

Baylak e Kipsali

MADDE YAYINLANDIKTAN
SONRA GELEN DOKÜMAN

03297 MENSIA, Mongia. Un traité inédit de
minéralogie au 13ème siècle. Baylak Qabğaqı,
Kitâb kanz al-tuğğâr fi ma'rifat al-ağğâr. *IBLA*
40, no. 140 (1977) pp. 281-295.

MAADIN ILMI

کتاب کوز التیجار فی معرفة الاحجار

14 NISAN 1995

السير الذاتية

● الذهبي، تذكرة الحفاظ، مكة المكرمة، إحياء التراث العربي، 1474هـ، العبر في خبر من غير، تحقيق أبو هاجر محمد، بيروت، دار الكتب، 1985؛ ● السبكي، طبقات الشافعية، تحقيق محمد محمود الطناحي، القاهرة، عيسى البابي، 1964؛ ● ابن الأثير، اللباب في تهذيب الأنساب، بغداد، مكتبة المثنى، د.ت.؛ ● الصفدي، الوافي بالوفيات، اعتناء احسان عباس، بيروت، دار صادر، 1967؛ ● اسماعيل باشا البغدادي، هدية العارفين، استانبول، 1951؛ ● جلال الدين عبد الرحمن السيوطي، طبقات الحفاظ، تحقيق علي محمد عمر، القاهرة، مكتبة وهبه، 1973؛ ● كحالة، معجم المؤلفين، دمشق، مطبعة الترقى، 1975؛ ● محمد طاهر الهندي، المغني في ضبط أسماء الرجال، بيروت، دار الكتاب، 1982.

د. نزار محمد قادر
جامعة الموصل - العراق

من أربعمئة مصنف صغار منها كتب في أسماء الرجال [السمعاني، الأنساب، 45/2؛ البغدادي، هدية العارفين، 1/71]. عاش البيكندي في بخارى التي كانت من أهم المراكز العلمية الإسلامية على عهد الإمارات السامانية والغزنوية، بسبب ما كان يغدقه أمراؤهم على العلماء من عطاء وتشجيع، فضلا عن أن بخارى كانت في أوانها «عديمة المثل وفيها من كل فن من الكتب المشهورة بأيدي الناس وغيرها مما لا يوجد في سواها، ولا سمع باسمه فضلا عن معرفته» [ابن خلكان، وفيات، 1/152 - 153]، فجذبت إليها كثير من العلماء والأدباء.

روى عنه جعفر بن محمد بن المعتز المستغفري (ت 432هـ/1040م) محدث ما وراء النهر، كان حافظا مصنفا ثقة [ابن العماد الحنبلي، شذرات الذهب، 3/249؛ السيوطي، طبقات، 409].

توفي البيكندي، في شهر ذي القعدة سنة 404هـ/1013م وله ثلاث وتسعون سنة [الذهبي، العبر، 2/82].

بيليك الكبجكي

(ق 7هـ/13م)

المعرفة والعلم) في القاهرة وحماة. وأكمل في ربيع الآخر عام 681هـ الموافق يوليو عام 1282م مؤلفه المسمى «كتاب كنز التجار في

|| توجد معلومات بشأن حياته في كتب التراجم الكلاسيكية. وعاش بيليك (بيلغ، بيلك: ومعنى كيجاك في اللغة التركية هو

cine arabe, Paris, 1876, 2/235-237; ● Brockelmann: Gal, Leiden, 1937 - 1949, 1/646-647, Supplement, 1/896-897; ● J. Vernet: Encyclopédie de l'Islam, nouvelle éd. vol. III. Leyde, Paris, 1971, pp. 759-760

د. إبراهيم بن مراد
جامعة تونس

«تفسير كتاب دياسقوريدوس» لابن البيطار، 1990، دار الغربي الإسلامي، بيروت، وبيت الحكمة، تونس، 17 - 41؛ ● ابن مراد، بحوث في تاريخ الطب والصيدلة عند العرب، بيروت، 1991، دار الغرب الإسلامي، 37 - 41، 281 - 287، 465 - 556 (وفي المراجع الثلاثة توسع في ترجمة ابن البيطار وفي مراجعها).

● L. Leclerc M., Histoire de la médecine

البيكندي، أبو الفضل أحمد بن علي بن عمرو

(311هـ/923م - 404هـ/1013م)

من أبي نصر محمد بن حمدويه بن يزداد المروزي (ت 329هـ/940م) الحافظ الثقة [ابن العماد الحنبلي، شذرات الذهب، 2/323]؛ وعلي بن إبراهيم بن معاوية؛ ومحمود بن اسحاق الخزاعي وغيرهم [الذهبي، العبر، 2/208].

أوساطة

كان البيكندي، إماما حافظا من الثقات، لم يكن له نظير في زمانه ببخارى، إسنادا وحفظا ودراية وإتقان وكثرة تصنيف [السبكي، طبقات، 4/41؛ الصفدي، الوافي، 7/216 - 217]. كان يصنف كل جمعة شيئا، ثم يدخل من قرية بيكند إلى بخارى، ويحضره في الجامع يوم الجمعة ويحدث به، وله أكثر

هو أبو الفضل أحمد بن علي بن عمرو السليماني البيكندي، نسبته إلى بيكند (بكر الباء الموحدة، وسكون الياء وفتح الكاف، وكسر الدال المهملة) بلدة على مرحلة من بخارى، كبيرة، حسنة، كثير العلماء، كانت عاصمة لبلاد ما وراء النهر لفترة من الزمن [ياقوت الحموي، معجم البلدان، 2/533؛ النرشخي، تاريخ بخارى، 35]. والسليماني، نسبة إلى جده لأمه أحمد بن سليمان [الذهبي، تذكرة، 3/1036؛ ابن الأثير، اللباب، 1/199].

ولد سنة 311هـ/923م، من حفاظ الحديث المكثرين، رحل إلى العراق والشام وديار مصر [السمعاني، الأنساب، 2/405]، سمع

BAYLAK AL-QIBJĀQĪ (fl. Cairo, Egypt, ca. 1250),
mineralogy, probably also *mathematics*, *technology*.

Baylak's period of activity is determined from his signature, dated 1282, in the *Kanz al-tujjār*. An autobiographical note there states that in 1242/1243 he undertook a trip by sea from Tripoli, Syria, to Alexandria. He must have had connections at the court of Ḥamā, Syria, for the *Kanz* is dedicated to either the Ayyūbid ruler al-Malik al-Muẓaffar II (1229-1244) or his son al-Malik al-Manṣūr II (1244-1284). If Baylak is identical with the mathematician—and this can be assumed—who in 1260 prepared a copy of a work on the knowledge and use of the clocks of Riḍwān al-Khurāsānī, and if he is also the one who made a handwritten mark of ownership on another mathematical manuscript (1269/1270), both preserved in Istanbul, then he was concerned with at least three areas of mathematics and natural science. However, in the *Kanz* his father apparently is named Muḥammad, and in the manuscript on clocks he is definitely 'Abdallāh. The authenticity of these details is open to investigation, but

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DSB, Dic., s. 532-533,
1981 (NEW YORK)

"Dictionary of Scientific Biography

does not follow from any standard axioms. Suppose we have no information about the prior probability of a statistical hypothesis. Bayes argues by analogy that, in this case, our ignorance is neither more nor less than in his example where prior probabilities are known to be entirely uniform. He concludes, "I shall take for granted that the rule given concerning the event M . . . is also the rule to be used in relation to any event concerning the probability of which nothing at all is known antecedently to any trials made or observed concerning it."

If Bayes's conclusion is correct, we have a basis for the whole of statistical inference. Richard Price, who sent Bayes's paper to the Royal Society, seems to imply in a covering letter that Bayes was not satisfied with his argument by analogy and, hence, had declined to publish it. Whatever the case with Bayes, Laplace had no qualms about Bayes's argument; and from 1774 he regularly assumed uniform prior probability distributions. His enormous influence made Bayes's ideas almost unchallengeable until George Boole protested in his *Laws of Thought* (1854). Since then, Bayes's technique has been a constant subject of controversy.

Today there are two kinds of Bayesians. Sir Harold Jeffreys, in his *Theory of Probability*, maintains that, relative to any body of information, even virtual ignorance, there is an objective distribution of degrees of confidence appropriate to various hypotheses; he often rejects Bayes's actual postulate, but accepts the need for similar postulates. Leonard J. Savage, in his *Foundations of Statistics*, rejects objective probabilities, but interprets probability in a personal way, as reflecting a person's personal degree of belief; hence, a prior probability is a person's belief before he has made some observations, and his posterior probability is his belief after the observations are made. Many working statisticians who are Bayesians, in the sense of trying to argue from prior probabilities, try to be neutral between Jeffreys and Savage. In this respect they are perhaps close to Bayes himself. He defined the probability of an event as "the ratio between the value at which an expectation depending upon the happening of the event ought to be computed, and the value of the thing expected upon its happening." This definition can be interpreted in either a subjective or an objective way, but there is no evidence that Bayes had even reflected on which interpretation he might prefer.

BIBLIOGRAPHY

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That the Principal End of the Divine Providence and Government Is the Happiness of His Creatures (London, 1731); and *An Introduction to the Doctrine of Fluxions, and a Defence of the Mathematicians Against the Objections of the Author of The Analyst* (London, 1736). "An Essay Towards Solving a Problem in the Doctrine of Chances" was published in *Philosophical Transactions of the Royal Society of London*, 53 (1763), 370-418, with a covering letter written by Richard Price; repr. in *Biometrika*, 45 (1958), 296-315, with a biographical note by G. A. Barnard. Also of interest is "A Letter on Asymptotic Series from Bayes to John Canton," in *Biometrika*, 45 (1958), 269-271; repr. with the paper from the *Philosophical Transactions in Facsimiles of Two Papers by Bayes* (Washington, D.C., n.d.), with a commentary on the first by Edward C. Molina and on the second by W. Edwards Deming.

II. SECONDARY LITERATURE. Supplementary information may be found in John Arbuthnot, "An Argument for Divine Providence Taken From the Constant Regularity of the Births of Both Sexes," in *Philosophical Transactions of the Royal Society of London*, 23 (1710), 186-190; George Berkeley, *The Analyst* (London-Dublin, 1734); Jacques Bernoulli, *Ars conjectandi* (Basel, 1713); George Boole, *An Investigation of the Laws of Thought* (London, 1854); Harold Jeffreys, *Theory of Probability* (Oxford, 1939; 3rd ed., 1961); Pierre Simon Laplace, "Mémoire sur la probabilité des causes par les événements," in *Mémoires par divers savants*, 6 (1774), 621-656, and *Théorie analytique des probabilités* (Paris, 1812); Abraham de Moivre, *The Doctrine of Chances* (London, 1718; 3rd ed., 1756); and Leonard J. Savage, *The Foundations of Statistics* (New York-London, 1954).

IAN HACKING

BAYLAK AL-QIBJĀQĪ (fl. Cairo, Egypt, ca. 1250), *mineralogy*, probably also *mathematics, technology*.

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IBLA 40. c. (5.40) s. 281 — 295,
1977 (TUNIS)

Un Traité inédit de Minéralogie au 13^{ème} siècle

Baylak QABŌĀQĪ - Kitāb Kanz al-Tuġġār fi Mā rifat al-Ahġār
présenté par Mongia MENSIA

Les Arabes ont manifesté, à la suite des conquêtes et plus tard sous le règne des Abbassides et des Fatimides, un grand intérêt pour la minéralogie. L'importance des pierres et des métaux précieux dans la bijouterie les a incités à suivre les traditions grecque et persane. Ils ont subi de la sorte l'influence de grands maîtres, tels Aristote (1), Dioscoride (2), Apollonios (3) et Naṣr al-Daynūrī (4), qui ont fait de la minéralogie une science indépendante ayant un objet bien précis et un domaine bien délimité. Les Arabes ont eu le mérite de rassembler des éléments très riches de minéralogie provenant de différentes civilisations. Y ajoutant des éléments provenant essentiellement de leur propre culture, ils ont proposé une synthèse originale.

Certaines études (5) ont tenté de faire l'inventaire des œuvres consacrées à la minéralogie, mais nous sommes en-

- (1) L'original grec du *Livre des pierres précieuses* traduit par Luka fils de Sérapion (mscr. n° 2772. Bibl. Nat. de Paris) est, selon De Slane, faussement attribué à Aristote. Cf. De SLANE, *Catalogue des manuscrits orientaux*, t. 1, p. 498.
- (2) Dioscoride 1^{er} s. ap. J.C., médecin grec, botaniste, auteur d'un livre sur les pierres précieuses.
- (3) Apollonios de Thyane ou Bélinas, 1^{er} s. ap. J.C., philosophe et thaumaturge grec, disciple de Pythagore, auteur du *Secret de la Nature* (mscr. à la Bibl. Nat. de Paris) et d'une lettre sur l'astrologie traduite par Hunayn Ibn Ishāq.
- (4) Naṣr Al-Daynūrī, connu sous le nom de Naṣr Al-Ġawhari, vécut à la fin du 11^{ème} s., s'inspira d'Al-Kīndī, inspira Al-Bīrūnī et Al-Tifāṣī. Il est l'auteur d'une épître en persan sur les pierres précieuses.
- (5) Chom: Clément MUGET, *Essai sur la minéralogie arabe*, in *Journal Asiatique*, t. XI (1804); Ibn AL-AKĦANĪ, *Nuḥab al-Daḥā'ir fi aḥwāl al-ġawāḥir*, édité et commenté par P. Anastās AL-KARMALĪ, Le Caire, 1939; 'Abd AL'Īḥ Yūsuf AL-ĠANĪM, *Al-Ġawṣ 'alā al-lu'lu' fi al-maṣādir al-araḥīya al-ġawāḥira*, Kuwait, 1974.

summarizes a book in Russian by A. V. Marakuev on weights and measures in China (152 p., Vladivostok 1930).

"Also, if you look at the index to Sir Aurel Stein's *Serindia* (Oxford 1921) you will find numerous references to measures found by him and probably also to weights. These are the only sources that I regard as reliable treatments of these subjects."

Dr. Shio Sakanishi wrote me on the same day and with equal kindness:

"There are two authoritative histories of weights and measures in the Japanese language. The first and most important of the two is *Honchō do-ryō-kenkō kō* [Treatise on weights and measures in Japan], by Kariya, Ekisai (1775-1835).

"Kariya, Ekisai was a famous bibliographer and a scholar in Japanese and Chinese classics. The present work is in four volumes. It remained in manuscript till 1912, when Dr. Tokuzō Fukuda edited and annotated it and included it in the *Nihon keizai sōsho* [Japanese economic series]. *Honchō do-ryō-kenkō kō* is not only a history of Japanese weights and measures, but it is also a comparative study of the problems throughout the Far Eastern countries. It traces the Japanese terms to the Chinese sources, and through early Buddhistic and other works, to Hindu and sometimes Arabic origins. The *Nihon koten zenshū kankō-kai* reprinted the work in two small volumes for students in 1927.

"The second work is by Hirata, Atsutane (1776-1843), one of the most distinguished classical scholars and an authority on Shintō: *Kōkoku do sei kō* [System of measures in the Empire], in two volumes. It was completed and printed during the Tempō period (1830-43). Hirata, Atsutane examined the ancient records, culled all the references to numbers, and examined them. He brings the data to the end of the fourteenth century. Hirata's work is not so scientific, because, as an ardent Shintoist, he was hampered by certain religious conceptions of these numbers."

3. MAGNETISM

THE DISCOVERY OF THE COMPASS

The early history of the compass has been discussed in volumes 1 and 2 (passim).²¹ It will suffice to recall that although the attractive property of the loadstone was soon discovered, namely by Thales (VI B.C.), its directive property was far more difficult to recognize, for it implied the existence of an elongated loadstone or needle, free to turn without resistance. The Chinese discovered that property and made use of it at an early time for geomantic purposes.

Muslim sailors, who monopolized the trade of the eastern seas, were perhaps the first to use the magnetic needle for navigation.

References to the compass and its use may be found in Berakya ha-Naqdan (XII-2), Alexander Neckam (XII-2), who speaks already of a pivoted needle, Guiot of Provins (XIII-1), Thomas of Cantimpré (XIII-1), James of Vitry (XIII-1), Bailak al-Qabajaqī (XIII-2),^{21a} and in Peter the Stranger (XIII-2). The latter's epistola of 1269 contains a description of two kinds of compass, a dry kind with divisions marked off on the box, and a floating one with a reference scale divided into 360 degrees. Thus it is clear that by 1269 an elaborate compass placed in a

²¹ Summaries in 1, 764; 2, 24, 509, 629-31.

^{21a} Addition to note in *Introd.* (2, 1072): Bailak ibn Muḥammad al-Qabajaqī (or Qybāqī) flourished in the second quarter of the century under the Ayyūbī sultān al-Muzaffar II Taqī al-dīn Maḥmūd (ruler of Ḥamāh 1229-44). See Brockelmann (suppt. 2, 904, 1938).

SARTON III / I, s. 714-716, 1975

(NEW YORK)

ms. 101A, XLII/20 (1972)
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150-1000 A. H. (750-1600 A.D)/ Ilyas Farnini.
Abu Dhabi: Cultural Foundation, 1998.
xxx, 507p.; 30 cm.
- Includes bibliography references, appendices and index.
1. scholars, Muslim - Biography.
2. Civilization, Islamic - Bio-bibliography.
3. Bibliography, Critical.
4. Civilization, Islamic - Bibliography. Title.

150 - 1000 A.H
(750 - 1600 A.D)

Türkiye Diyanet Vakfı İslâm Araştırmaları Merkezi Kütüphanesi	
Dem. No:	89 853
Tas. No:	

Ilyas Farnini, Ph.D.
Faculty of Science
United Arab Emirates University

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حقوق الطبع والنشر محفوظة للمجمع الثقافي
الطبعة الاولى ١٩٩٨م

* الآراء الواردة في هذا الكتاب لا تعبر بالضرورة عن رأي الناشر *

the work was to enlighten the reader about remarkable and often marvelous things and events that could be observed in other countries and to deepen his understanding of human society and his respect for the divine handiwork in all its richness and variety. This purpose was uniquely achieved and has given this work its lasting greatness.

Ibn Baṭṭūṭah's work is a source of unmatched importance for fourteenth-century India, and even more so for the Maldives, southern Russia, and especially Negro Africa. Ibn Baṭṭūṭah often is the only medieval author to give us information on these areas; and where there is additional material, the value of his observations remains undisputed. He also contributes considerably to our knowledge of comparatively well-known areas, such as contemporary Anatolia. Whether observed fact, hearsay, or legend, whether indubitably true or suspect, his data are often the only ones we have to fill voids in our knowledge. His personal contribution lies in the single-mindedness with which he traveled in order to learn more and more about man and nature.

BAYHAQĪ ('Alī al-Bayhaqī)

Abū-l-Ḥasan 'Alī ibn al-Imām Abī-l-Qāsim Zaid al-Bayhaqī, *Zahir al-Dīn*

b. in Bayhaq near Nishāpūr in 1106 A.D; d. in 1169-1170 A.D (or 1174 A.D)

Biographer, scientist - 'Alī al-Bayhaqī^{77,78} lived mostly in his native town, in Marw, in Nishāpūr, and in Ray. He wrote a number of books on medicine, mathematics, astrology, and various other subjects, but is chiefly known because of his biographical collection entitled "*Ta'rikh Ḥukamā al-Islām*"⁷⁹ (History of the

⁷⁷ Dunlop, pp. 1131-1132

⁷⁸ Sarton, p. 445

⁷⁹ 'Alī al-Bayhaqī, Damascus (1946)

Learned Men of Islām). That collection was the continuation of an older one entitled "*Ṣiwām al-Ḥikma*" (Container of Wisdom) compiled about 980 by Muḥammad ibn al-Bahrām al-Sijazī al-Sijistānī. 'Alī also wrote a history of Bayhaq, in Persian, completed in Shashtamad in 1168.

BAYLAK

Baylak al-Qibjāqī
13th c. A.D

Mathematician, mineralogist - It is not clear if the name of Baylak corresponds to the mineralogist who wrote the book entitled "*Kanz al-tuḡār*" (Treasure of the Merchants), dated around 1282, or to the mathematician who in 1260 prepared a copy of the work on the knowledge and use of the clocks of Riḍwān al-Khurāsānī, or to the one who made a handwritten mark of ownership on another mathematical manuscript (1269/1270). The last two works are preserved in Istanbul. The authenticity of these details is open to investigation, but in any case, all dates mentioned fall within the lifetime of one particular mature man.

Baylak's^{80,81} only known book is his mineralogical work "*Kanz al-tuḡār fī maḡrifat al-aḡḡār*" (Treasure of the Merchants on the Knowledge of Minerals). If one is to judge by excerpts of the book published by Clément-Mullet in 1868, the book contains little that is original.

Baylak, however, was the first author writing in Arabic to treat the use of the magnetic needle as a ship's compass. On the trip to Alexandria, he watched one starless night as the captain stuck a needle through a straw so that the two objects formed a cross. This apparatus was then floated in a vessel of water. The

⁸⁰ Plessner, pp. 532-533

⁸¹ Sarton, p. 1072

(همو، 174). ظاهراً در مآخذ کهن‌تر دوره اسلامی به چنین نکته‌ای اشاره نشده است (رنو، 203؛ کارا دو وو؛ II/371؛ پلسنر، 532) و برخلاف نظر دوزی (ص 39؛ نیز ویدمان، «علوم طبیعی...»، 20، «مغناطیس ۲»، 331) — که واژه قریط را در قطعه شعری مربوط به حدود سال ۲۳۹ق (نک: ابن عذاری، ۹۷/۲)، معرب کالامیت و به معنی آهن‌ریا دانسته است — ربطی به قطب نما ندارد (قس: سارتن، II/630؛ نیز میهلی، 159-160، که اشارات مبهم عوفی به ابزاری با کاربرد مشابه را یاد کرده‌اند). گزارش بیلک تا کنون به چند زبان اروپایی ترجمه شده است (پلسنر، 533).

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محمدحسین احمدی

بیلکه سوار، شهرستان و شهری در استان اردبیل.

شهرستان بیلکه سوار: این شهرستان قسمت وسیعی از دشت مغان را تشکیل می‌دهد (قاسمی، ۱۷۷) و از شمال و خاور به جمهوری آذربایجان، از جنوب خاوری و جنوب به حومه گرمی، و از باختر به پارس آباد محدود است (فرهنگ جغرافیایی آبادیها...، ۱۲/۴). مساحت آن ۱۹۴۵ کی-م. و دارای ۲ بخش، ۴ دهستان و ۳۵۳ آبادی است (آمارنامه...، ۱۰). بر طبق سرشماری ۱۳۷۵ش این شهرستان ۵۹'۵۸۴ نفر جمعیت داشته است که از این شمار ۱۹'۱۱۶ نفر در مناطق شهری، و ۴۰'۴۶۸ نفر در مناطق روستایی زندگی می‌کردند (سرشماری...، شانزده). بنابراین، می‌توان نتیجه گرفت که این شهرستان دارای بافت روستایی است.

شغل اصلی و اساس اقتصاد شهرستان بیلکه سوار مبتنی بر کشاورزی و دامداری است. کشاورزی بیلکه سوار به سبب داشتن خاک حاصل خیز، آب و هوای مناسب و وجود رودخانه از رونق فوق العاده برخوردار است. محصول عمده آن گندم و جو است. بیلکه سوار در زمینه پرورش دام از قبیل گوسفند و بز نیز به سبب سابقه طولانی عشایر کوچنده منطقه — به ویژه شاهسونها — واجد اهمیت است (فرهنگ جغرافیایی آبادیها، ۱۳/۴).

محمد، سیرت جلال‌الدین میکربنی، ترجمه کهن فارسی، به کوشش مجتبی مینوی، تهران، ۱۳۴۲ش؛ نفیسی، سعید، بابک خرم‌دین، تهران، ۱۳۳۳ش؛ یاقوت، بلدان؛ همو، المشترك، به کوشش ووستفالد، گوتینگن، ۱۸۱۶م؛ یعقوبی، احمد، البلدان، بیروت، ۱۴۰۸ق/۱۹۸۸م؛ همو، تاریخ، بیروت، ۱۳۷۹ق/۱۹۶۰م؛ نیز:

Brunner, C., «Geographical and Administrative Divisions: Settlements and Economy», *The Cambridge History of Iran*, vol. III(2), ed. E. Yarshater, London, 1983; Clavijo, J., *Embassy to Tamerlane*, tr. G. Le Strange, London, 1928; Le Strange, G., *The Lands of the Eastern Caliphate*, London, 1966; Madelung, W., *The Minor Dynasties of Northern Iran*, *The Cambridge History of Iran*, vol. IV, ed. R. N. Frye, London, 1975; Markwart, J., *Ērānšāhr*, Berlin, 1901; Minorsky, V., *Studies in Caucasian History*, London, 1953.

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بیلقانی، نک: مجیرالدین بیلقانی.

بیلک قینجاقی (د پس از ۶۸۱ق/۱۲۸۲م)، کانی شناس مسلمان و کهن‌ترین گزارشگر بهره‌گیری از قطب نما در ناوبری مسلمانان. از زندگی وی تنها می‌دانیم که در ۶۵۸ق/۱۲۶۰م کتاب *علم الساعات* و *العمل بها*، اثر این ساعاتی (م) را در قاهره استنساخ کرده (کویرلی، ۴۸۲/۱-۴۸۳)، و در ۶۶۸ق/۱۲۷۰م در این شهر به دست نویسی از *الرسالة الشافية* نصیرالدین طوسی دست یافته (کراوزه، 496-491-490)، و در ۶۸۱ق نیز *کنز التجار* را در قاهره و به نام ملک منصور دوم (حک ۶۴۲-۶۸۳ق/۱۲۴۲-۱۲۸۴م)، حکمران ایوبی حماه نوشته است. البته نام پدر بیلک در دو دست‌نویس نخست، عبدالله و در دست‌نویس *کنز التجار*، محمد (شاید تصحیف ابو محمد) آمده است (نک: وایدا، 420؛ قس: «دائرة المعارف...»، VI/68؛ نیز دوسلان، شه 2779، که این نام نیامده است).

اثر بر جای مانده: *کنز التجار فی معرفة الاحجار*، در ۳۰ فصل درباره سنگها و فلزات گرانبها که یگانه نسخه شناخته شده آن — ظاهراً به خط مؤلف — در پاریس نگهداری می‌شود (همانجا). بیلک در مقدمه این کتاب از ۲۳ نویسنده یونانی و مسلمان، از آن میان هرمس، بلیناس (آپولونیوس تیانایی)، ارسطو، بطلمیوس، مسعودی، بیرونی، غزالی و دیگران یاد کرده است. موله که بخشهایی از متن عربی و ترجمه فرانسه این اثر را آورده، آن را تقلیدی صرف از زهار الافکار تیفاشی (م) بر شمرده که البته برخی اطلاعات و تجربیات بیلک بدان افزوده شده است (ص 12).

بیلک در این کتاب ضمن شرح مسافرت دریایی خود از طرابلس شام به اسکندریه، از ابزاری که کشتیبانان برای جهت یابی به کار می‌بردند، یاد کرده است. آنان در شبهای تاریک و بی ستاره، سوزنی را از میان ساقه یک گیاه، چلیپاوار گذرانده، در ظرف آبی شناور می‌ساختند و سپس یک سنگ مغناطیس (آهن‌ریای طبیعی) گرداگرد سوزن می‌چرخاندند که موجب چرخش سوزن می‌شد. پس از دور کردن ناگهانی سنگ، سوزن به تدریج در راستای شمال و جنوب آرام می‌گرفت

Ekmeleddin İhsanoğlu, Boris A. Rosenfeld, Mathematicians, astronomers and other scholars of Islamic civilization and their works (7th-19th c.), Istanbul 2003, pp. 229

İSAM KTP.91191

Baylaq et Kipçaklı

649. BAYLAQ AL-QIBJAQI

Baylaq ibn `Abdallāh al-Qibjāqī (13th c.), from Qibjaqs (Kipchaks), worked in Cairo at the courts of Mamluk

Sultan al-Manşur Qalawūn (1279-1290) and Bahri (Qibjaq) dynasty of Mamluk sultans.

See: GAL² (I 904), IHS (II 1072-1073, III 714), SSM (56); Plessner [7] (DSB), Ullmann [2] (128).

A1. [Treatise on Solar Eclipse Computations] - Cairo (mīqāt 639/14). Appendix to the treatise (No 812, A1) of Ibn al-Mushrif.

A2. Tables of the Right Ascension from the Beginning of Aries for Each Minute [of Ecliptic Longitude] (Jadāwil maṭālī` al-falak al-mustaqīm min awwal al-Ḥamal maḥlūla daqīqa daqīqa) - Cairo (Fāḍil mīqāt 41). Treatise was written in Cairo in 1275.

Mi1. Book of Treasure for Merchants who seek Knowledge of Stones (Kitāb kanz al-tujjār fi ma`rifat al-aḥjār) - Paris (2779). Book on mineralogy containing the description of swimming magnetic compass and its application by sailors. The book was written in 1282 and dedicated to Sultan Qalaun.

Criticism—James Edmund Harting: *Bibliotheca accipitraria* (66, 71, 159, 181, London 1891). Léon Moulé: *La médecine vétérinaire en Europe au Moyen âge* (65, Paris 1900).

II. GREEKS

See note on Demetrios Pepagomenos.

III. WESTERN ISRAEL

See notes on Judah ben Moses, Jacob ben Maḥir, Gershon ben Solomon.

IV. ISLĀM

BAILAK AL-QABAJAQĪ

Muslim mineralogist who flourished in Cairo c. 1242-1282. He wrote in 1282-1283 the *Kitāb kanz al-tijār fī ma'rifat al-aḥjār* (Treasure of merchants concerning the knowledge of [precious] stones), which he dedicated to the sultān al-Manṣūr II Sayf al-dīn Qalā'ūn (Baḥrī Mamlūk, ruling from 1279 to 1290). This was largely derived from al-Tifāshī (first half of the thirteenth century). He quotes twenty-three authors, Hermes, Apollonios, Aristotle, Ptolemy among the Greeks; al-Mas'ūdī, al-Bīrūnī, al-Ghazzālī among the Muslims. The *Kanz al-tijār* contains a description of the floating compass and its use by sailors, which he had witnessed in the eastern Mediterranean Sea in 1242-1243.

Julius Klaproth: *Lettre à A. de Humboldt sur l'invention de la boussole* (57, Paris 1834; containing Arabic text with translation). M. Steinschneider: *Arabische Lapidarien* (*Z. der deutschen morgenländischen Ges.*, vol. 49, 256, 1895). C. Brockelmann: *Arabische Litteratur* (vol. 1, 495, 1898). Carra de Vaux: *Penseurs de l'Islam* (vol. 2, 371, 1921). E. Wiedemann: *Maghnatīs* (*Encyclopaedia of Islām*, vol. 3, 106, 1928).

'ABD AL-MU'MIN AL-DIMYĀṬĪ

Abū Muḥammad 'Abd al-Mu'min ibn Khalaf, Sharaf al-dīn al-Tūnī al-Dimyāṭī al-Shāfi'ī. Egyptian traditionalist and writer. Born in the island of Tūna near Dimyāṭ (Damietta) in 1217, educated in Damietta, he was the first professor at the college al-Manṣūriya founded in Cairo by the Mamlūk sultān al-Manṣūr Qalā'ūn (ruled from 1279 to 1290); he taught also at the college al-Zāhiriya; he died in 1306.

His main work is the *Kitāb faḍl al-khail* (Excellence of horses), a collection of traditions concerning horses. It is divided into 8 chapters: (1) the merit of horses used in the jihād (holy war); (2) the castration of horses, a forbidden thing; (3) the choosing of horses, the colors to be preferred; (4) markings of evil omen; (5) competitions for prizes are forbidden, except with regard to horses and camels; (6) spoils belonging to the rider; (7) Muslim horses free from taxation; (8) names of the Prophet's horses. It is clear that the purpose of this work is mainly traditional and legal; but the student of natural history may find in it some little bits of information concerning Arabian horses.

A summary of it, entitled *Qaṭr al-sail fī amr al-khail* (Dropping of the flood in the matter of horses) was made by 'Umar ibn Raslān al-Bulqainī (d. 1402-1403).

SARTON II/II. c., s. 1072, 1975

(NEW YORK)

of the somewhat earlier work of Frederick II. It includes helminthological observations. There are other Greek treatises on the subject dating presumably from the same time. Demetrios may be the author of a book on dogs.

3. *Western Israel*—Judah ben Moses, one of the translators employed by King Alphonso, translated from Arabic into Spanish a lapidary dealing with 360 stones, divided between the twelve signs of the zodiac.

Ibn Rushd's commentary on Aristotelian zoology was translated from Arabic into Hebrew by Jacob ben Maḥir, the task being completed in 1302.

The first part of the *Sha'ar ha-shamayim* of Gershon ben Solomon is a summary of natural history.

4. *Islām*—Considerable information is naturally contained in the cosmographies of al-Qazwīnī and al-Waṭwāt.

A Persian lapidary is ascribed to Nāṣir al-dīn al-Ṭūsī. Another lapidary was composed in 1282 for an Egyptian sultān by Bailak al-Qabajāqī. It includes among other things a description of a kind of floating compass and of its use by sailors. Orientals have always been extremely fond of precious stones, and such lapidaries explaining their occult qualities were much appreciated; there is a whole series of them in Arabic (also in Persian, Turkish, and other oriental languages). Needless to say their scientific value is very small. The naturalist can hardly derive any knowledge from them beyond a list of stones.

Another type of book appealing to Muslims was the one wherein traditions concerning horses were collected. A good specimen of it was composed by the Egyptian traditionalist, 'Abd al-Mu'min al-Dimyāṭī. It would disappoint the naturalist in search of information on Arabian horses. Indeed the point of view is not scientific, but legal and religious.

The two itineraries of Muḥammad ibn Rushaid contain a few facts relative to the natural history of Spain and Africa.

There are a number of Muslim MSS. (Arabic and Persian) which include miniatures representing animals and plants. A study of these miniatures from our point of view has not yet been made; however it is doubtful whether it would lead to any important results. The interest of these miniatures is chiefly artistic; some of them (and I have seen a good many) are beautiful indeed—more beautiful than convincing.

5. *China*—In 1256 a large botanical encyclopaedia was completed by Ch'ên Ching-i. It is largely made up of extracts from earlier writings. It is essentially different from western works on the same subject because of the abundant literary and historical references which it contains, and also because of the importance attached to flowers. In fact the first half of it is entirely devoted to flowers, the second half to fruits, herbs, trees, husbandry—including of course sericulture—vegetables, etc. For each plant the prose description is followed by a poetical one. This mixture of art and poetry with the most practical information is typically Chinese. We pass back and forth from reality to dream.

In 1273 the *Nung sang chi yao*, a treatise on agriculture and sericulture, was compiled by order of Kublai Khān. That treatise was often reedited with new additions; for example, c. 1314, by Lu Ming-shan, under the title *Nung sang i shih ts'o yao*.

Twenty-six years later (in 1299) Li K'an published a separate treatise on the bamboo which has remained a standard book in Chinese literature. The purpose was purely artistic, yet it may interest botanists.

SARTON II/II, c. 5-780, 1975 (NEW YORK)

5. Bailaq b. 'Al. al-Qybčāqī schrieb für al-Muzaffar II von Ḥamāt (626—42/1229—44).

Kunz at-tigār fī ma'rifat al-aḥgār, über die Kennzeichen der Edelsteine im engen Anschluss an at-Tifāšī, Paris 2779 (Autograph v. J. 681/1282), s. Steinschneider, ZDMG 49, 256.

GAL. c. I., s. 652, 1943, (LEIDEN)

7. Bailak b. M. al-Qyblāqī schrieb für al-Muẓaffar II von Ḥamāt (626—642/1229—44):

Kanz at-tiġār fī ma'rifat al-aḥḡār, Autograph v. J. 681/1282, Paris 2779 in sklavischem Anschluss an at-Tifāšī (Steinschneider, ZDMG 49, 256). Er schrieb 658/1260 die Hds. Köpr. 949 in Kairo und besass 668 die Hds. Serāi 3342,10 (s. M. Krause, Stamb. Hdss. No. 343).

8. s. II, 8.

GAL, Supp. c. I, s. 904, 1937, (LEIDEN)