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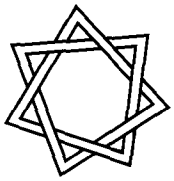

THESA
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PRESENTING THE MANUSCRIPT

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ON THE DISCOVERY OF A PRINTED MANCHU TEXT BASED ON EUCLID'S "ELEMENTS"

Matteo Ricci's Chinese translation of the six books of Euclid's "Elements" has rightly been considered a milestone in the history of the so-called "cultural exchange" between Europe and China. Published under the title *Jige yuanben* 幾何原本, this work attracted the attention of historians, mathematicians and linguists, and has recently become the object of a detailed study by the Dutch scholar Peter M. Engelfriet [1], to which we owe all bibliographical references.

The Manchu translation from the Chinese text was generally supposed to have been made by the Jesuit Ferdinand Verbiest (1623—1688) on order of the Kangxi Emperor, who evidently preferred to have access to such a complicated topic through his mother tongue, which seems to prove the supposition that, at least in Emperor's younger years, Manchu was more familiar to him than Chinese [2]. It was also supposed that only one copy of the Manchu version was made (that for the Emperor's personal use), which could explain the very few researches on the topic were carried out both in China and Europe. In Europe, only one article entitled "Euclide en chinois et mandchou" by L. Vanhee was published in 1939 [3]. The author devoted just a few lines to the Manchu version:

> "Verbiest, professeur de l'empereur K'ang-hi, mit en Mandchou les six premiers livres d'Euclide, d'après le chinois. Plus tard Bouvet et Gerbillion expliquèrent également la géométrie à K'ang-hi. Bouvet (*Portrait historique de l'Empereur de la Chine*, p. 129), parlant des Éléments, écrit: 'Nous les avons composés en tartare'. Ces traductions sont restées manuscrites" [4].

Similar conclusions are also found in an earlier note by Chen Yinke published in 1931 [5], which refers to the only known manuscript kept in the Library of the former Imperial Palace in Peking [6]. This manuscript entitled *Gi ho yuwan ben bithe* and subdivided to three fascicles is now kept in the Library of the Palace Museum (*Gugong bowuyuan tushuguan*); the second, if incomplete, copy is found in the National Library of Inner Mongolia (*Nei Menggu zizhiqu tushuguan*) [7]. The copy in the Library of the Palace Museum is jealously guarded, and it is not accessible to "outsiders". An idea of its format can be taken only from the article by Li Zhaohua, which gives a reproduction of the two pages, quite illegible though [8]. The other two pages of the copy, in excellent colour reproduction, are found on p. 137 of the book *Liang chao yulan tushu* [9]; its chief compiler, Zhu Jiajin, ascribes the authorship not to Verbiest but to the French Jesuits Joachim Bouvet and Jean-François Gerbillon, in contrast to the general opinion that the author was Ferdinand Verbiest, as stated — among others — in the authoritative works of Louis Pfister [10]. Zhu Jiajin also gives the year 1690 as a probable date of the work's compilation. Doubts concerning Verbiest's authorship have been also expressed by Noel Golvers, quoted by Engelfriet as follows:

> "Verbiest, in one of his letters, wrote that Kangxi wanted a Manchu translation of Euclid. If this translation was ever made, it could not have been made before 1675, as before that period Verbiest did not master Manchu. On the other hand, H. Bernard-Maître mentions that around 1673 Ferdinand Verbiest prepared a translation into Manchu on the request of Kangxi. It could be that the date is incorrect, but it seems very doubtful that Verbiest ever made such a translation" [11].

Some interesting information, which, unfortunately, adds more confusion, is found in Gerbillon's writings. As one can judge from his texts published by Du Halde, on March 8, 1690, Gerbillon — together with Bouvet, Pereira and Thomas — had to bring to the Emperor some pages from Euclid translated into "Tartar" and to explain to him the first proposition. Next day, during the explanation of the second proposition to the Emperor, a dignitary "Tchao laoge" came in and informed the Emperor that Ricci's Chinese translation of Euclid's first six books had already been translated into Manchu some years ago; he also said that by consulting this Manchu translation it would be easier to study the subject, especially if the translator would be called for consultation. The Emperor agreed with what he was proposed and gave order to bring that translation together "with the translator" [12]. Unfortunately, Gerbillon failed to mention the name of the translator, who, however, could not be Verbiest, the latter died in 1688. Who, then, was that translator still alive in 1690?

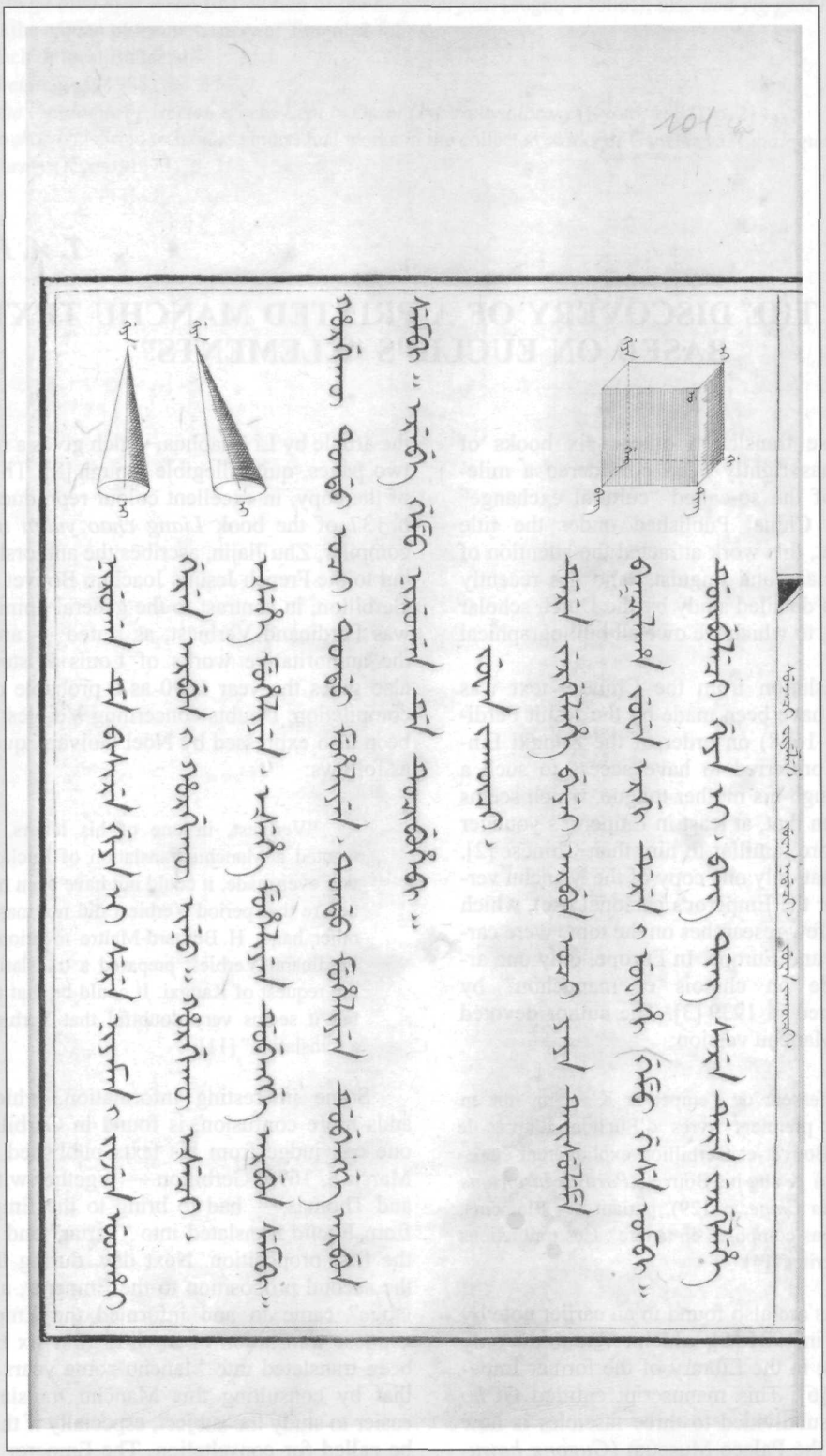

Fig. 1

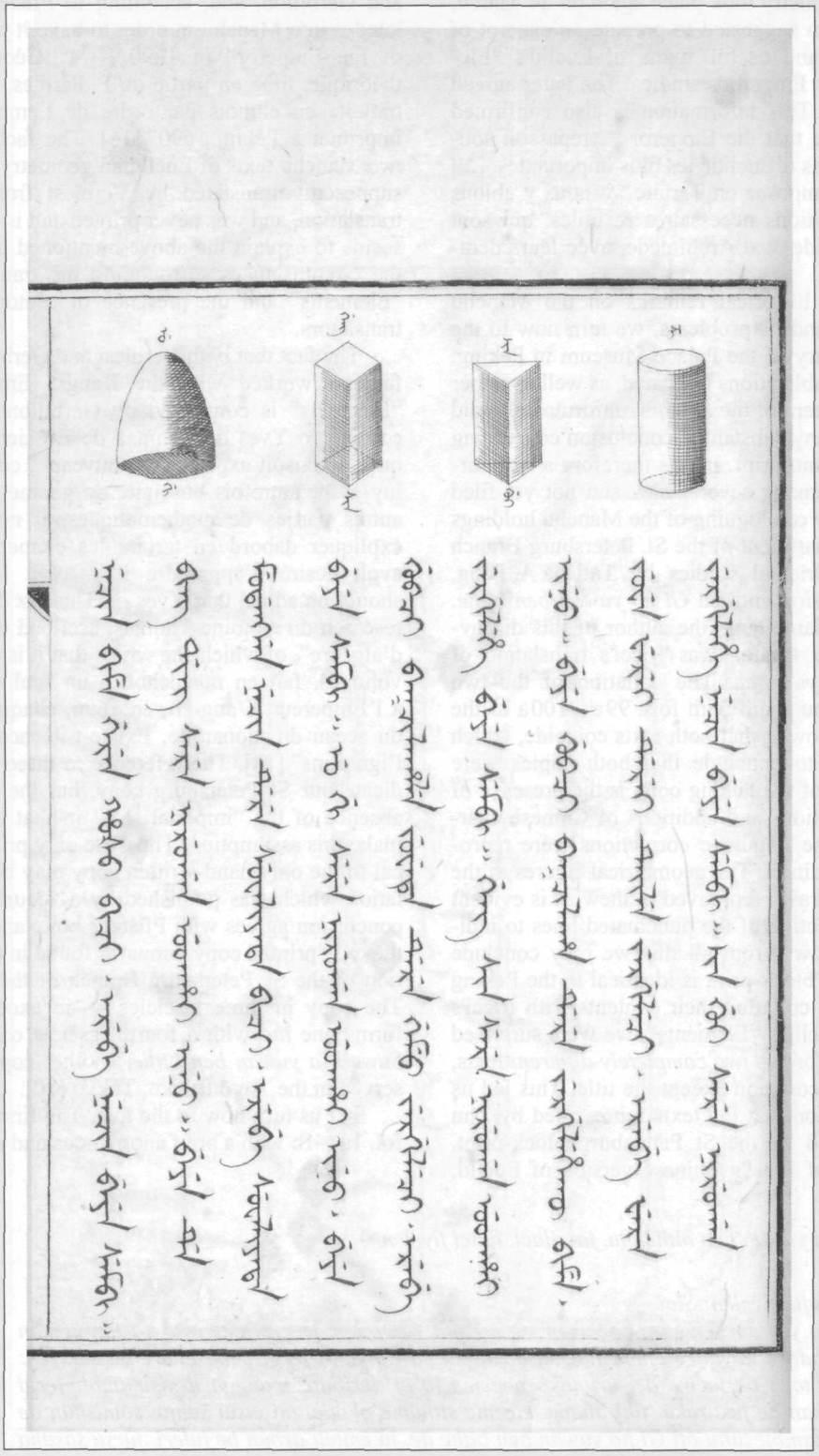

Fig. 2

The available sources provide no answer to this question. The only possible translator may be Verbiest, but, if so, we have to assume that a mistake in dating the event was made or to consider the reference to the translator, called to the emperor, to be a historical inaccuracy. Anyway, we know that the lessons of geometry took place again on 24 March, and this time Gerbillon suggested to prepare an excerpt of the "most necessary and useful" parts of Euclid's "Elements" to facilitate the Emperor's studies. The latter agreed with enthusiasm [13]. This information is also confirmed by Bouvet, who wrote that the Emperor "...repassoit souvent sur les propositions d'Euclide les plus importantes. [...] Nos les luy avions composez en Tartare, & nous y abions mis toutes les propositions necessaires & utiles, qui sont dans les livres d'Euclide & d'Archimede, avec leurs demonstrations" [14].

After these brief historical remarks on the Manchu translation of Euclid and its problems, we turn now to the copy kept in the Library of the Palace Museum in Peking. Its mention in a few publications indicated, as well as rather scarce comments on them of the authors, unfortunately, did not allow us to make any substantial conclusion concerning the contents of the manuscript. It was therefore a real surprise to discover — among several new and not yet filed works — during a new cataloguing of the Manchu holdings in the Manuscript Department of the St. Petersburg Branch of the Institute of Oriental studies by Tatiana A. Pang, a *printed* Manchu version entitled *Gi ho yuwan ben bithe*. First it seemed to Tatiana Pang, the author of this discovery, that this Manchu version was Ricci's translation of Euclid, entitled *Jihe yuanben*. The collation of the two pages published by Zhu Jiajin with fols. 99a—100a of the St. Petersburg copy showed that both texts coincide, which gave us the grounds to conclude that both copies were identical. The feature of the Peking copy is the presence of some linguistic corrections and additions of Chinese characters in red ink; these linguistic corrections were reproduced in the printed edition. The geometrical figures in the printed version were drawn (engraved?) anew as is evident from the different direction of the punctuated lines to indicate the figures' shadow. From all this we may conclude that the St. Petersburg block-print is identical to the Peking manuscript. But when collating their contents with Ricci's Chinese version of Euclid's "Elements", we were surprised to find that we had before us *two completely different* texts, which had nothing in common except the title. This led us to the second conclusion that the texts represented by Zhu Jiajin's manuscript and by the St. Petersburg block-print, are *not* a translation of Ricci's Chinese version of Euclid, as was previously supposed. It was clear that both texts were rather based on some other Western source. This source can be identified as Ignace Pardies's "Elémens (sic) de géométrie", published in Paris in 1671 [15]. It was the very same work of Pardies which was used by both Bouvet and Gerbillon, and, according to Pfister, Gerbillon translated it into Manchu in order to have it published "on order of the Emperor" in 1690 — "...Géométrie pratique et théorique, tirée en partie du P. Pardies, écrite en tartare et traduite en chinois par ordre de l'empereur, qui l'a fait imprimer à Pekin, 1690" [16]. The fact that there existed *two* Manchu texts of Euclidian geometry, of which one was supposedly translated by Verbiest from Ricci's Chinese translation, and was never printed and is evidently lost now, seems to explain the above-mentioned lack of clearness in the circumstances surrounding the translation of Euclid's "Elements" and the presence of rumours concerning the translators.

The fact that both Verbiest and Gerbillon (with his confathers) worked with the Kangxi Emperor on Euclid's "Elements" is confirmed by Gerbillon himself, who, according to Yves de Thomaz de Bossierre, wrote: "Tandis qu'il se faisoit expliquer a nouveau ...ce que le P. Verbiest luy avoit autrefois enseigné de geometrie pratique et des autres parties de mathematiques, il nos ordonna de luy expliquer dabord en tartare les elemens d'Euclide, qu'il avoit desiré d'apprendre il y avoit longtemps" [17]. It should be added that Yves de Thomaz de Bossierre, in her research on Antoine Thomas, ascribed to his pen a "Traité d'algèbre", of which she writes that it is an edition "en trios volumes, fait en mandchou à un seul exemplaire destiné à l'Empereur K'ang-Hi, en 1696, chaque feuillet est muni du sceau du monarque. Existe-t-il encore à Pékin? Nous l'ignorons" [18]. The reference to three volumes might indicate our St. Petersburg copy, but the date 1696 and the absence of the "imperial seal" in that copy prevent us to make this assumption. Thus, the only printed edition identical to the only hand-written copy may be Gerbillon's translation which was published by a "court writer" [19]. This conclusion agrees with Pfister's note, and we can state that the only printed copy known is found in the Manchu collection of the St. Petersburg Branch of the Oriental Institute. The copy in three fascicles — in excellent condition — forms one *tao* with a fourth fascicle on geometry entitled *Suwan fa yuwan ben bithe*, another copy of which is preserved in the Tōyō Bunko, Tokyo [20].

Let us turn now to the text. The first fascicle begins on fol. 1a—1b with a brief anonymous and undated foreword:

Gi ho yuwan ben bithe.uju. jai. ilaci. duici fiyelen

[1a] *ujui fiyelen: Sioi.*
Gi ho yuwan ben (ton-i sekiyen sere gisun:) bithe serengge. eiten jaka-i ton kemun be bodoro miyalire amba fulehe. abkai šu na-i giyan-i jergi babe tacire da sekiyen: yaya toro be tacire de. urunakū neneme ja ci deribufi. mangga de isinambi: jergi tangkan be fekurakū. ilhi aname kiceme sithūme ohode. ini cisui šumin somishūn de dosinambi: tuttu ofi Gi ho yuwan ben bithe de. ja emteli arbun be juleri. jursu šašaha arbun be amala. juwe adališara dimu-i dorgi tacire kimcire de. **[1b]** *ja ningge be juleri. manggangge be sirame obufi. jergi tangkan banjibufi. niyalmai ilhi aname tacire de acabuhabi: geli jergi tangkan be songkolome. arbun nirugan-i turgun giyan gebu hacin be tucibume. sure giyangnara be bairakū obume. getuken leolen be ujude arahabi:*

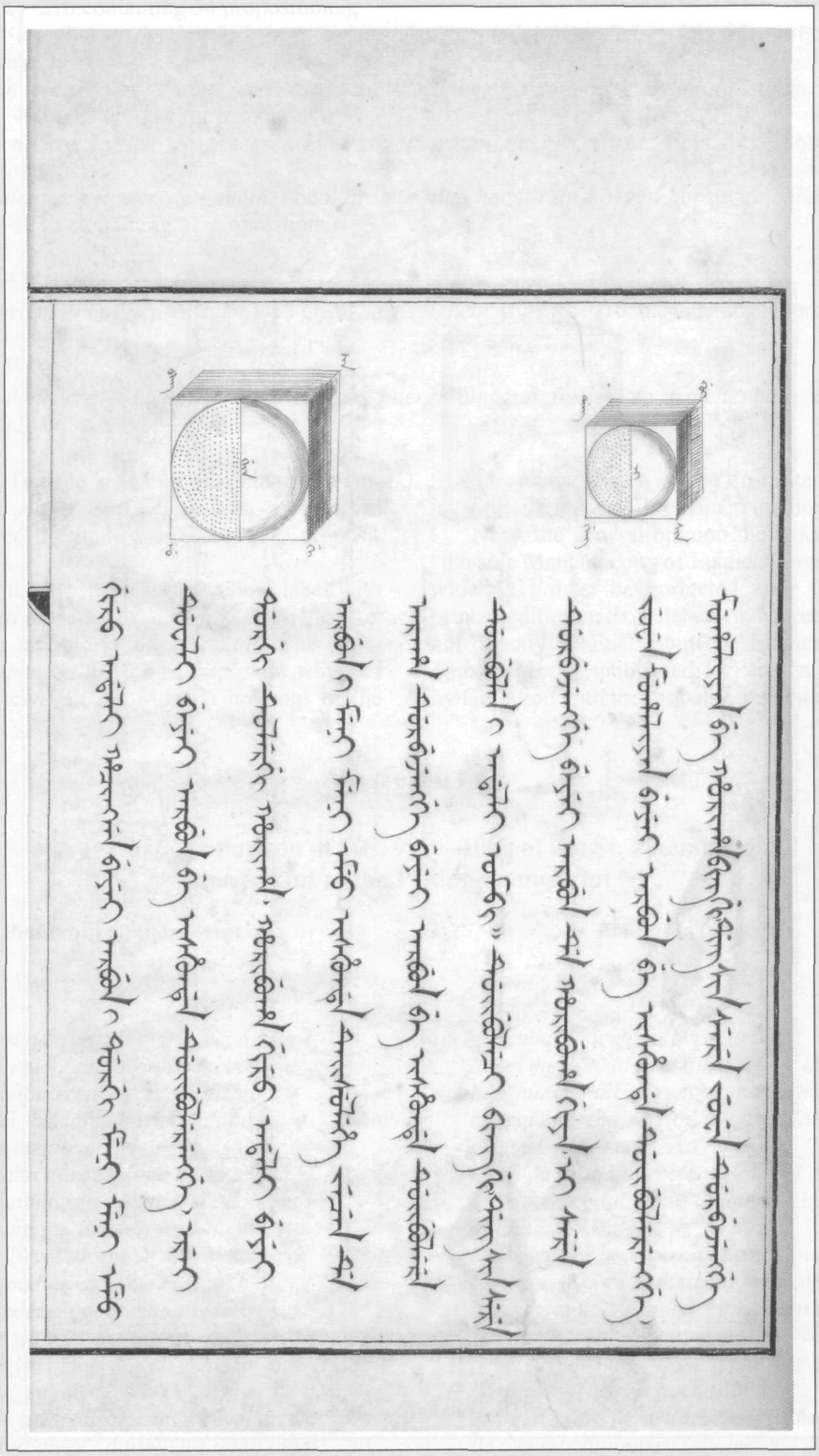

Fig. 3

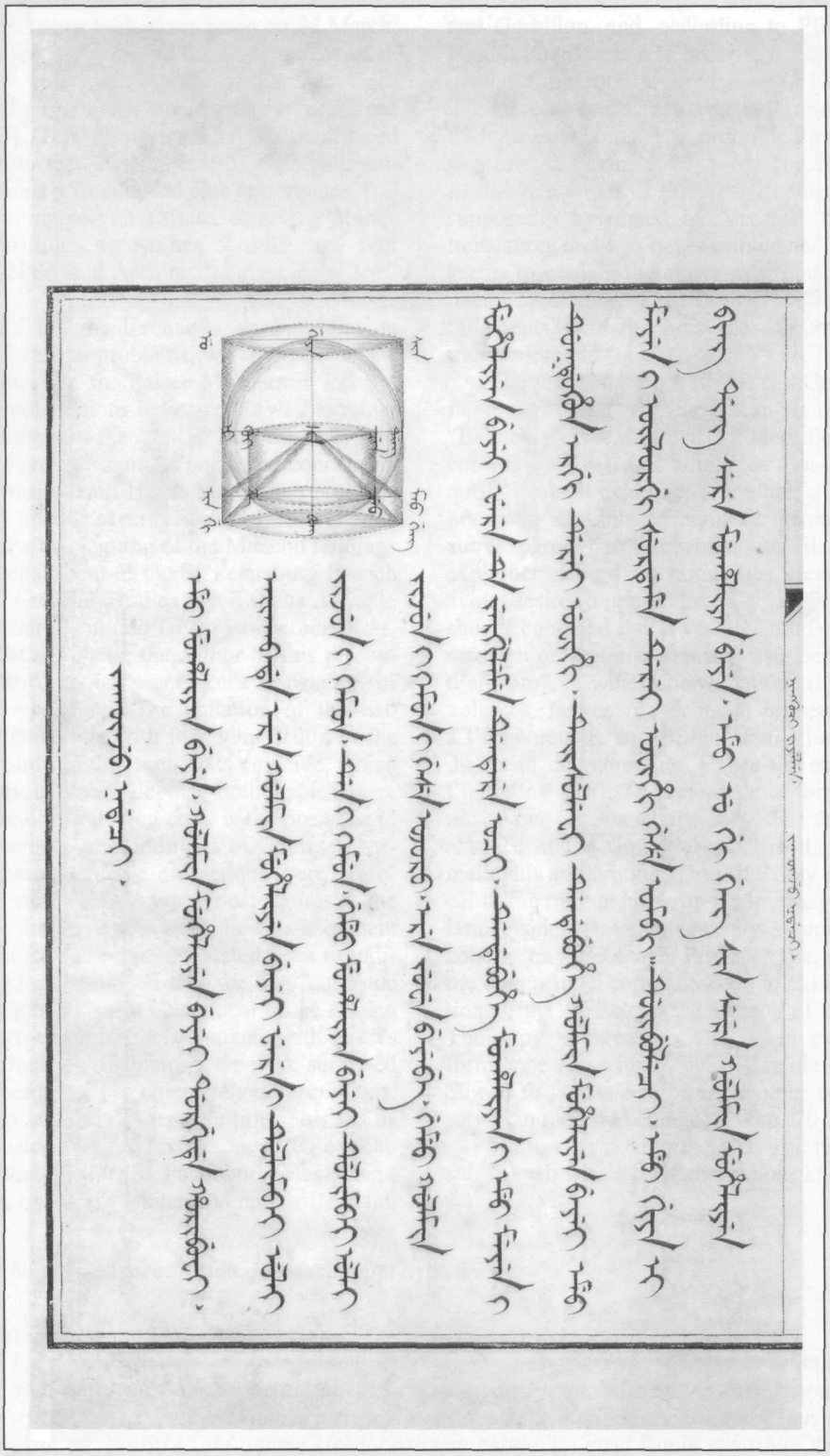

Fig. 4

This undated and anonymous foreword present in the St. Petersburg printed copy of Euclid's "Elements" is immediately followed on the same folio by the table of contents for all three fascicles:

First fascicle:

uju (fols. 1b—21b containing 34 propositions);
jai fiyelen: ere fiyelen de ilan hošonggo arbun-i harangga be gisurehebi. (fols. 22a—36b containing 14 propositions);
ilaci fiyelen: ere fiyelen de duin jecen-i arbun ci deribume geren jecen-i arbun de isibume gisurehebi. (fols. 37a—49b containing 17 propositions);
duici fiyelen: ere fiyelen de muheren-i harangga arbun be gisurehebi. (fols. 50a—86b containing 24 propositions);
sunjaci fiyelen: ere fiyelen de golmin. onco. jiramin. ilan hacin-i du-i beye-i harangga babe gisurehebi. (fols. 87a—121b containing 31 propositions).

Second fascicle:

ningguci fiyelen: ere fiyelen de duibulen-i giyan be gisurehebi. (fols. 1a—165b containing 90 propositions).

Third fascicle:

nadaci fiyelen: ere fiyelen de gisurehengge. julergi ninggun fiyelen de leolehe babe arara arga. (fols. 1a—93b containing 53 propositions).

As for the fourth fascicle kept in Tōyō Bunko, it comprises the *Suwan fa yuwan ben bithe*, with a foreword (fols. 1a—2b) followed by the text containing 75 propositions (fols. 3a—123b).

The envelope of the *tao* itself has a yellow label with the Chinese title *Manzhou suanfa yuanben* 滿洲算法原, i.e. the title of the fourth fascicle found in the *tao*. The omission of the *Jihe yuanben* on the *tao* may explain why this unique work, a real jewel in the Manchu holdings of the St. Petersburg Branch of the Institute of Oriental studies, lay without notice and remained unknown so far.

Now, the general opinion the Peking manuscript to be "the sole Manchu copy of Euclid's *Elements* existing worldwide" [21] must be corrected after the discovery of its printed edition in St. Petersburg. Moreover, its text is based not directly on Euclid but on "Elémens de géométrie" by *Ignace Pardies*, published in Paris in 1671 and translated by Gerbillon with the probable assistance of Bouvet.

Appendix

A textual comparison of fols. 99a—100a of the St. Petersburg block-print to the Peking manuscript*

St. Petersburg block-print	Peking manuscript
[fol. 99a, last line] *susai jakûci.*	*//susai jakûci.*
[fol. 99b] *giru adali hacingga beyei arbun-i dorgi meni meni / emu duwali beyei arbun be ishunde duibulerengge. erei / dorgi tulergi horiha. horibuha giru adali beyei / arbun-i meni meni emu ishunde teisulehe jecen de / araha durbejengge beyei arbun be ishunde duibulere / duibulen-i adali ombi: duibuleci / bing gi. ding sin sere / durbejengge beyei arbun de horibuha giya. i sere / juwe muhaliyan beyei arbun be ishunde duibulerengge. / muhaliyan be horiha bing gi. ding sin sere juwe durbejengge /* [fol. 100a] *beyei arbun-i u gi. geng sin sere emu ishunde teisulere juwe jecen de araha / jin u. gui geng sere juwe durbejengge beyei arbun be ishunde duibulere / duibulen-i adali ombi: adarame seci. ere fiyelen-i susai sunjaci / meyen de hacingga jecen-i arbun-i dorgi meni meni emu duwali giru adali arbun be*	*giru adali hacingga beyei arbun-i dorgi meni meni emu duwali / beyei arbun be ishunde duibulerengge. erei dorgi tulergi / horiha. horibuha giru adali beyei arbun-i meni meni emu / ikiri jecen de araha durbejengge beyei arbun be ishunde / duibulere duibulen-i adali ombi: duibuleci / bing* [丙] [己 *gi*] *ding* [丁] [辛 *sin*] *sere / durbejengge beyei arbun de horibuha giya* [甲] *i* [乙] *sere juwe / muhaliyan beyei arbun be ishunde duibulerengge. muhaliyan be / horiha bing* [丙] [己 *gi*] *ding* [丁] [辛 *sin*] *sere durbejengge beyei arbun-i u gi. // geng sin sere emu ikiri juwe jecen de araha* ***jin u. gui geng sere juwe durbejengge beyei*** *arbun be ishunde duibulere / duibulen-i adali ombi: adarame seci. ere fiyelen-i susai / sunjaci meyen de hacingga jecen-i arbun-i dorgi meni meni emu duwali giru adali / arbun be*

* Given the Peking manuscript reproduces the page not completely, we give here in bold the text reconstructed according to the St. Petersburg copy; underlined words show the text divergences in both copies.

ishunde duibulerengge. duibulere arbun-i
dorgi tulergi horiha horibuha giru adali
arbun-i meni meni emu ishunde teisulere
jecen de araha necin derei duin durbejengge
arbun be ishunde duibulere duibulen-i
adali sehe songkoi. tere giya. i sere juwe
muhaliyan beyei arbun be ishunde
duibulerengge. giya. i sere muhaliyan
beyei arbun be horiha [fol. 100b] *bing gi*
ding sin sere juwe durbejengge beyei
arbun-i emu ishunde teisulehe u gi. geng
sin sere juwe jecen de araha jin u. gui
geng sere juwe durbejengge beyei arbun
be ishunde duibulere duibulen-i adali ojoro
be ini

ishunde duibulerengge. duibulere arbun-i
dorgi tulergi horiha horibuha giru / adali
arbun-i meni meni emu ikiri
jecen de araha necin derei duin durbejengge
arbun be / ishunde duibulere duibulen-i
adali sehe songkoi tere giya. [甲] *i* [乙] *sere juwe*
muhaliyan beyei / arbun be ishunde
duibulerengge. giya [甲] *i* [乙] *sere muhaliyan*
beyei arbun be horiha bing [丙] [己] *gi*
ding [丁] [辛 *sin*] *sere / juwe durbejengge beyei*
arbun-i emu ikiri u [戊] *gi* [己]. *geng* [庚]
sin [辛] *sere juwe jecen de araha jin* [壬] *u* [戊]. *gui* [癸] /
geng [庚] *sere juwe durbejengge beyei arbun*
be ishunde duibulere duibulen-i adali ojoro
be ini

Notes

1. P. M. Engelfried, *Euclid in China.* The Genesis of the First Translation of Euclid's Elements in 1607 & Its Reception up to 1723 (Leiden — Boston — Köln, 1998).

2. For this issue, see L. D. Kessler, *K'ang-hsi and the Consolidation of Ch'ing Rule 1661—1684* (Chicago — London, 1976), p. 151: "He knows Tartar and Chinese, but he likes the Tartar best".

3. L. Vanhee, "Euclide en chinois et mandchou", *Isis*, 30 (1939), pp. 84—8.

4. *Ibid.*, p. 88.

5. Cen Yinke 陳寅恪, "Jige yuanben manwen yiben ba 幾何原本滿文譯本跋", *Zhongyang yanjiu yuan. Lishi yuyan yanjiu jikan* 中央研究院歷史語言研究集刊, II/3 (1931), pp. 281—2.

6. See Li The Ch'i, *Union Catalogue of Manchu Books in the National Library of Peiping and the Library of the Palace Museum* (Peiping, 1933), p. 12, No. 316.

7. Huang Runhua 黃潤華 and Qu Liusheng 屈六生, *Quanguo manwen tushu ziliao lianhe mulu* 全國滿文圖書資料聯合目錄 (Peking, 1991), p. 228, No. 0963.

8. Li Zhaohua 李兆華, "'Jige yuanben' manwen chaoben de laiyuan《幾何原本》滿文抄本的來源", *Gugong bowuyuan yuankan* 故宮博物院院刊, 2 (1984), pp. 67—9.

9. Zhu Jiajin 朱家溍, *Liang chao yulan tushu* 兩朝御覽圖書 (Peking, 1992).

10. L. Pfister, *Notices biographiques et bibliographiques sur les Jésuites de l'ancienne mission de Chine 1552—1773* (Chang-hai, 1932), p. 449.

11. Engelfriet, *op. cit.*, pp. 136—7, quoting N. Golvers's *The Astronomia Europaea of the Ferdinand Verbiest S.J.* (Nettetal, 1993), p. 99 and p. 266, No. 100. — Monumenta Serica Monograph Series, XXVIII. See also H. Bernard-Maître, "Les adaptations chinoises d'ouvrages européens", *Monumenta Serica*, 10 (1945), pp. 1—57, 309—88, also No. 458 on p. 374.

12. From the German translation of Du Halde's French publication, *Ausführliche Beschreibung des chinesischen Reiches und der grossen Tartarey*, 4 und letzter Theil (Rostok, 1749), pp. 198—9.

13. *Ibid.*, p. 199.

14. J. Bouvet, *Histoire de l'empereur de la Chine* (Paris, 1699), pp. 87—8.

15. See Mo De 莫德, "Dui zai wo guo liuchuan de jige banben de yanjiu 對在我國流傳幾個版本的研究", in his *Oujilide Jihe yuanben yanjiu* 歐幾里得幾何原本研究 (Hohhot, s.a.), pp. 145—66; Liu Dun 劉鈍, "Fang Tai suojian shuxue zhenji 訪臺所見數學珍籍", *Zhongguo keji shiliao* 中國科技史料, 16/4 (1995), pp. 8—21. For references and further remarks, see Engelfriet, *op. cit.*, pp. 437—8.

16. Pfister, *op. cit.*, p. 449.

17. Yves de Thomaz de Bossierre, *Jean-François Gerbillon, S.J. (1654—1707)* (Leuven, 1994), p. 95. — Louvain Chinese Studies, II.

18. *Idem*, *Un belge mandarin à la cour de Chine aux XVIIe et XVIIIe siècles. Antoine Thomas 1644—1709* (Paris, 1977), p. 164.

19. Engelfriet, *op. cit.*, p. 437.

20. N. Poppe, L. Hurvitz, H. Okada, *Catalogue of the Manchu-Mongol Section of the Toyo Bunko* (Tokyo, 1964), p. 294, No. 502. For a detailed description, see the catalogue of the Manchu holdings of the St. Petersburg Branch of the Institute of Oriental Studies by Tatiana A. Pang (forthcoming).

21. Zhu Jiajin, *op. cit.*, p. 137.

Illustrations

Fig. 1. *Gi ho yuwan ben bithe*, block-print C 291 in the collection of the St. Petersburg Branch of the Institute of Oriental Studies, fasc. 1, fol. 101a, 17.6×27.7 cm.
Fig. 2. The same block-print, fasc. 1, fol. 98b, 17.6×27.7 cm.
Fig. 3. The same block-print, fasc. 2, fol. 99b, 17.6×27.7 cm.
Fig. 4. The same block-print, fasc. 2, fol. 154a, 17.6×27.7 cm.