

**LES ENLUMINURES, LTD**  
2970 North Lake Shore Drive 11B  
Chicago, Illinois 60657

tel. 1-773-929-5986  
fax. 1-773-528-3976  
chicago@lesenluminures.com

**LES ENLUMINURES**  
Le Louvre des Antiquaires  
2 place du Palais-Royal  
75001 Paris

tél : 33 1 42 60 15 58  
fax : 33 1 40 15 00 25  
info@lesenluminures.com

**YOSEF BEN YEFET HA-LEVI, *Ner Yisrael* (The Lamp of Israel) and MUHAMMED IBN ABI BAKAR AL-FARSI, *Al-Zij al-Muzaffari* [An Anthology on Astronomy]**  
In Arabic, written with Hebrew letters, manuscript on paper  
[Yemen, c. 1400-25]

*i + 97 i* (modern collation: *i*<sup>1</sup>, *ii*<sup>45</sup>, *iii*<sup>27</sup>, *iv*<sup>24</sup>, *v*<sup>18</sup>, *vi*<sup>12</sup>, *vii*<sup>4</sup>, *viii*<sup>4</sup>, *ix*<sup>4</sup>) on paper, paper size 246 x 187 mm, no watermarks, modern foliation in pencil using Arabic numerals on recto side upper left fore edge (ff. 1-96), medieval catchwords in lower left hand verso side near spine edge, primary text written in Yemenite script using black ink, marginal notes and writings on guard pages written in Yemenite script using brown ink, at least four additional scribes provide marginalia in primary text using Yemenite script and Arabic script in rubric and black ink, single column text, 22-26 lines per page (justification 185 x 135 mm.), table justifications in rubric, ONE HUNDRED AND THREE LARGE ASTRONOMICAL TABLES on ff. 10r-13r, 14rv, and 42r-93r (justification 195-205 x 145-150 mm.), TWO SMALLER ASTRONOMICAL TABLES on ff. 8r (justification 155 x 75 mm.) and 13v (justification 148 x 120 mm.), THREE ASTRONOMICAL DIAGRAMS in brown ink on f. 95r (115 x 115 mm), f. 95v (115 x 115 mm, unfinished), and f. 96r (70 x 70 mm), four foliation errors (loose singleton and first bound folio both numbered as 1, ff. 34-39 read 36, 36, 36, 37, 38, 36, f. 84 skipped, and f. 85 repeated), folio 1 (= f. 1a) is a loose singleton (175 x 227 mm), ff. 94-96 are singletons attached by modern paper hinge to last quire, ff. 15r-16r originally blank, table justifications without with non-quantitative secondary text on ff. 43r, 54r, 65r, 68r, and 71r, unfinished marginal astronomical table on f. 15v in black and purple ink, scribal correction f. 33v, marginalia found throughout text and tables, marginalia in Yemenite script in rubric on ff. 36v, 37rv, and 38r, rubricator correcting text on ff. 37rv and 38r, folios partially detached from sewing on ff. 67-88, and 83, edges of paper trimmed or worn affecting marginalia on ff. 31, 32, 34-39, and 60, heavy soiling, chipping to edges, and wear on the loose singleton and ff. 1-2 and 92-96 affecting text, water damage to margins affects marginalia on ff. 30 and 36, light water damage appears in upper margin throughout manuscript, light to medium browning to paper throughout manuscript, heavy thumbing and wear on ff. 35-36, small tears to lower margin on ff. 1-10, 47-50 and 57, light worming to margins on ff. 1-2 and 81-90, paper splitting near lower sewing edge due to worming on ff. 28-35, upper right corners creased and folded on ff. 38-40, light bleeding of ink on ff. 13, 31-32, and 37, blue ink stain on f. 1r, ff. 45-50, 55-61, mildew stains near sewing edge and upper and lower corner margins on ff. 45-46 and 93-96, medium size damp stain on ff. 14-15 and 69 not affecting text, sporadic small ink smudges throughout manuscript not affecting text, medieval paper repair to singleton (f. 1r) and f. 31, modern pencil underlining and notabene on f. 23v, modern paper repairs on ff. 11-14 and 59-80, Ex libris Yosef Kafah in purple ink stamp on ff. 1r and 62r. (Despite the age and the wear on the original guard pages and first and last folios the primary text is remarkably clean and legible). Bound in modern brown blind stamped leather binding over cardboard, with gilded library catalogue information on spine, "14<sup>TH</sup> CENT. MS. ASTRONOMIA [Hebrew TEXT]," modern heavy bonded paper used as pastedown and flyleaves, original medieval sewing holes and string fragments are still visible after modern rebinding. Dimensions 260 x 205 mm.

Anthology of two important Yemenite works on mathematical astronomy, both of which are extremely rare and remain unedited. The first, known in only nine manuscripts, is the earliest known of the text; and the second by the well-known astronomer al-Farisi, known in only three other manuscripts contains, as well, important information on a "zij" that is no longer extant.

## PROVENANCE

1. Written in Yemen, perhaps in San'a, around the beginning of the fifteenth century. San'a is an ancient Yemeni city dating back to the sixth century B.C., and after being the capital of the Ethiopian viceroys, it became in 570 the capital of the Persians. The present manuscript dates before the arrival of the Mamelukes in 1517. Yemen supported a robust community of Jews, the only non-Muslim minority.
2. Rabbi Yosef Kapach Kafah (born in Sa'ana [Yemen] 1917; died 1999 in Jerusalem), the leading scholar of the Yemenite community in Jerusalem, fluent in Arabic and Hebrew, and the foremost scholar on Maimonides whose Mishnah Torah he reissued in twenty-four volumes. Rav Kapach's grandfather, Rabbi Yehiah, had an extraordinary library, which Rav Kapach brought to Israel and enhanced. It is said that "these ancient manuscripts were collected from travelers or found in the graveyards of Sa'ana. It had been common to place torn books and pages of holy works in ceramic jars and bury them in the cemetery. Whenever there were heavy rains, the young Kapach would go exploring in the graveyard, often returning with the contents of broken jugs—singular remains of forgotten halachic works."

## TEXT

ff. 1v-9v, *Ner Yisrael* "Zig," a composition dealing with astronomy in keeping with Maimonides' laws of the Sanctification of the Month, by R. Yosef ben Yefet Ha-Levi. "*al almaznaf ... elfakir ali Allah ta[ali]*" Yosef Ha-Levi bar Yefet Ha-Levi [may his name be glorified forever] disciple of Rabbi Shlomo son of Benayah of blessed memory *vean Allah lama min ali veitam abasanbu ali' wafkani betalif badi' alzig alfama lemerfab molad* (the precise moment of the appearance of the new moon) *almabazir wealsniin wealsbhor wemerfat altabawil alustannyah wealhakikyah ... wazeta ali rai sydna maz zalmatna Musa ben Maimon alIsraeli* [peace be unto him] [=said the author .. who is in need of the Lord His name be praised Yosef Ha-Levi son of Yefet Ha-Levi may his name be glorified forever, disciple of Rabbi Shlomo son of Benaya, may he rest in peace. Since the Lord was kind to me and increased his kindness to me and assisted me in this composition on astronomy that includes information regarding the cycles of the precise moment of the appearance of the new moon and the years and the months and knowledge of their median and true transformations .. and I did so on the basis of the knowledge had from our master and enlightener of our darkness Moshe ben Maimon peace be unto him ...].

Composed by Yosef ben Yefet ha-Levi, the *Ner Yisrael* (The Lamp of Israel) is an astronomical treatise copied in at least nine other mss. One is dated 1455, two others are from the fifteenth century, and all others are from the eighteenth to twentieth centuries. The exact dates of the author are unknown, but the earliest examples in the book concern the 19 year cycle no. 271 (from 5131=1370 to 5149=1389) and in some mss cycle 274, beginning 1428, is quoted, although this may be a later gloss. So, it is probable that the author lived around 1400. Since it is not possible to date the present manuscript more accurately (there are no watermarks and the script could be from the fourteenth or fifteenth centuries), it would be prudent to propose a date from the early

fifteenth century. Thus, the present manuscript is one of the earliest known of this text on astronomy.

ff. 10r-14v, Astronomy tables concerning the true positions of the sun and the moon. According to Langermann, these tables appear in only some of the manuscripts and they are taken from another *Zij* (tutorial for learning astronomy) found in MS Berlin Qu. 682, which may also have been composed by Joseph ben Yefet ha-Levi (Langermann, 1987, p. 19).

ff. 16v-42v, "*Al-Zij al-Muzaffari*," an astronomy composition by a Moslem astronomer, Muhammed Ibn Abi Bakar al-Farisi, written in honor of, or under the patronage of, Daoud Almuzaffar, apparently one of the Mongol rulers. The *Al-Zij al-Muzaffari* contains explanations and tables for computing and comparison of dates of the calendars of Muslims, early Persian, Greek, Coptic, Syrian, Hebrew, and others. The author writes in his introduction: "*Kal alfakir eli Allah ta [ali] Muhammed ibn Avi Bakar Alfarsi// lama sharfani Allah ta [ali] bedkam almakam ala azam mulana alsiad alajal alalam alfazal aladal alchamal Daoud Almuzaffar almanzur elmeelek Almuzaffar shams aldina waldin saltan alaklam fi alalmen jama alfad'il alartab wealajam [...] waugavt ali nafsi an ulf ziga ...*" [=said the needy may God be praised; Muhammed ibn avi Bakar, the Persian ... when God be praised did honor me with the great and significant service to our master who rules over us, the high, wise and very kind, righteous, perfect Daoud Almuzaffarler (in the script of Yemenite Jews, the letter in the name is pronounced: Almuzaffar, which means the "victorious") sun of the world and the religion, ruler of the Arabs and Persians ... I took upon myself to compose this important astronomy composition ...].

According to King (pp. 23-26), "Al-Farisi was a scholar of wide learning, author of several works on astronomy, medicine, music and magic. His father had emigrated from Persia (hence the name al-Farisi), but al-Farisi himself was born in Aden. He later worked in the service of the Rasulid Sultan al-Muzaffar and died in 677 Hijira (= 1278/9). King cites another date for his death which "seems secure": 629 Hijira = 1231/2.

On this work *Al-Zij al-Mumtaban al-Khaza'ini* or *al-Zij al-Muzaffari* or *Zij al-Farisi*, King writes (p. 25): that the "planetary tables which are computed for the Persian calendar, are based on the paramaters of al-Fahhad derived (in Iraq?) a century previously." None of the "zijes" of al-Fahhad are any longer extant, so al-Farisi's work is an important source for our knowledge of his tradition, according to King, who goes on to note that the introduction to the present *zij* mentions "no less than twenty-eight earlier *zijes*" (p. 25). King lists only 3 Arabic manuscripts of the "zij."

The work is also found in Hebrew script in MSS British Library Or. 4104 (only the tables) and Jewish National Library Qu. 478 (without the tables) and British Library Oct. 1399 (parts) and extracts in a few other mss. It appears, therefore, to be quite rare.

ff. 43-93v, Astronomy planetary tables, spherical astronomical tables based on the latitude of Sa'ana etc.

Studied by Sluter, Brockelmann, Kennedy, and most recently King, Yemenite mathematical astronomy is important to the history of science and Islamic studies because "they constitute part

of a tradition that knew no rival between the eighth and fifteenth centuries" (King, p. 3). Evidently, some of the manuscripts preserve material from Iraqi, Egyptian, and Maghribi sources; others contain material not known from extant Islamic sources. Islamic mathematical astronomy in medieval Yemen was ultimately derived from non-Arab sources, namely Indian, Sassanian, and Greek traditions.

## LITERATURE

Brockelmann, Carl. *Geschichte der Arabischen Litteratur*, Leiden, E. J. Brill, 1898, repr. 1996.

Kennedy, E. S. *Astronomy and Astrology in the Medieval Islamic World*, (Variorum Collected Studies Series CS600), Aldershot & Brookfield, VT, Ashgate-Variorum, 1998.

King, David. *Mathematical Astronomy in Medieval Yemen—a Bio-bibliographical Survey*, California, Malibu, Undena Publications, 1983, pp. 23-26.

Langermann, Y. T. *The Jews of Yemen and the Exact Sciences* [in Hebrew], Jerusalem, 1987, pp. 18-19.

Ratzaby, Y. *Yemenite Jewish Literature* [in Hebrew], Kiriat Ono, 1995, pp. 220-222.

Suter, H. *Die Mathematiker und Astronomen der Araber und ihre Werke*, Leipzig 1900, no. 139.

## ONLINE RESOURCES

The Renaissance of Astronomy in Baghdad

[http://web.uni-frankfurt.de/fb13/ign/astronomy\\_in\\_baghdad/bibliography.html](http://web.uni-frankfurt.de/fb13/ign/astronomy_in_baghdad/bibliography.html)

Mathematical Sciences in the Medieval Islamic World, Bibliography

<http://facstaff.uindy.edu/~oaks/Biblio/Intro.htm>

Center for Islam and Science: Annotated Bibliography

[http://66.249.93.104/search?q=cache:DYNd4\\_O9LuJ:www.cis-ca.org/index.php%3Fpage%3DAnnotated\\_Bibliography+brockelmann+islam+science&hl=en&ct=clnk&cd=15](http://66.249.93.104/search?q=cache:DYNd4_O9LuJ:www.cis-ca.org/index.php%3Fpage%3DAnnotated_Bibliography+brockelmann+islam+science&hl=en&ct=clnk&cd=15)