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### Front cover:

"Zulaykhā recognises in Yūsuf, who is led as a slave before the Pharaoh's palace, the youth whom she saw in a dream". Miniature to the poem Yūsuf wa Zulaykhā by Nūr al-Dīn 'Abd al-Raḥmān Jāmī. Gulshan, manuscript E 12 in the collection of the St. Petersburg Branch of the Institute of Oriental Studies, fol. 203b, 37.0 × 27.2 cm.

### Back cover:

- Plate 1. "Wedding celebrations of the young ruler of Ḥalab and Gul". Miniature to an untitled poem by Muhammad Kāzim b. Muḥammad Riḍā, the same manuscript, fol. 116a, 36.8 × 29.0 cm.
- Plate 2. "Yūsuf, rescued from the well, among the members of the merchant Malik's caravan". Miniature to the poem Yūsuf wa Zulaykhā by Nūr al-Dīn 'Abd al-Raḥmān Jāmī, the same manuscript, fol. 202a, 36.3 × 25.2 cm.

## RUSSIAN ACADEMY OF SCIENCES THE INSTITUTE OF ORIENTAL STUDIES ST. PETERSBURG BRANCH



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## **MANUSCRIPTS CONSERVATION**

N. M. Brovenko

## AN ARABIC BIBLE IN THE COLLECTION OF THE ST. PETERSBURG BRANCH OF THE INSTITUTE OF ORIENTAL STUDIES: THE PROBLEMS OF RESTORATION

The manuscript of the Arabic Bible (D 226) preserved in the collection of the St. Petersburg Branch of the Institute of Oriental Studies was brought to Russia in 1913 and presented to Nicholas II by Gregory IV, Patriarch of Antioch, on the three-hundredth anniversary of the Romanov dynasty [1]. The Patriarch gave as gifts 42 manuscripts which entered the Personal library of His Majesty. In 1919, the manuscripts were transferred to the Asiatic Museum, the predecessor of the St. Petersburg Branch of the Institute of Oriental Studies. The Bible was translated in Damascus in 1236 by Sabbas Lavriot, whose secular name was Pimen of Damascus. The translation was made from a manuscript two copyists and adorned with a rather crude miniature in the first volume [2].

The manuscript in the collection of the St. Petersburg Branch of the Institute of Oriental Studies is the oldest full copy of Biblical texts translated into Arabic. Earlier known versions contain only translations of individual sections. The manuscript contains 757 folios and is bound in three volumes (I — 254 fols.; II — 233 fols.; III — 270 fols.). Their dimensions are  $32.0 \times 23.0$  cm. The folios were presumably restored and bound in the mid- or end of the nineteenth century. Tears, losses, worn edges, and grooves were glued over with rag paper; the fly-leaves are also fashioned from such paper. The bindings of the volumes are European, stitched with four cords, with sealed backs and covered in black leather. The cover is decorated with a coldpressed blocking featuring parallel lines, which form a border and a rhombus. The centre contains a composite rosette with spirals and small stars at the edges. It seems that the folios were originally of large format, as the pages do not have an upper margin and the text is located too close to the binding; the folio dimensions are  $30.0 \times 21.6$  cm.

The paper of the manuscript is thick (0.3 mm), greyyellowish in colour, and glossy. The ink is black (although it has turned reddish) and red. Many of the letters are halferased with time. The text is in two columns on both sides of the folios.

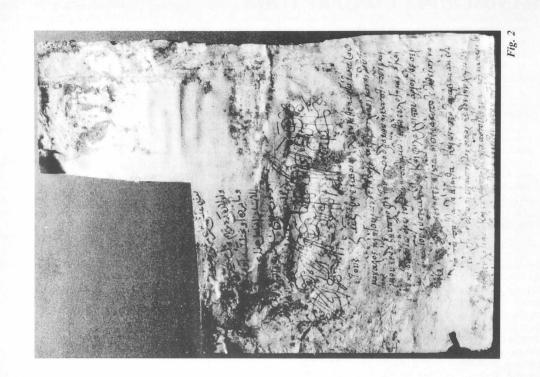
One of the folios in the first volume, namely folio 4, drew our special attention. It was pasted together from two sheets (henceforth cited as fols. 4-I and 4-II) between which

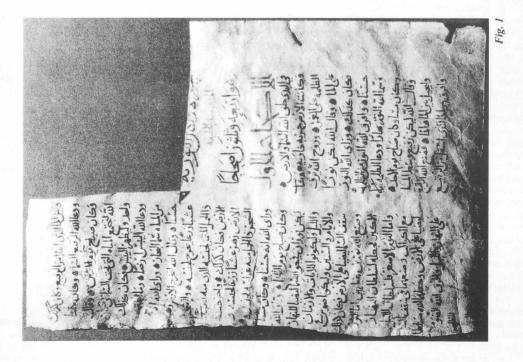
was inserted a groove of white rag paper. In the upper right corner of the reverse side of this single fol. 4, that is fol. 4-IIb, a square was cut out and white rag paper similar to that in the groove and fly-leafs was pasted in. The outer lower corner of the folio was separated into its layered components by a curious reader who, glimpsing letters within, attempted to uncover them. He was, however, unsuccessful; a layer of paper covered the letters. During conservation work on the manuscript the attempt was made by the author of the present article to separate the pasted-together folios and discover the unknown text.

At first, research was conducted on the composition of the paper in terms of fibre and connective material. A sample was prepared for analysis by removing the products of pulp oxidation and adhesive substances; the paper then took on a white colour. It became clear that the basic pulp is made up of hemp, but with significant variations — folio 4-I consists of 75—80% hemp, 15—20% cotton, and approximately 5% wool fibres and animal fur.

Folio 4-II is in composition nearly the same as folio 4-I, with the addition of groups of downy plucked fibres of wool (with follicle bulbs) and, as an admixture, fragments of silk fibres. This difference in the composition of the paper impelled us to continue our research on other folios of the manuscript in order to answer the question: which of the folios, 4-I or 4-II, is analogous in composition to the other folios in the book? Samples were taken from fols. 61, 71, 162, and 254 of the first volume. The result was that all were analogous in composition to fol. 4-I. In all folios the hemp and cotton were not a product of the textile pulping process. It is obvious that to produce the paper, plant material was employed directly. Evidence for this is provided by the presence in the samples of such structurally non-fibrous elements as bast cultures and cotton, for example: vessels, segments of capillary vessels, short tracheids with pointed tips, etc. [3].

Thin-layered chromatography and microchemical analysis showed that the connective material in the paper mass consists of starch and animal glue, located in large quantities in the upper layers of the paper. Also present are extremely small particles of vermilion. X-ray fluorescent analysis established the presence of mercury in the compo-





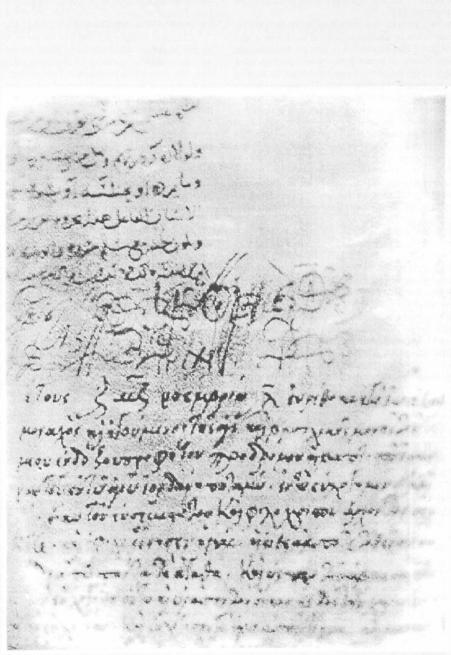


Fig. 3

sition of the paper of fol. 4-II (perhaps in the paint or in the connective material) [4].

The analysis showed that the paper in fol. 4-II differs from the other folios in the first volume of the Bible. It also became clear that it was impossible to employ moistening in separating the folios. A steam pencil was therefore used. First the edges of the folios were separated from the binding of the book and removed from the fold. The separation then proceeded from the edges to the centre. Progress was extremely slow, as the thin stream of steam was directed between the paste and paper of fol. 4-1b for only 3 or 4 seconds. After that the paste was carefully removed with a scalpel. When a gap of 1 to 2 mm was formed, the steam and scalpel were applied again. At least one hour was required to remove a section of 1—2 cm<sup>2</sup>. The paste between fols. 4-I and 4-II was applied thickly and unevenly, leaking into the text in places. As a result, it was impossible to remove the paste in full, as the brief steam action was insufficient to exert a loosening effect deep within the paste and the effect of intermingling between ink pigments and paste was too great. Furthermore, moistening the paper and swelling in its connective material could bring damage. This could lead to the separation of the paper into layers, the deformation of the component fibres and the loss of ink pigments on the reverse side of the paper. We were especially concerned about the red ink which had a weak connection to the paper.

The work has led to an unexpectedly discovery on the reverse side of fol. 4-II of two separate notes — ten lines of Greek text and six lines in Arabic. The Greek text is located in the lower section and is cut short on the final line. The Arabic is on the left of the centre and the upper line is cut

off. Between them is a fairly complex ornamental illumination. Numerous traces of paste partially cover elements of the letters or even entire letters.

Chemical analysis showed that the Greek text is written in ink based on charcoal from burnt bones with water-soluble connective material of a protein (albuminous) nature. The Arabic text is written in ferro-gallous ink prepared on the basis of an aqueous extract of nut-gall combined with ferrous salts. The connective material is also water-soluble and of a protein nature.

The paste used to paste together fols. 4-I and 4-II is protein-based (animal). Added to it were chalk (as an antiseptic) and phenol, which as a result of ageing darkened and gave the paste a rose colour. Once dried, the paste is very hard, monolithic, and holds firmly to the paper and ink. It can only be loosened with a large quantity of warm water. In removing the paste, we would risk losing letters. Taking into account the organic nature of the paste, however, we can see the inscriptions in full under infrared light [5].

One may suppose that fol. 4-II appeared in the manuscript of the Arabic Bible after 1236. The first and last pages in books usually suffer the most wear over time. It is possible that fol. 4-II was inserted into the manuscript to replace a destroyed or lost folio. The Greek and Arabic inscriptions were also made before the restoration of the folios (taking into account the fact that the lines are cut short) and were later pasted in during binding, probably at the client's request.

The reconstruction and translation of these inscriptions by specialists will, we hope, add some interesting information to what we know about this Arabic Bible.

### Notes

- 1. For the description of the Bible, see Val. Polosin, E. Rezvan, "To the CD-ROM edition of the St. Petersburg Bible", *Manuscripta Orientalia*, III/1 (1997), pp. 40—7.
- 2. I. Iu. Krachkovskiĭ, "Arabskie rukopisi iz sobraniia Grigoriia IV, Patriarkha Antiokhiĭskogo" ("Arabic manuscripts from the collection of Gregory IV, Patriarch of Antioch"), *Izbrannye sochineniia* (Moscow—Leningrad, 1960), iv, pp. 422—44.
  - 3. Chemical research was carried out in the Hermitage studio by L. S. Gavrilenko and B. A. Miklaychuk.
  - 4. X-ray fluorescent analysis was conducted in the studio of the State Russian Museum by S. V. Sirro.
- 5. Infrared inspection and photographing was conducted in the studio of the State Russian Museum by S. I. Bogdanov and S. V. Sirro.

#### Illustrations

- Fig. 1. The Arabic Bible, manuscript D 226 (vol. 1) in the collection of the St. Petersburg Branch of the Institute of Oriental Studies. Recto of fol. 4-II in the process of restoration and after separation of a later glued sheet, 32.0 × 23.0 cm.
- Fig. 2. The same manuscript, vol. 1. Verso of fol. 4-II with inscriptions in Arabic and Greek (after separation of a later glued sheet).
- Fig. 3. The same manuscript, vol. 1. Verso of fol. 4-II with inscriptions in Arabic and Greek (after separation of a later glued sheet), infrared photographing.