّالَ وَمِنْ دُولِ عِنْ فَعَالِمَ العَيْرِ وَ رَيِ فِي فَعَا بِسِهِ والمرتبيل ذافا تت وصلوات بنبضها في حادد المصيرة فعل كابغها الاصحالان مخضياً إلمركن بهما فرض بـ إلاصل وائما يسَعنط حالذ الإحرا للعدار وإذا لم يوجد لادا حيى صح طهرت مرصنه في الاصل الاو محصيل الاركان با كل لرجوه وان عَا نَتُنَمُ إِنَّ الصِّيرُ فَعَضِي إِلَا لِمُصْ صِلْ اللَّهُ لَا يَمَا لا وَرُصُلُ لَوْفَتُ بِحُورًا وا وه مع الاتما فتكذا العقتا بنغسيدان النتكليف يعتمل الوسع و بوق طالذ المرص سكل على لاد ا وكبس ح وسعدا كترس هذا استعطما عيزي الغضا لمسكن بعرُ وراه كا ذا سُفِط في الآداوا واسترع في الصلاة وموضي ع المعرَّض له فرض بنرع إيالا نرعوصت الاحران اله يود بالبعض كامل والمبعض نافعنا والهُ اوهِ من الياليستقبل وبودي الميل مّا فضا ولروبي عن الصحبينية التَّارِ سُعُنُهُ إِذَا صَارًا لِي لا يميا ولوسسُرهِ اللَّالمعدُ وريحٌ صح فإن كان السُّ بركوع والبحود في فؤل إلى حنبيعند والى بوسع وفات محد بسنتفيل دان كان السطروع بالايما بخ تنديم على لركوع والسجود فا بدنه شعب ل وفا لس رحمه لمينه مينها لعكل مع بناعلي اصل وهوان المنفرد للبل خرصلوت لا رسال العام و العام و المن العام و العام و العام و العام و و كالخلل جوزناالا فتكاب يجوزاله أاساوسا فلا وعند كارحداسه النابو ٧ يَعْتُلُدِي بِالغَيَا حَدُ فَكُذَا لَا يَبِينِي بِ حَنْ نَعْسَمُ وَعَنَدُ مِمَا الْعَيَاجِم بَعِنُد بِ بالناعد فكذلك بيني في حق نفسه والكلام مع رفر عليهذا الاضل يعنا من اصله المركحورا فسرا الماكوب لمولى وعندنا كم يجود فكذالهذا في حق نفسه وان سزع آلما من عليه وأسران كيت لغي على طهره وبني عسل الععود والسجود الحراال الصبلي سنسلنها عطر عربها وعيي دلك قول ما لك والشاعني لا بجور أبها احدًا بحديث بن عياس ال ماناك بعدما كت بصرح لرص بالا وإحشت لمتيا موميا صحف عبشك ا مرعا بيلغا رصيا مدعنها واباهر برما وجماعة مرالهما بؤالد برخصوا لدراك وتافرارا بت دوست بعكالايام كوى بنصلع بهنلانك فنرك والمعاوم بركوع وسجود والمعنى فبدواوا نه انها نخوز المصلاة المربين بالإبسا ارُ اعِيَ عِزُ النَّهَامِ وَالرَّوْعِ وَالسَّجِوحِ وَهِذَا لِلْعَيْ عِزَالْعُنَامِ وَالرَّكُوعِ

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والبلغ قاما أداما بكل لافا فتنه ووت مفاوع لكنركان يف الاصارة بعدبوراد ولله منهافا مذكذاذ كالمرااع بمن الحلوا فاوق ئون بعيدهاوة إوع وبسلة فاتا ا دالم يكن ٧ فا هُنَةُ وقت معلى للمُسُوكَ لَ طَبْنِكَا يَهُ الرَّامَا ﴾ في ا ذا كان يَجلُونًا في كُولُون كان أكثر من بوم ولي ناعلب بعثى لافلت على وبمازا وعيل يوم ولدلية بتيا ترفغا روي يوسلمان تحداد اجن حبن وخلاف النظاريم افاف من العدوم تدا اعص فليسترع لبه فصل بسران الظهرؤا بدعلى صلوة يوم ولبله واؤاجز جنبا لزوال يخافا فأمزيوم زوبا لشمة بعبدا لظهروالمعص فاكرا كاكا كالمحبه نهجر حزي وعليته لمرتجيزوا كاتما وعليران يسجاعل لفدي نالانف سيدرط لمسير كالمسيار كمبهته لهلهما عيالف وافي لايخترضلوت والهرنزك السحيودموا لامكا فأعلب ولل ب ذا الم ما وبروالموي أن سطواليه عود الريسار و فبسيدعلية لما يًا زُا مَهُى عَدِيهُ أَنْسُلُامِ وَعَلَى عَلِيمُ مِنْضِ لِيُودِ هِ فُوجِكَ لِجِسَلَى فِرَسُوعًا لِب المتبحد عليه فرع و لل من برمن في كان في بده وعًا ل هذا سن عرض على يقب لئم السبط ن أوم مسحرون ما كا فعل أو بله شِيطُران كا ك مخفص را سم للروع ى دا حفيفى الدكوء حارث صلائدوان كان ٧ بحفظ الرسد الدكوع ولكرك وطعوا لعدد عاجبها ته فرجر صلوكة الألم بوصالسي والابنا م اختلام النها بعدى دا وابها فات بعضهم و تعدد وفاك بعضه برابياد برالاصي فا ن كانت الوسّاحة موصُّوعة عبل لايص ذكان بسيجد غليبهجا لانتصلون فغذاهيوان المسلمة احتها للاكان يسجعد على سرنفسه حرصوعندبين ههنا تعلذكا نت به ولم بمنعها ويشول الكاعليما فسكال د لك قا ك الغاروري بي تشابه والمديين كذا فانت صلوات بغضرة بي حاله عنزنسلكا بيعله لاصحاس كتصنيل لمركن بكا وفيض فجا الاصل والمانين عط شل الاركان با حكل دوجي وال فيا تتنم بالإبهاكان فرص له وت مجوارا واوه معام بما فكذا الفضا لننسدان بيط يعتمدا لوسع ويوجى طالة المرص بكلف على لاحدا ولي كنزم وهذا فستغطما عجزعية في لغفنا لجداء النصب وكفاكا واستغطافي لاقا واذارشر وفيالصلان وبعضجه فأعرض له فرض بني بلي صلونه عليجت الحالمعد والط صحامات كالناسروع بركوم وسيحود سرية فورا اليحليفة والجابوس لعقبل دال كانالشروع تا ٢ بما كا فدرعبي وكوع وأنسجود ما ن

علاد ر

of the text convertibility effect. The two most important manuscripts of Fihrist by Ibn al-Nadīm (Paris, No. 4457 and Dublin, No. 3315) are "inconvenient". The matter is that the density of text in them is uneven on different and sometimes on the same pages - against the rule of proportionality declared above. The entire blame for that should not be laid on the copyists. It happens mainly due to the uneven character of the textual materials: usually condensed records of the lives of Arabic authors or deliberately expanded long lists of their works. Besides, one of the manuscripts contains here and there vast free spaces reserved for supplements by the author of Fihrist himself and preserved in the copy made directly from the autograph. But even in similar cases it is possible, within certain frames, to apply conversion coefficients. I shall try to demonstrate it by solving one peculiar problem which arose when preparing a new scholarly publication of the above mentioned Fihrist by Ibn al-Nadīm.

Nine folios (fols. 10a—18b) of the Paris manuscript No. 4457 show a handwriting different from that of the rest of the book. It means definitely that the corresponding folios had been lost and the missing part was restored by a different scribe. What attracts our attention is the number of leaves lost and restored later. It is sufficient to presume that a whole block (*kurrāsa*), i. e. having an even number of folios, fell out of the manuscript. But what was its original volume? Blocks, as we know, could be of 8, 10 and 12 folios.

After some analysis it becomes clear that a *kurrāsa* of 8 folios should be omitted. The amount of text on the nine "restored" folios is too huge to be set on the original eight. It can be proved in the following way.

The field occupied by the text is practically equal both in the original and the restored part of the manuscript (though there are some slight differences we are going to consider below). Though the actual size of the text field is not indicated in the published description of the Paris manuscript, and the manuscript itself is not, unfortunately, available to me, it is possible to see from the photocopy I have due to the courtesy of Bibliothège Nationale in Paris that the text fields are of the same size. The manuscript was photographed in the Library by two pages per one frame, so there are two cases when the original and the restored pages appear within one frame of the field (fols. 9b—10a and 18b—19a). It means that they were photographed simultaneously from the same distance. Prints from the film were made frame by frame in the laboratory of the St. Petersburg Branch of the Institute of Oriental Studies, which ensured equal scale for neighbouring pages on the prints. It is possible therefore to compare the dimensions of the text fields, using only a ruler and not taking the actual scale into account. That was what we did for coming to the conclusion mentioned above.

The dimensions of the two *mistaras* turned to be almost equal. The number of lines is the same — 16 lines per page. Taking into account these equal parameters, it becomes evident from the start that the copyist of the restored part has failed to arrange the text within 8 folios. Even though his handwriting is more dense, he had to use one more folio, i. e. 32 lines (following the *mistara*), plus 4 additional lines which he added to the last folio disturbing its original ruling. That was what actually took place. Eight 16-line *mistara* folios make 256 lines, 9 folios make 288 lines, while the actual record took 292 lines — 36 lines more than

it could have been in a kurrāsa of 8 folios. Four extra lines were added exactly to the last folio of the restoration (fol. 18a—b), which demonstrates that the copyist of the restored part was striving to set the text not within 8 but within 9 folios. He succeeded, miscalculating only by four lines.

The same is confirmed by the analysis of the density of the text of the restored part, which is evidently higher than in the rest of the manuscript.

Since the method of a similar analysis has never been demonstrated anywhere, and the volume of the text in question is comparatively small (9 leaves), we would like to demonstrate the density of the text in detail, which in other cases will be doubtless omitted, being dissolved in general formulas (see *Table*).

The *Table* is presenting all possible characteristics of the text density of the restored part: the number of characters-letters for each line of its 18 pages, average density for each particular page (horizontal rows); for a more precise tracing of the dynamics of handwriting the same is done for groups of corresponding lines (columns) [13]; finally, it is marked how often and where the scribe was going beyond the borders of his own ruling-mistara (column "Notes" also columns for the 17th and the 18th line).

It is evident from the *Table* that the density of the text is fluctuating, reaching its maximum on folios 12a, 15b, then on the last 4 pages of the restored part (fols. 17a, 17b, 18a and 18b) [14]. The increase of density is achieved, especially on the last folio (18a—18b) also by extending lines (i. e. by going beyond the *mistara* frame) and by increasing the number of lines on the last page from 16 to 18 (i. e. also by breaking the frame in the vertical direction). Finally, it should be taken into account that the *mistara* frame of the restored part was overloaded with text: 41.8 characters per line (see *Table*) against 37.75 characters per line [15] in the main part of the Paris manuscript.

So, we once more come to the following conclusion: the scribe was striving hard, manipulating with the density of handwriting, to arrange the text within the given 9 folios. There was no way to fit the text into 8 folios having the same *mistara* as the rest of the Paris manuscript. It was not possible even to arrange it within 9 folios, if he had followed the *mistara* strictly.

Evidently, the initial text replaced by the present restoration occupied 10 folios (following the rule of the even number of folios in one block)?

Now let us reckon the volume of the restored part of the manuscript in the characters of the Arabic alphabet (the total sum of lines multiplied by average density):  $(18 \text{ pages} \times 16 \text{ lines} + 4 \text{ lines}) \times 41.8 \text{ characters} = 12,205.6 \text{ characters}$ . Taking the density of the original, which is equal to 37.75 characters (see above, note 15), we find that this volume is equal to 323.3 lines of the lost original part (12,205.6:37.75) or to 20.2 of its pages (323.3:16), i. e. around 10 folios. The extra 0.2 of a page, the inevitable error in reckoning, make only 3 lines of text.

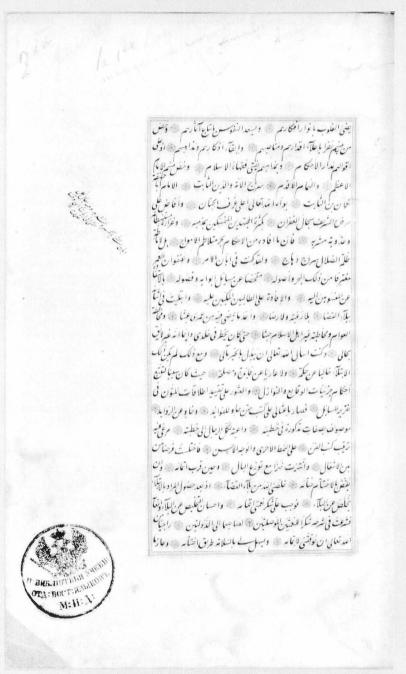
In the case of the Paris manuscript the demonstration of convertibility does not possibly require such a detailed analysis. The question of the size of the *lacuna* restored in the manuscript is important, however, in a different context—the study of *Fihrist*, filiation of its copies and the authenticity of its text. The matter is that to establish the critical text covered by the restored *lacuna* we have only two manuscripts—Paris No. 4457 and Dublin No. 3315.



Fig. 2



Fig. 3



MW 23a

لاعامها لعبيه الخاوس لوجوب العندل سن له انعضها المين عن مكانه وليزي سرعن الفرج العاصل الالعنج اتحارج لاعسارعلها وبذكان بيني الفقيد ابوجعفروسمس لاية الحلواني وتهما لادو وصلوة الترعيد لأامراة فاك معين بالتيافي المرادي النؤم سرادا واجد من نفس ماأ جداد المامعي زوج فيذكرا بدلاعسنا علها رحل واسراة السافلا استبقظا وجدامنيا بسماوكا والمعتمما بتسا الاحتلاء ويكران المي منه كالالامام ايوبكري من العندا عد البريقة ل يوجوب العندا عليها وهو الأحوط ومن المنفاع رحهم العدم فألك انكان المآغليظا ابيني فهومن الوط وأنكان دقيقا اصفر فهمن المراء الوطل اذاصاد معنيها عليدم افاق ووحد مريديا عليف اويؤ بدفلاعد باعليه وكذلذا أسكران اذاا فان ووحد مرياعل فنره او نؤاله للاعتماعليد ولسرهان اكالمؤم والمهاعلو من ها االعيل في المنقرقات المنتلي المشاب وليم ماللدون سب وبعوب الاعتشال كال بعضهر سبب وجوا فعا الحنابد والا لعضهم سبب وبطو لف اوادة ماحم عليد بسيدالجنا به وليها ي بيان ماس عليما بسيد لحنانه أي النوع الذي الخ مد الله والماسعد وحدامه والاصراد ويسايل في في عسل للبايد من الكاصاع ملديث جارره في الدهدان رسول الدصل الدرولية وساركان تغييسا بالصاع فعيل لدان لورهنا فعند السرالد عليدوسلم وكالأهند أي من هوم أمنكرو الرسيدا والصاب عاسد وحمد أنه الصاع حسدة أرطال وتلك رطا وهو فقال الإسام الشافع رجداس وسيناتئ بيان ذلك بيجناب الصوم ان شااه مغال وهدني المقتر بريكا، الأوا عزية فأمة أداد منت وي الوصن مرقد ومداوي والدليس يعدر لايم بل سينعل من الما بعدد مابعة منوالد حصر التعليد ولاباس بوسرا الوصل والمراه من اناو آمد كحديث عابيته وصياس علا قاب كنت أناور مود الساصل أسعليه وسلر بعشهام إنا وأحدو أنت افول لدفعي في وهو يقول بقي في واد الجنب المرأة مؤاد مرها المين مي الجبادان شأ تاعسان لأن بينه رزيا و وتعطيف وازالة المدليدرين و أن شات أحزن الاعتشال على التظامير لأن الاعتشال للتظهير صن من اوا العدلوة الى نؤى ال المرب او العزال عبسال الى و فت الصله ة لإنهام و لا إن المعضود من الطهارُ: الصلوة و مني لا تتمكن من السلوة فكان لهان لأتعتليل وتنصدوه فتاوي إي الابتدرهمد استغرما الاعتشاد على الروي و لكاما وصويها علية عيداً كانت لو قفتهم و في وصابا العنا ويعويه تَنْ سَلَيْهُ وَعِيد الله النَّمْ اللَّهُ عَلَيْهِ إِلَّمَا اللَّهُ يُعْتَسِلُ لِهِ الْمُرَاةُ فَقِيها و بد تفامن الَّوجَ و لِعُلس عليدان دشة ي طاما الأصور والعسل فالأميلزمه الوصور الدواد فارته وهلدا فؤل التحاسار عم الله وقد فيرا بعدي انته عليه ما الاعتساد ولات عليم الوصولانه سبب لوبو ب الا فنشال عليها أماماً هوسب لوجو ب المنو عليها بل وجوب الوصف باعاب اس

مأونه تأخرج الميزيف في فول الإمام الباحيفة وعجد دعرهما العاجب العسر خلافا باي ويمد ويحداديد أكمننا فيآ والتحتلم فلما انغصل المنيءن مكا ندعن تنهوة استيقظ واخذ بأخليا. حى الكسرين وتدع عن منه المن الثالث و المام امراته فياد ون العن فلما الفصل لمني عن مكان عن منهوة أخل ما تعليدان عني سكنت شاويته ع خنج المبي فعل فولها ب فراخلافالاي يوسف وحماله المرابع تداد اجامم امرائد واغتسل فتران بولغ بال فؤم مدة بي المري وجب الفسل عند مما و لذلك اذاحن مدى واحمعو اعلى ما أذاباك غشرا وناه ع عن المي اله لاستلاميد وفي الأجنا الوجام واعتما فيلان ببول لأصلي لأبال فالمديعيد العسر عداما ولا يعيد الصلوة الأحلاف واذابالدي من ذكر امتى فا داكان ذكره منتفع العلما العنمل وادكا زمكسر وغلما الوصودون لعسفالان كخال ليسرماها بلرحوحادن مدن وعماسيص الطرفين وم المنى مسابيل الاحتلام اذاا ستبقط الوحاو وجاعل فراشدا ولخدى بللاوهو بتراذكر آحتالها أن سقن الغمني أونبيض الغملن أوستك الغرمني أوسراري فعليد العنسل ولسيرع عدا الجاب العنسل بالمدي بالنها والعسار بالمريان سبسان والمن وحد وهو الاحتلام فالظاهرة وجد الوانه من طبع المدي الوقة ما طل لذالك فالطاعر ألذي الااندون فتهان يستيقط وان بيعين النم و د تي لاعنسل عليه و إن راي سللا الا الله ليربيه: كوالاحتلام فان تيقيل له م كالم العند وأن تبعق الدمي عب العند الانسب عروم المي عنا لمر عريد فلا علن أن بقال ما مدمى ور فالطول المرة م مومدى مقيقة والمدى لوجب العصل وأن مثك أنه من أو مناى فالدانو يوسف دحمه العلائها العساري يتنفز بالاختلام < فالإعبالنسر هم لذ أذ كري الإسلام وعد الله و أذ الذ كرام منافره لم به باللافلا عضراعليه لظاهرون لمصلى استعليد وسام من استامرولم مون بللا فلاستى عليدى لي العاص الهام أيوع السنع رعدالدد وحشام في نواد يه عن مد وحداد اد ااستيقظ الوصل في احليله ماللاولم يد كو احتلاما ان كان ذكره منتسل حبر الدوم فلاستي عليه اى فلاغسز على الااوا اللفن الدمي والكان و كوساك براله و والحد فعلى وفليد سل فا وسمتر الإيد اللواق وحمد الله حمل المسئلة بيكن وفؤتها والساس عهاما عا والود خيرا ديخفط وآوانام الوتر فناعدااو فإعا اوماشيا مزاستيقظ ووجه الدرا فحبذا ومالونا ومصيطها سواا وافاقس لوالوصل وانغسل المناعن مكاندالا اندلم نظير على الرالهابال فلاعسل عليه لأن المؤوم عبذا لم يُقور إلى نؤى العالم تلؤمه الوصفو بنزود البول ألى هيذا الموسنه المرافاة المستلت ولرزه بللاروي عن عدر عن الدوي المناذا تذكون المحنلام والانزاله والمتزلدة معتكمها العنسار وأن لدنؤه سيلاو بماخد بخياطشابة وعمايم المدخال الأمام ستسوالهمة الحالو افي رعده الله ولا يو تحد جدنه الوو إرة لان النسا يقلن أن مبى المراه عوج من الداخل مني الأبل و في ظاهر ألو دابة ببشوط المؤوم من العرب الداخل

Fig. 5 (continuation)

C2/14 وأذأاخلال وانتقلل لمنعن مكائم الاالذلا فط عشريليه لأن الحزوج لعذا كالبخنى الاعزى الذا المزيد المعدا المرصلم المسركة اذااحتمائ ولم نز بلار ولي عن الاصول أنهاآ فانذكرت الاختلام والإنزال والتلذوفيلها الفسل وال نَرَ وَ بِلَلا وَبِهِ احْدًا لِمُسَّا بِحُ مَا لَ شَبُّ إِلَّا ثُمَّةً لِلْلُوا لِي وَكُا بِوَرَدُ وَلَعَلَمَا لُوطَ ٧٠١ لنست الملكر اليامني المدائم بخرج من الداخل كمني لأجلوب طا عواد وابنا بيغنزط الحئ وج من الغرج الداخل لا كامع العرج أ كادح لوجوب العسب حن لوانعضل المتى عن مسكانة ولم يخرج عن العنر جالد آخذا لي لفرح الخاارج ومشل عليها وبركان يفنوللغنفائدا يوجع طروشس الإين الحاوابي وفيصاري ويوي ابن عيدك امرأة أنا لت معيض منابي في لموا وسياله و مرادا وا جد من للنم ما احد جا معلی و جرورد کرایه لاغتراعلی تعلیا میران ما ما فالما استینفطا وحدامينا بينها وكالماحدمها يكل لاحتلام ونيكران المنه مندكا نالشبخ الاما اعِلمُنا الموجدا بنه لعفيل بينوك بوجوب الغيسل عبيها وموالا حنبياط ومزامليا بخ من فأك ان كان الماعل كا ابتطى فهوم ل لرج لغان كان وصفا اصعر للومن المرأة أكسرحيلا فاحتياد مغنيا عليدي اناق ووجدمية ماعلاقلا أويؤب فلاغب علته وكذ لكعالسكران اذااخا فأووجد مذباعل فخذه اويؤيه فلاغتياعليه وكذلك السكران ولبيرها اكالكوم لها والح اختلف لمنشا بخرب سبب وحوب الاغنيساك فآك بعضام سبب وجوظف الادة حاجرم عليه ليستهيءالجنا بلاوسياني بيئان ماحرم عليهما هلمه في نسم الذ ي إجرا الموع قال مجدرهم الدني الإصل وفي المراك والمنظر والعشل، الجنا يؤمن المأصّاع خديف ما بران رسول إسصال سبعيرة وسم كان يغين والصّاع فغيلاا بكنالخفض ريسول الدوفاك لعدكم من هوخلوس واكثر شعرا والقتاع يمنا ئيم ارطأ ل كل بطل بفيت من وهذا فول الحضيفة أوجه وفاك ا يوبوسع الصّاع حسَّن الطال وثلث يطل وبونوك الشَّافِي وَسَيًّا يِّها ن و لك 2 كاب الصوم ال شاكا مد نعالى رهادًا التنديس كما الأنا صدفا ينه الاوكننديم الوصوا سرا دمداوكل دلك ليبك بنند ببراك با بيستعل مزالك بندروا بننع عناحا ذحصل النطهروا بأس ان نعنسا والمرام من اناؤاحد لحديث عايشته رصى بسعنها فالشكت الاورسوك الدصل بمدعليه وسلم نعتسامن اناثوا حدركنت افول له يزد مرببتوك يزلي وآدا اجلبت المراة ع اوركا الميص بني بالحنا لل شاك اعتسك لأن فيرزيادة ده، ستظيف والألذ احد المدغين والاشاب اخرك الاعتسا كاعلى نظهر لا فالاغتناك للنظهر حنى بمنكر من أحر أالمصلاة والانزيان الجائيف ادا اخرالاعتنك الروزين ألصلا والمائم مورك ال المنصور مزالطهان رحماسه مكاكل عنستال علالاوج وكذاكما فرصوبي عليته عنبيذ كانت اوفعنرة وق

Table
Absolute and average characteristics of text density in the Paris manuscript 4457 (in characters—letters)

Fols.	Line 1	Line 2	Line 3	Line 4	Line 5	Line 6	Line 7	Line 8	Line 9	Line 10	line 11	Line 12	Line 13	Line 14	Line 15	Line 16	Line 17	Line 18	Average number of lines per page	Notes
fol. 10a	41	29	46	38	37	47	44	41	42	47	50	44	41	45	41	42			42.2	longer lines
fol. 10b	35	37	43	41	33	39	31	23	39	43	41	45	40	38	37	44			38.0	standard lines
fol. 11a	41	46	43	41	39	44	44	39	43	44	42	38	44	48	41	50			42.9	longer lines
fol. 11b	47	49	54	39	29	42	42	21	50	43	27	14	46	41	47	43	_		39.6	longer lines
fol. 12a	47	41	45	45	46	43	45	31	46	46	49	43	43	43	48	46			44.2	longer lines
fol. 12b	43	41	42	47	46	43	42	41	13	41	26	16	46	45	49	43			39.0	longer lines
fol. 13a	41	36	20	41	45	42	41	52	47	37	44	44	44	23	31	36			39.0	longer lines
fol. 13b	see note 13															_	_	longer lines		
fol. 14a	50	51	46	43	44	39	50	44	49	42	36	41	37	39	28	16			40.9	standard
fol. 14b	0	21	41	40	36	39	38	45	45	43	37	42	46	37	44	46		-	40.0	standard
fol. 15a	40	35	44	35	33	42	27	46	44	37	46	42	43	42	46	36	-		39.9	standard
fol. 15b	47	48	45	39	51	44	48	50	23	0	50	42	46	47	50	42			44.8	standard up to 6th line
fol. 16a								5	see note	13									_	longer lines
fol. 16b	35	39	40	42	10	0	35	40	31	39	45	37	38	45	<b>4</b> 7	34			37.2	longer lines
fol. 17a	47	36	48	43	56	39	49	44	54	45	51	47	19	0	0	44			44.4	standard
fol. 17b	49	41	49	47	45	44	49	51	40	44	34	0	48	34	0	46	_		44.3	longer lines
fol. 18a	38	0	50	57	52	60	48	47	45	41	48	52	50	57	54	59	44	46	49.8	longer lines 6—10
fol. 18b	44	44	50	42	46	<b>4</b> 6	46	34	17	42	39	51	52	46	0	51	43	39	43.0	longer lines
average	43.0	39.6	44.1	42.5	40.5	43.5	42.5	40.5	39.5	42.2	41.5	39.9	42.6	42.0	43.3	42.4	43.5	42.5	41.8	

The first one, as it is known, contains 9 restored folios of unknown origin. Only a part of this text can be collated with the second, Dublin manuscript — there also, as if on purpose, the text is interrupted by a lacuna. The two overlapping lacunae place several pages of the text of Fihrist beyond the reach of textological criticism, they are represented now only by one anonymous restoration. The authentic character of this fragment can be confirmed only by quantitative arguments: the correspondence between the size of the lacuna and the division of the manuscript by blocks and folios.

Taking this last into account, we can put the obtained results to a test in one more way - through the Dublin manuscript. First let us find conversion coefficients for the two sets of texts: 1) the original text of the Paris manuscript and Dublin manuscript; 2) the restored part of the Paris manuscript and the Dublin manuscript. In the first case it will be 44 lines of the Paris manuscript (fol. 8b, line 4—9b, line 16) and 30.5 lines of the Dublin manuscript (fols. 4b— 5a) giving the conversion coefficient of 1.44 (44:30.5). In the second case these are 16 lines of the restoration (fol. 10a) and the corresponding text of 12.5 lines in the Dublin manuscript (9.5 lines of fol. 5a and 3 lines of fol. 5b), which gives the conversion coefficient of 1.28 (16:12.5). Now we convert the text of the restored fragment (18 pages of 16 lines each) to the mistara of the Dublin manuscript, which has 25 lines:  $18 \times 16 : 1.28 =$ = 225 lines (or 9 full pages), and then convert this result to the *mistara* of the Paris manuscript:  $225 \times 1.44 : 16 =$  = 20.28 pages. In this way, reckoning the text of the restored fragment through the second (Dublin) manuscript we get the same result — 10 folios and 4.5 lines (reckoning error).

What attracts our attention in these last calculations is the conversion coefficient in the pair "restoration — Dublin manuscript" (1.28). In its "unwrapped" form it appears as the proportion 32:25, which reminds the ruling of the same texts — 32 lines make 2 pages of the restored fragment, 25 lines — a full page of the Dublin copy of Fihrist. It is more than evident that this relation is not just occasional. The scribe of the restored part was probably looking for the easiest way to fill the lacuna exactly, fitting it to the surrounding text. Finding that the 225 lines he was expecting to copy made 9 full pages, he decided to accept the closest exact number of pages multiple by 9, i. e. 18. Now he had only to check that every 25th line of the original was going to correspond the very last line on the reverse side of each folio of the copy he was making (i.e. the 32nd line) [16]. The comparison of the restored part with the Dublin manuscript shows that that was exactly the way of adjusting the density of handwriting, after each 25th line of the Dublin copy. This last one was most probably the protograph from which the restored part was copied.

With this discovery we approach a new for textology and study of sources category of direct evidence and arguments provided by the methods of quantitative analysis of manuscripts, which are also new in Arabic studies.

### Notes

- 1. On manuscript C 2114, see Arabskie rukopisi Instituta vostokovedeniia. Kratkii katalog (Arabic Manuscripts of the Institute of Oriental Studies. Concise Catalogue), ed. A. B. Khalidov, Pt. I (Moscow, 1986), p. 189, No. 3849.
- 2. Two folios once opening the 26th *kurrāsa* of the manuscript, preceding fol. 251, are cut out (without any loss to the text). This *kurrāsa*, previously having 10 folios like the rest, now has only 8 (3 in the first half, five in the second). Fol. 251 is its first leaf. The missing folios probably also contained repeatedly copied text.
  - 3. On both manuscripts, see Arabskie rukopisi Instituta vostokovedeniia, p. 224, No. 4731 (C 958) and p. 223, No. 4717 (C 711).
- 4. In Arabic manuscripts text usually starts from the verso side of the first folio, the recto side either performs protective functions or is reserved for the title of the work or for their owners' records. The ruling of 23 lines per page is maintained through the whole manuscript.
- 5. The suggestion of the presence of an 'unwān on this page makes us hope that the first leaf missing in the manuscript still exists somewhere. Formerly there was a fashion among collectors and those trading in manuscripts to collect illuminated leaves, cutting them from manuscripts. Some of these leaves have already come to museums and libraries, some still wander from auction to auction; see E. J. Grube, Persian Painting in the Fourteenth Century: A Research Report (Napoli, 1978), p. 12, n. 30). If our leaf has survived, there exist numerous features available to identify it: its size, width of the text (line), the number of lines, the last word on the page, as well as the whole text on it, the width of the main frame of the 'unwān' (corresponding to that of the text), and even that gold and blue are the dominating colours of the pattern (the colours of the frame surrounding the text of C 711).
  - 6. On these manuscripts, see Arabskie rukopisi Instituta vostokovedeniia, p. 189, No. 3849 (C 2114) and No. 3850 (C 2023).
- 7. E. W. Lane, An Account of the Manners and Customs of the Modern Egyptians (London, 1871), i, p. 265. It is noteworthy that a mistara-like instrument performing the same function was discovered comparatively recently among the Old Believers (Starovers) in Siberia; see N. N. Pokrovskii, "O drevnerusskoi rukopisnoi traditsii u staroverov Sibiri" ("On Old Russian manuscript tradition among the Siberia Starovers"), Trudy Otdela drevnerusskoi literatury (Instituta russkoi literatury AN SSSR), XXIV (1969), pp. 396—7, with a drawing. This article was translated into English, see N. N. Pokrovsky, "Western Siberian scriptoria and binderies: ancient traditions among the Old Believers", trans. from Russian by J. S. G. Simmons, The Book Collector, XX/Spring 1971 (1971), pp. 20—1 and pl. 1.
- 8. In some cases pieces of poetry in Oriental dīwāns are preceded by a brief prosaic introduction of one or two lines. This "admixture" taking a number of lines in a manuscript ruins the complete coincidence of the two account units we declare here. In every case this "admixture" should be estimated individually.
- 9. The Fihrist of al-Nadīm. A Tenth Century Survey of Muslim Culture, ed. and trans. by Bayard Dodge (New York—London, 1970), 1, p. 351; for the Arabic text, see Kitāb al-Fihrist. Mit Anmerkungen hrsg. von G. Flügel, nach dessen Tode besorgt von J. Roediger und A. Mueller. Bd. 1, den Text enthaltend, von. J. Roediger (Leipzig, 1871), p. 159:18—20.
- 10. It is possible that a far echo of this most simple characteristic of the volume of manuscripts through account units of paper (folio) and text (line) is the never explained but sometimes appearing in descriptions of Arabic manuscripts manner to express the volume

through two rather far related features, for instance: "48 folios (...) of 21 lines per page"; see I. Iu. Krachkovskiĭ, *Izbrannye sochineniia* (Selected Works) (Moscow—Leningrad, 1960), vi, p. 507.

- 11. Exclusions from this rule are very rare, but still they do exist. One of them is Ismā'īl b. al-Muqrī's work 'Unwān al-sharaf al-wāfī fi'l-fiqh wa'l-tārīkh wa'l-naḥw etc. (GAL II, 190, § 10, 1; SB II, 254, § 10, 1, 1). It is a prosaic text with a fixed length of lines, like in verse. On this unusual literary work, see my paper "Arabskoe srednevekovoe sochinenie-krossvord" ("The Arabic medieval composition-crossword"), Rossiia i arabskiī mir. Nauchnye i kul'turnye sviazi, fasc. 2 (St. Petersburg, 1996), pp. 47—55, especially pp. 50—4.
- 12. It is more evident here than in versified texts that the real text unit is not the line of a manuscript but the number of characters-letters it contains. Line is just a particular form in which this unit is realised in this or that manuscript. To some extent, possibly, with the feeling of this measure of text the absence of spans between words in manuscripts is connected. The introduction of spans could have possibly led to disappearance of the conversion effect to which this article is dedicated.
- 13. Folio 13b containing verse, which should be counted by line, and folio 16a with samples of Old Persian writing different from Arabic are excluded from reckoning by letter in the *Table*. Also excluded are 9 lines reserved for samples of other non-Arabic alphabets but left blank (zero mark in the *Table*). All these passages were not taken into account when working out average characteristics. Later, however, when converting, for example, the whole text of the restored part, all these omissions were replenished according to the average text density; it possibly affected the errors which every time occur in calculations.
- 14. It is enough to look at the cycled fluctuations which are specially underlined in the *Table*. These extremities and other less prominent fluctuations of density can be explained not by some natural unstableness of the scribe's handwriting but by the specific character of his task. He was not just copying the text, like in other cases, but inserting it within the frames set not by himself but by the size of the *lacuna*. In this way he had to keep watch on the gradually diminishing paper space maintaining the balance between it and the remaining portion of the text. In this position corrections of the density of handwriting are inevitable.
- 15. The density of handwriting of the principal scribe of the Paris manuscript is reckoned in the following way: on fol. 9b (page before the restored part) there are 16 lines containing in all 600 characters (600:16=37.5 characters per line). On fol. 19a (after the restored part) there are also 16 lines containing 608 characters (608:16=38 characters per page). The average is -1,208:32=37.5)
- 16. If he selected a different *mistara*, say of 21 lines, the calculations would be the same. The conversion coefficient -42:25=1.68; the number of lines in the copy  $-225\times1.68$ ; the number of pages in the copy  $-225\times1.68:21$ , the number of folios  $-225\times1.68:42$ ; the number of characters in one line of the copy is 1.68 times less than in the original. Not to go beyond the limit of 18 pages, when making a copy, the scribe was striving every 25th line of the original to correspond to the last, i. e. to the 42nd line of each folio of the copy.

### Illustrations

- Fig. 1. Ibn Māza (d. ca. 570/1174), al-Muḥīt al-burhānī fī-l-fiqh al-nu'mānī. Manuscript C 2114 in the collection of the St. Petersburg Branch of the Institute of Oriental Studies, vol. I, fols. 250b—251a.
- Fig. 2. Mullā Khusraw (d. 885/1480), Durar al-hukkām fi sharh Ghurar al-aḥkām. Manuscript C 958 in the collection of the St. Petersburg Branch of the Institute of Oriental Studies, fol. 2b.
- Fig. 3. The same manuscript C 958, fol. 3a.
- Fig. 4. Mullā Khusraw (d. 885/1480), Durar al-hukkām fī sharḥ Ghurar al-aḥkām. Manuscript C 711 in the collection of the St. Petersburg Branch of the Institute of Oriental Studies, fol. 1a.
- Fig. 5. Ibn Māza (d. ca. 570/1174), al-Muḥīt al-burhānī fī-l-fiqh al-nu'mānī. Manuscript C 2023 in the collection of the St. Petersburg Branch of the Institute of Oriental Studies, vol. I, fols. 22b—23a.
- Fig. 6. Ibn Māza (d. ca. 570/1174), al-Muhīt al-burhānī fī-l-fiqh al-nu'mānī. Manuscript C 2114 in the collection of the St. Petersburg Branch of the Institute of Oriental Studies, vol. I, fol. 1a.