

In 1974, Sa'īdān published an article in *Isis*, "The arithmetic of Abū'l-Wafā" [1974], devoted to the arithmetical treatise of the famous Baghdad mathematician and astronomer al-Būzjānī (940–998). The complete Arabic text of this treatise, based on manuscripts held at Leiden University and the Cairo National Library, was edited by Sa'īdān in Amman in 1971 [1971a] together with an introduction, commentary, and ample references to the Arithmetic of al-Karajī (d. ca. 1030). The treatise of al-Būzjānī is a very famous arithmetical text containing the only known instance of negative numbers called *dayn* or "debt."

At the conference devoted to the millennium of al-Bīrūnī held in Karachi, Pakistan in 1973, Sa'īdān lectured on "The trigonometry of al-Bīrūnī" (published in [1979a]). Three years later, at the International Symposium for the History of Arabic Science, Sa'īdān spoke on "Number theory and series summation in two Arabic texts" (published in [1978c]). In 1977, he published the *Cartography* of al-Bīrūnī [1977b] and the *Treatise on Amicable Numbers* by Thābit ibn Qurra (836–901) [1977a], and in 1978 he published "Theory of numerical triangles of Abū Ja'far al-Khāzin," a study on the theory of Pythagorean triples in the treatises of al-Khāzin (d. ca. 965).

Sa'īdān also edited the complete mathematical treatises of Ibn Sinān, together with an introduction and commentary [1983a]. These treatises played an important role in the history of geometry since Ibn Sinān's treatise *On the mensuration of a parabola* is the first in the history of mathematics to use a general affine transformation of plane figures (polygons and segments of parabolas), and his treatise on the construction of conic sections is the first to employ a plane projective transformation mapping a circle onto a hyperbola.

My correspondence with Sa'īdān began when he was living in Khartoum and I was in Moscow. We often exchanged copies of Arabic manuscripts, printed texts, and our own publications. The death of Sa'īdān is an enormous loss for historians of mathematics around the world.

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BIBLIOGRAPHY OF PUBLICATIONS OF AHMAD SALĪM SA'ĪDĀN
 (1914–1991) ON THE HISTORY OF MATHEMATICS AND ASTRONOMY
 IN ISLAMIC CIVILIZATION, AND LIST OF MEDIEVAL ARABIC TEXTS
 PUBLISHED BY HIM

Compiled by Jan P. Hogendijk

Many of the late Professor Sa'īdān's books and articles contain editions of medieval Arabic texts not only on arithmetic and algebra, but also on geometry and astronomy. Because a large number of these editions seem to be virtually unknown outside of the Arabic world, I have added to the bibliography a separate list of the sources which Professor Sa'īdān edited, ordered chronologically according to author. Each source is identified by a translation of its title and a reference

to Sezgin's *Geschichte des arabischen Schrifttums* and Matvievskaia and Rozenfeld's *Mathematicians and Astronomers of the Medieval Islam and Their Works* (8–17th c). The bibliography and the list of sources contain cross-references; the items in the bibliography are abbreviated as [1960a], [1960b], etc., and the sources as A, B1, B2, etc. The following notation is also used:

- GAS Sezgin, F. 1974–1978. *Geschichte des arabischen Schrifttums*. Band V: Mathematik bis ca. 430 H. Band VI: Astronomie. Band VII: Astrologie, Meteorologie und Verwandtes. Leiden: Brill.
- MAMS Matvievskaia, G. P., & Rozenfeld, B. A. 1983. *Matematiki i astronomiya musulmanskogo srednevekovyia i ikh trudy (VIII–XVII vv.)*, 3 vols. Moscow: Nauka. [In Russian]
- MAMS 116M3 = treatise No. M3 of author No. 116 in Vol. 2 of MAMS
- RIMA = *Majalla ma'had al-makhtūāt al-ʿArabiyya (Revue de l'Institut des Manuscrits Arabes)*. Cairo, after 1982 Kuwait.

* = not seen.

The following bibliography is selective in the sense that not all brief articles in journals in the Arabic world have been mentioned.

1. Bibliography of A. S. Sa'īdān on History of Mathematics and Astronomy in Islamic Civilization

- 1960a. Ḥawla rasā'il al-Bīrūnī [On the treatises of Al-Bīrūnī]. *RIMA* 6, 307–312. [On the same subject as 1960b; in Arabic]
- 1960b. The rasā'il of Bīrūnī and Ibn Sinān. A rearrangement. *Islamic Culture* 34, 173–175.
1961. Al-Uṣūl al-ighrīqīyya li l-ʿulūm al-riyāḍīyya ʿinda l-ʿArab [The Greek roots of the mathematical sciences among the Arabs]. *RIMA* 7, 81–110. [Survey article; in Arabic]
1962. Al-Athr al-hindī fī l-riyāḍīyyāt al-ʿarabiyya [The Indian influence in Arabic mathematics]. *Al-Abḥāth* 15, 409–477. [Detailed survey; in Arabic]
1963. Ṭarāʾif al-ḥisāb li-Abī Kāmil Shujāʿ ibn Aslam al-Miṣrī [C]. *RIMA* 9, 291–320. [In Arabic]
1965. The development of Hindu–Arabic arithmetic. *Islamic Culture* 39, 209–221.
- 1966a.* *The development of Hindu–Arabic arithmetic*. Ph.D. Thesis, Khartoum.
- 1966b. The earliest extant Arabic arithmetic: Kitāb al-Fuṣūl fī al-Ḥisāb al-Hindī of Abū al-Ḥasan Aḥmad ibn Ibrāhīm al-Uqlīdisī. *Isis* 57, 475–490. [Concerns G]
- 1967a. Risālatān fī l-ḥisāb al-ʿarabī [Two treatises on Arabic arithmetic; [L, X]. *RIMA* 13, 41–158. [In Arabic]
- 1967b. Jawāmiʿ al-ḥisāb bi l-takht wa l-turāb [T]. *Al-Abḥāth* 20, 91–163, 213–292. [In Arabic]
1968. Finger reckoning in an Arabic poem. *The Mathematics Teacher* 61, 707–708.
- 1971a. *Taʾrīkh ʿilm al-ḥisāb al-ʿarabī. Al-juzʿ al-awwal. Ḥisāb al-yad* [History of Arabic arithmetic. Part 1. Finger reckoning; [H, 01, S]. Amman: Jamīʿa ʿummāl al-maṭābīʿ al-taʿāwuniyya. [In Arabic]
- 1971b. ʿIlm al-Ḥisāb ʿinda l-ʿArab [The science of arithmetic among the Arabs, includes partial edition of Y]. *ʿĀlam al-fikr* (Kuwayt) 2, 161–194. [In Arabic]
1973. *Taʾrīkh ʿilm al-ḥisāb al-ʿarabī. Al-juzʿ al-thānī. Al-fuṣūl fī l-ḥisāb al-Hindī li-Abī l-Ḥasan Aḥmad ibn Ibrāhīm al-Uqlīdisī* [History of Arabic arithmetic. Part 2. The chapters on Indian Arithmetic by ... al-Uqlīdisī; G]. Amman: Univ. of Jordan Press. [In Arabic]
1974. The arithmetic of Abu l-Wafāʾ. *Isis* 65, 367–374. [Concerns H]
- 1977a. *Kitāb al-aʿdād al-mutaḥābba li-Thābit ibn Qurra* [D1]. Amman: The Jordanian University. [In Arabic]

- 1977b. Kitāb taṣṭiḥ al-ṣuwar wa-tabṭikh al-kuwar li-Abi l-Rayḥān al-Bīrūnī al-mutawaffā sana 440 H [Q]. *Dirāsāt* 4, No. 1–2, 7–22. Amman: The Jordanian University. [In Arabic].
- 1978a. *The arithmetic of al-Uqlīdisī. The story of Hindu-Arabic arithmetic as told in Kitāb al-Fuṣūl fī al-Ḥisāb al-Hindī written by Abū al-Ḥasan Aḥmad ibn Ibrāhīm al-Uqlīdisī, written in Damascus in the year 341 (A.D. 952/3)* [G]. Dordrecht/Boston: Reidel.
- 1978b. Ḥawla khawāṣṣ al-a^c dād li-Abī Ja'far Muḥammad ibn al-Ḥusayn [F1]. *Dirāsāt* 5, No. 2, 7–49. Amman: The Jordanian University. [In Arabic]
- 1978c. Number theory and series summation in two Arabic texts. In *Proceedings of the First International Symposium for the History of Arabic Science, April 5–12, 1976*, Vol. 2, pp. 154–163. Aleppo: Institute for the History of Arabic Science. [Concerns P, W]
- 1979a. The trigonometry of Al-Bīrūnī. In *Al-Bīrūnī commemorative volume* (Hakim Muhammad Said, Ed.), pp. 681–690. Karachi: The Times Press.
- 1979b. The arithmetic of al-Uqlīdisī. *Isis* 70, 615–617.
- 1980a. Magic squares in an Arabic manuscript. *Journal for the History of Arabic Science* 4, 87–89.
1981. *Marāsim al-intisāb fī ma'ālim al-ḥisāb li-Ya'qūb ibn Ibrāhīm al-Umawī* [W]. Aleppo: Institute for the History of Arabic Sciences. [In Arabic]
- 1982a. Risālatān fī l-handasa tunsabān ilā Arshimīdis [Two treatises in geometry attributed to Archimedes; [B1, B2] *RIMA* 26, 571–623. [In Arabic]
- 1982b. Namūdhajān min al-mantiq al-riyādī 'ind al-^c Arab [Two examples of mathematical logic of the Arabs; EE,Z]. *Majalla majma' al-lughā al-^carabiya al-Urdunī* [Journal of the Jordanian Academy of Arabic Language] 15–16, 137–154. [In Arabic]
- 1983a. *Rasā'il ibn Sinān* [The works of Ibrāhīm ibn Sinān; E1–E7, D2, J1]. Kuwait: al-majlis al-waṭanī li-l-thiqāfa wa l-funūn wa l-adab, qism al-turāth al-^carabī, al-silsila al-turāthiyya 6. [In Arabic, with English summaries]
- 1983b. *Qiṣṣat al-arqām wa l-tarqīm* [The story of numbers and numeration]. Amman: Dār al-Farqān. [In Arabic]
- 1984a. *Ta'riḫ 'ilm al-ḥisāb 'inda l-^carab. Al-Juz' al-thālith-al-ḥisāb fī l-Andalus wa l-maghrib* [History of arithmetic among the Arabs. Part 3. Arithmetic in Andalus and the Maghrib. U1]. Amman: Dār al-Farqān. [In Arabic, with English summary]
- 1984b. Tathlith al-zāwiya fī l-uṣūr al-Islāmiyya [Angle trisection in the Islamic period, D3, F2, J2, J3, K, R]. *RIMA* 28, 99–137.
- 1985a. *Al-Takmila fī l-ḥisāb li-'Abd al-Qāhir ibn Tāhir al-Baghdādī ma'a risāla lahu fī l-misāhā* [P1, P2]. Kuwait: Institute of Arabic Manuscripts. [In Arabic, with English summary]
- 1985b. *Al-Fuṣūl fī l-ḥisāb al-Hindī li-Abī l-Ḥasan Aḥmad ibn Ibrāhīm al-Uqlīdisī* [G]. Aleppo: Institute for the History of Arabic Sciences. [Photographic reprint of [1973] with a few changes; in Arabic]
- 1986a. *Ta'riḫ 'ilm al-jabr fī l-^cālīm al-^carabī. Dirāsa muqārana ma'a taḥqīq li-aḥamm kutub al-jabr al-^carabiyya*. [History of Algebra in medieval Islam. A comparative study. 2 vols. in Arabic, paginated serially. Vol. 1 English title: Algebra in Eastern Islam. Study built upon Al-Fakhrī of Al-Karajī. Vol. 2 English title: Algebra in Western Islam, a study of Ibn Badr and Ibn al-Bannā². 02, V2, V. Kuwait: al-Majlis al-waṭanī li-l-thiqāfa wa l-funūn wa l-adab [National Council of Culture], al-silsila al-turāthiyya 15. [In Arabic]
1987. The Takmila fī l-ḥisāb of al-Baghdādī. In *From deferent to equant. A volume of studies in the history of science in the ancient and medieval near East in honor of E. S. Kennedy* D. King & G. Saliba, Eds., pp. 437–444. New York: Annals of the New York Academy of Sciences, Vol. 500.
1988. *Muqaddima li-ta'riḫ al-fikr al-^cilmī fī l-Islām* [Introduction to the history of scientific thought in Islam]. Kuwait: National Council for Culture, Arts and Literature. Alam al-ma'rifa 131. [In Arabic]

- 1990.* Al-Bīrūnī on trigonometry. To appear in ERDEM.
 1991a. *Handasat Uqlīdis fī aydin ʿarabiyya* [Geometry of Euclid in Arabian hands; A, M]. Ammān: Dār al-Bashīr. [In Arabic]
 1991b. Al-Riyādiyyāt bayna al-mashriq wa l-maghrib al-Islāmiyyain [Mathematics between the Islamic East and West; French summary, Les mathématiques entre l'Occident et l'Orient Islamiques.] In *Deuxième Colloque Maghrébin sur l'histoire des mathématiques Arabes, Tunis, 1988*, pp. 7–23 [In Arabic], 203–204 [In French]. Tunis: Université de Tunis I.
 1991c. *Muʿa al-tafkīr* [The enjoyment of thinking. Subtitle: Problems, puzzles and arithmetical games for young and old persons.] Amman: Dār al-tanwīr. [In Arabic; problems taken from Arabic mathematics]

Prof. Saʿidān wrote the following articles in the *Dictionary of Scientific Biography*, C. G. Gillispie, Ed. New York: Scribner's, 1972–1980, 15 vols. plus suppl.: Kūshyār (VII, 531–533), al-Nasāwī (IX, 614–615), al-Qalaṣādī (XI, 229–230), al-Umawī (XIII, 539–540), al-Uqlīdisī (XIII, 544–546), al-Baghdādī (XV, 9–10).

2. List of Medieval Arabic Texts on Arithmetic, Algebra, Geometry, and Astronomy, Published by A. S. Saʿidān, Ordered Chronologically According to Author

- A. Euclid (300 B.C.). Arabic translation of the *Elements* (Kitāb al-Uṣūl), attributed to al-Ḥajjāj, ms. Leiden, 399/1 (GAS V, 284 No. 1). [1991a]
 B. Pseudo-Archimedes. 1. *On tangent circles* (GAS V, 134 No. 6). [1982a]. 2. *Principles of geometry* (GAS V, 135 No. 7). [1982a]
 C. Abū Kāmil (9th c.). *Curiosities of arithmetic* (GAS V, 281 No. 1, MAMS 81M2). [1963]
 D. Thābit ibn Qurra (836–901). 1. *On amicable numbers* (GAS V, 270 No. 3, MAMS 66M4). [1977a]. 2. *Letter to Ibn Wahb on how to proceed in the derivation of the construction of geometrical problems* (GAS V, 271 No. 17 = GAS V, 268 No. 4, MAMS 66M10). [1983a, Appendix 1]. 3. *Trisection of the rectilinear angle* (GAS V, 271 No. 16, MAMS 66M17). [1984b]
 E. Ibrāhīm ibn Sinān (909–946). 1. *On the notions he derived* [i.e., the works he composed] in *geometry and astronomy* (GAS V, 294 No. 4, MAMS 113M4). 2. *On drawing the three conic sections* (GAS V, 294 No. 3, MAMS 113M2). 3. *On the measurement of the sufficient conic section* [i.e., the parabola] (GAS V, 294 No. 1, MAMS 113M3). 4. *On the method of analysis and synthesis and the other geometrical operations* (GAS V, 294 No. 2, MAMS 113M1). 5. *The selected problems* (mentioned in GAS V, 294 under No. 6, not mentioned in MAMS; see Hogendijk, J. P., *Rearranging the Arabic mathematical and astronomical manuscript Bankipore 2468. Journal for History of Arabic Science* 6, 149, 152–157]. 6. *On the motions of the sun* (GAS VI, 194 No. 1, MAMS 113A1). 7. *On the astrolabe* (GAS VI, 194 No. 2, MAMS 113M5). [1983a, 1–7].
 EE. Yuḥannā ibn Yūsuf al-Qāss (early 10th c.). *Treatise on rational and irrational magnitudes* (GAS V, 298 No. 1, MAMS 131M1). [1982b].
 F. Abū Jaʿfar Muhammad ibn al-Ḥusayn al-Khāzin (early 10th c.). 1. *Letter to ʿAbdallāh al-Ḥāsib on the proof of the fact that the sides of two squares, of which the sum is a square, cannot both be odd* (GAS V, 307 No. 3, MAMS 183M3). [1978b]. 2. *Derivation of two mean proportionals between two lines by means of fixed geometry* (GAS V, 306 No. 2, MAMS 183M2). [1984b].
 G. Al-Uqlīdisī (10th c.). *Chapters on Hindu arithmetic* (GAS V, 296 No. 1, MAMS 199aM1). Edition in [1973], reprinted in [1986], translation in [1978a].
 H. Abū l-Wafāʿ (10th c.). *On the science of arithmetic necessary for scribes, workers and others* (GAS V, 323 No. 1, MAMS 167M2). [1971a].
 J. Al-Sijzī (10th c.). 1. *On facilitating the methods for the derivation of geometrical propositions* (fī tashīl al-subul li-stikhraj al-ashkāl al-handasiyya) (GAS VII, 410, No. 38). [1983a, Appendix 2]. 2. *Derivation of the two mean proportionals and trisection of the angle by the method of geometry,*

- revision (*iṣlāḥ*) by al-Sijzī (GAS VII, 409 sub No. 7). [1984b]. 3. Untitled treatise on the hyperbola and its asymptotes (GAS V, 333 No. 28, MAMS 185M32). [1984b].
- K. Al-Kūhī (10th c.). *Trisection of the angle* (GAS V, 318 No. 6, MAMS 175M10). [1984b (Lahore ms.)].
- L. Kūshyār ibn Labbān (10th c.). *Principles of Hindu reckoning* (GAS V, 354 No. 1, MAMS 192M1). [1967a].
- M. Al-Nasāwī (ca. 1000). *Abstract (tajrīd) of the elements of geometry* (GAS V, 347 No. 4, MAMS 214M1). [1991a].
- O. Al-Karajī (ca. 1000). 1. *The sufficient (kāfī) in arithmetic* (GAS V, 328 No. 1, MAMS 193M1). Partial edition in [1971a]. 2. *Al-Fakhrī* on algebra (GAS V, 328 No. 2, MAMS 193M2). [1986a, Vol. 1]. 3. *Reasons of the calculation of algebra* (‘ilal ḥisāb al-jabr wa l-muqābala) (GAS V, 328 No. 4, MAMS 193M4). [1986a].
- P. ‘Abd al-Qāhīr al-Baghdādī (died 1037). 1. *Perfection in arithmetic* (GAS V, 357 no. 1, MAMS 199M1), and 2. *On measurement* (GAS V, 357 No. 2, MAMS 199M2). [1985a]
- Q. Al-Bīrūnī (972–1048). *On the projection of constellations and making spheres plane* (taṣṭīḥ al-kuwar wa tabṭīḥ al-ṣuwar) (GAS V, 381 No. 10, MAMS 218M3). [1977b].
- R. Al-Qummī (10th–11th c.). *On the possibility of finding the two lines which always approach and do not meet* (the hyperbola and its asymptotes) (GAS V, 336 No. 1, MAMS 207M1). [1984b].
- S. Al-Shahrazūri (11th–12th c.). Commentary on al-Karajī’s *The sufficient in arithmetic* (GAS V, 328 No. 1 sub 1, MAMS 292cM1). Partial edition in [1971a].
- T. Naṣīr al-Dīn al-Ṭūsī (1201–1274). *Comprehensive treatises on arithmetic with board and dust* (MAMS 368M14). [1967b].
- U. Ibn al-Bannā’ (1256–1321). 1. *Treatises on arithmetic* (MAMS 399M2). [1984a]. 2. *Algebra* (MAMS 399M5). [1986a, Vol. 2].
- V. Ibn Badr (ca. 1311). *Summary of algebra* (Ikhtisār al-jabr wa l-muqābala) (MAMS 360aM1). [1986a, Vol. 2].
- W. Ya‘īsh ibn Ibrāhīm al-Umawī (15th c.?). *Rules in the science of arithmetic* (Marāsīm al-Intisāb fī ma‘ālim al-ḥisāb.) [1981].
- X. Al-Irbilī (date unknown). *The sufficient* (MAMS, Vol. 3, pp. 12–13, No. 050M1). [1967a].
- Y. ‘Alī ibn al-Maghribī (date unknown). *Poem on finger reckoning* (MAMS, Vol. 3, No. 037M1). Partial edition in [1971b].
- Z. Anonymous (9th/10th c.). *Treatise on the fact that every continuous [quantity] can be divided into things that can be divided indefinitely* (GAS V, 384–385, MAMS Vol. 3, p. 113). [1982 b; note that the ms. number is Paris 2457/42, not 2457/32].

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