
Cross-Cultural Scientific Exchanges in the Eastern Mediterranean, 1560–1660 by Avner Ben-Zaken

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Avner Ben-Zaken a jugé utile d'en informer le lecteur dans l'introduction du livre sous recension : c'est en découvrant pendant ses études supérieures des témoins proches-orientaux de la diffusion du copernicianisme qu'il a choisi son thème de recherches – les échanges scientifiques interculturels entre les pays riverains de la Méditerranée orientale, durant la période 1560–1660 [4]. Cette indication autobiographique incite le recenseur à rappeler le parcours intellectuel dont le présent livre prétend être, non pas l'aboutissement, mais un jalon. Depuis la préparation de sa thèse [2004a], l'auteur a en effet publié cinq articles consacrés peu ou prou à la même thématique, à la même tranche chronologique et à la même zone géographique [2002, 2004b, 2004c, 2009a, 2009b]. Mais les deux derniers parus, en dépit de leur date de publication, prolongent en fait le livre sous examen. En outre, et toujours en 2010, Avner Ben-Zaken a publié un second livre, qui aborde la thématique en question mais sous l'angle particulier de l'autodidactisme en élargissant la zone géographique et la période chronologique de l'enquête. Pendant près d'une décennie et en une demi-douzaine de publications, l'auteur s'en est donc tenu à l'objet historique sur lequel son attention avait été attirée au cours de ses années d'étudiant.

* [Edd.] This is a revision of a review by Max Lejbowicz that was posted on 27 February 2013 and then withdrawn at his request on March 2. The aim in this revision is to provide an accounting of Ben-Zaken's book that does justice to the full range of the diverse sources on which the author draws in making his case. The Editors apologize for any inconvenience that this may cause readers of *Aestimatio*.

Les travaux d'Avner Ben-Zaken se caractérisent autant par leur objet que par leur manière de le traiter. Ils s'attachent à des péripéties propres à la micro-histoire culturelle. En cinq chapitres rendus quasiment autonomes par les faits qui y sont réunis et interprétés, les *Cross-Cultural Scientific Exchanges in the Eastern Mediterranean* traitent du thème qu'ils annoncent en explorant les tenants et les aboutissants d'événements culturels ponctuels. Nettement circonscris, ces épisodes concourent au même but : décrire l'imbrication des cultures retenues, celle de l'Europe latine et celles du Proche-Orient arabe, persan et turc, en prenant pour fil directeur les réalisations scientifiques, et plus précisément, astronomiques de ces diverses cultures.

Plus précisément encore, chaque chapitre explore « a marginal textual object, written mostly by marginal figures in the history of science » [7]. C'est ainsi que sont traités successivement : dans le 1^{er} chapitre, les mésaventures, sur fond apocalyptique, de Taqī al-Dīn, l'initiateur de l'éphémère observatoire d'Istanbul (1577–1581), lequel est rapproché d'Uraniborg, fondé en 1576, par un Tycho Brahe qui s'essaye aux prédictions astrologiques, tout comme son pendant ottoman ; dans le 2^e chapitre, les pérégrinations orientales, de 1614 à 1626, de Pietro della Valle en quête de la version primitive du livre de Job qui réconcilierait les Écritures Saintes et l'astronomie copernicienne ; dans le 3^e chapitre, la quête du Juif crétois, Joseph Solomon Delmedigo (1591–1655), un élève de Galilée, qui cherche dans le karaïsme – une dissidence du judaïsme rabbinique – le moyen de concilier la tradition mosaïque avec le nouvelle physique ; dans le chapitre 4^e, sur fond cette fois de querelles entre les tenants du parlementarisme, acquis au copernicianisme, et les monarchistes attachés aux traditions anglicanes, les recherches menées par l'orientaliste anglais, John Greaves, soutenu par des prélats de premier plan, d'une langue et d'une unité de mesure qui seraient primordiales et normatives par nature (le triomphe du parlementarisme marque l'arrêt de ce genre de prospections au profit d'une « universal language for natural philosophy based on the universality of nature » [138]) ; et dans le 5^e et dernier chapitre, enfin, la traduction en turc, en 1660, par İbrāhīm Efendi al-Zigetvārī Tezkirecī, un scribe de l'armée ottomane, de la *Nouvelle théorie des planètes* rédigée en 1635 par le cosmographe du roi de France Louis XIII, Noël Duret, qui infléchit l'original vers une problématique soufie.

Cet ensemble de chapitres est précédé par une introduction au titre évocateur « Incommensurable Cultures ? », et suivi par une conclusion, titrée de manière

non moins évocatrice, « From 'Incommensurability of Cultures' to Mutually Embraced Zones ». Est-ce que le lecteur, même sensible à l'œcuménisme final, est convaincu par la démonstration menée dans les chapitres intermédiaires ?

L'ouvrage, qui, on l'a vu, insiste sur l'importance des théories astronomiques témoigne trop souvent d'une méconnaissance des données de base de l'astronomie. Que penser de :

As the centuries pass, the celestial pole moves gradually through the stars in his circle, at a rate of 0.7 degrees per century, and completes on revolution every twenty-six thousand years [112]?

L'avancée de 0.7 degré par siècle est reprise à la page 113 : la valeur donnée n'est donc pas une coquille. Une simple multiplication montre qu'animé d'un mouvement d'une telle vitesse, le pôle céleste n'a parcouru en 26 000 ans qu'à peine plus de la moitié de la distance annoncée ($260 \times 0.7 = 182$), puisque – faut-il le rappeler ? – un cercle contient 360 degrés.

Une meilleure connaissance de l'astronomie médiévale aurait certainement permis une présentation plus rigoureuse des faits retenus et des idées défendues. Or pour évoquer la traduction déficiente de l'*Almageste* de Claude Ptolémée par Gérard de Crémone au XIII^e siècle, Avner Ben-Zaken renvoie [107n5] à une étude de Marshall Clagett, qui, certes, a fait date dans l'histoire des sciences médiévales, mais consacrée à Euclide et centré sur un autre traducteur arabo-latin du XIII^e siècle, comme le titre l'indique expressément, « The Medieval Latin Translation from the Arabic of the *Elements* of Euclid, with Special Emphasis on the Versions of Adelard of Bath » [Clagett 1953] – de surcroît un traducteur antérieur d'une génération à Gérard de Crémone. Comme il se doit, cette étude fondatrice ne contient aucune allusion à l'astronome alexandrin. Tout ce passe comme si l'œuvre de ce grand érudit, Paul Kunitzsch, était passée par pertes et profits [1974] et comme si Gérard de Crémone, ce traducteur particulièrement fécond, n'avait pas fait l'objet d'études spécifiques [Lemay 1978 ; Pizzamiglio 1992 ; Burnett 2001, pour ne retenir que les plus notables]. Tout se passe enfin comme si des travaux n'avaient pas été consacrés au latin des traductions arabo-latines médiévales des textes astronomiques [Pouille 1987 ; Lorch 1990], alors que leur connaissance permettrait d'évaluer plus justement la critique que les arabisants du XVI^e siècle leur adressent.

Avner Ben-Zaken écrit [27, 34] que les deux plus anciens observatoires en terre d'Islam, sont ceux de Marāgha au XIII^e siècle et de Samarcande au XV^e. L'ouvrage qu'il cite et qui, sur la question, fait autorité [Sayili 1960], ne dit pourtant pas la même chose. Les deux observatoires en question n'y sont présentés qu'aux chapitres 6 et 8, dans un ensemble qui en compte 12. C'est dire qu'ils sont précédés par de nombreux autres. L'un des plus marquants, sans être le plus accompli, est sans doute celui érigé à l'initiative du calife al-Ma' mūn (813–833), pour accompagner le puissant mouvement de traduction gréco-arabe qu'il avait également suscité. Sans cette exploration continue du ciel et sans les perfectionnements qu'elle implique au double plan pratique et théorique, l'engouement des Latins pour l'astronomie arabe dès le XI^e siècle, et surtout à partir du XII^e, est proprement inintelligible.

Avner Ben-Zaken étudie très en détail la fameuse enluminure extraite de la chronique persane versifiée d' 'Alā' al-Dīn al-Manšūr, *Shāhinshāhnāma/Le livre du roi des rois* (i. d. de Murād III ; v. 1581) qui rehausse le manuscrit Istanbul University Library, F. 1404. Elle est censée reproduire certains des instruments d'inspiration européenne dont l'observatoire d'Istanbul disposait. Que ne s'était-il pas intéressé, pour mieux connaître le niveau technique atteint par Taqī al-Dīn, à l'un des manuscrits de la bibliothèque de l'observatoire de Kandilli qui contient un petit *zīj* probablement autographe ? [King, 1993 ; 1998, XV.248–249].¹ Toujours en rapport avec cette enluminure, Avner Ben-Zaken commente les deux sphères qu'elle représente en les rapprochant de deux autres, l'une terrestre, l'autre céleste, apparues lors d'une vente chez Christie's en 1991 : elles auraient été fabriquées à Anvers en 1579 et, comme en témoigne l'inscription de l'une d'elles, étaient destinées au sultan Murād III. Or David King [1998, 94], pense qu'elles ont été fabriquées à Duisbourg et qu'elles n'ont jamais quittées l'Europe. L'avis d'un tel spécialiste demanderait au moins d'être pris en considération avant de proposer une interprétation.

La technique astrologique, si importante dans l'astronomie médiévale et renaissante, n'est guère mieux traitée. En reprenant la traduction anglaise d'un passage du traité qu'Abū Ma'šār a consacré à l'histoire des religions et des dynasties, Avner Ben-Zaken croit devoir préciser ce qu'il faut entendre par « cardines » ; il s'agirait de l'adjectif promu au rang de substantif par l'ellipse d'un nom déterminé, soit « cardinal points » [35]. Il lui aurait suffi de lire les com-

¹ « Zīj » est le mot arabe désignant des tables astronomiques. Le livre de David A. King est pourtant cité dans la bibliographie d'Avner Ben-Zaken.

mentaires des éditeurs du livre en question pour s'apercevoir que le nom déterminé est tout autre [Yamamoto and Burnett 2000, 1.579] : considéré comme adjectif, « cardines » qualifie, dans ce contexte, non pas un point mais une ligne, celle que découpent quatre des douze maisons (anglais : « places ») à une date précise sur la sphère locale : les 1^{ère} et 4^e (pour l'arc nocturne) et les 7^e et 10^e (pour l'arc diurne). Abū Ma^cšar ne parle donc pas du simple passage des planètes à l'un des quatre points cardinaux mais de leur présence dans l'une des quatre parties bien délimitées de la sphère locale, les maisons cardinales.

Force est aussi de constater que la connaissance de la langue arabe par l'auteur n'est pas toujours satisfaisante. Il traduit, sans enquête préalable, le mot arabe « idrāk », abondamment utilisé dans le chapitre 5, par l'anglais « apperception » ; français « aperception ». En fait, le mot appartient au vocabulaire d'Avicenne. Il est généralement traduit en français pas « perception » [Goichon 1984, 83–84 ; Sebti 2000, 18 ; Marcotte 2006] ! Comment admettre tout de go que le même mot arabe puisse renvoyer, à la fois, à une opération psychologique et à la conscience de cette opération ? De même, la proximité sémantique d'« idrāk » avec « aršād » [151] mériterait d'être mieux documentée. Enfin, la juxtaposition dans une même page [161] d'une référence à *Tahāfut al-falāsifah* d'al-Ghazzālī traduit par « The Incoherence of Philosophers » et à *Ḥikmat al-ishrāq* de Suhrawardī traduit par « The Philosophy of Illumination » concrétise un étrange flottement terminologique, qui court d'ailleurs tout au long de l'ouvrage. Sans doute que, pour le traité de Suhrawardī, Avner Ben-Zaken se contente de reprendre le titre de la traduction de John Walbridge et Hossein Ziai [1999], qui est effectivement citée dans la bibliographie [225]. Mais n'est-ce pas commettre un gros contre-sens que de laisser penser qu'en arabe classique, « falsafa » (« la philosophie ») et « ḥikmat » (« la sagesse ») sont de simples synonymes ? Est-ce qu'al-Ghazzālī a fustigé l'incohérence des sages ? Une mise au point lexicographique s'imposait pour affiner les analyses proposées –, mise au point d'autant plus facile à rédiger qu'elle a déjà été faite, et très bien faite [Jolivet 1991].

Avner Ben-Zaken se laisse parfois entraîner par les sortilèges de l'occultisme et de la cabale. De retour de ses voyages au Proche-Orient et arrivé à Amsterdam, Joseph Solomon Delmedigo se laisse convaincre d'écrire un traité qui réconcilierait le judaïsme et la nouvelle physique. Il le titre « Élim ». Avner Ben-Zaken voit dans ce nom, dont il est question dans Exode 15.27 :

a utopian biblical locale where, according to cabalists, the revelation of the secrets of nature had commenced and had spread to the whole universe [78]

a utopian oasis in the desert [90]

En fait, ce nom est également utilisé dans le livre des Nombres 33 :9–10 et, d'après François Michel Du Buit [2002], auteur d'une *Géographie de la Terre Sainte* [1958, *non vidi*], il renverrait soit à l'oasis de Garandel si l'on suit l'Exode, soit à l'oasis de Bir Qatia si l'on suit les Nombres. Il s'agit donc, pour le bibliste, de la mythification d'un lieu incertain, non d'un lieu mythique à proprement parler. Une fois rappelé cet acquis de l'exégèse, il serait intéressant de le confronter aux conceptions des cabalistes du XVII^e siècle : c'est dans le maintien de ce genre d'écart que s'opère le travail de l'historien.

Tout au long de son livre, Avner Ben-Zaken fait preuve d'un réel talent de conteur. Il lui reste maintenant à le soumettre plus strictement aux réquisits de la méthode historique et plus spécialement de l'histoire des sciences – si, du moins, il veut que soit prise au sérieux sa manière de concevoir les *Cross-Cultural Scientific Exchanges*.

In addition to the problems which Ben-Zaken had with technical elements of astronomy and astrology, as well as with lexicography, there are numerous methodological, philological, and factual issues that mar his storytelling. The term 'truth' is certainly problematic and not well appreciated among current writers in the humanities. But there is the obligation for any author who wishes to establish his or her credentials as an academic historian (of science) to verify to the best of her or his capacity that he or she represents the primary sources correctly. This means that translations marked as her or his own enterprise must not be taken from someone else. Moreover, a translation should reflect the original text in such a manner that it can be recognized by some other academic reader. Indeed, a story should be retold in accordance with its original structure and sense, and factual information must be reliable and verifiable. Ben-Zaken violates all these points in different ways and to varying degrees of gravity.

The chapter on Taqī al-Dīn rests in essential points of Ben-Zaken's ruminations on a faulty English translation of a technical Arabic text by the Ottoman scholar produced in 1966 by Sevim Tekeli, without Ben-Zaken's admitting

his dependence on this translation.² While Ben-Zaken appropriated many outright mistakes and modernizing interpretations from Tekeli's translation, his interpretation of Taqī al-Dīn's work as evidence for the scholar's adherence to hermetic and millenarian beliefs is his own. A short and relatively simply extract indicates the various kinds of shortcomings of Ben-Zaken's and Tekeli's treatment of the Arabic text.

Tekeli translated the passage in question by:

It asks aid from two sections of sciences, the mathematics and natural sciences. As we come to the mathematics. [sic] It uses branches of algebra, geometry, the science of surveying, dynamics [sic], mechanics and the science of balances. As for the natural sciences. [sic] They are the sciences of talisman, chemistry. Nevertheless it needs intelligence and the ability of freedom of action and skill about manufacture, as the art of goldsmith and carpentry [sic], making string, yellow brick-work. [Tekeli 1966, 142].

Ben-Zaken ignores the last sentence of Tekeli's version and writes:

[The art of building clocks] relies on two sections of sciences, mathematics and natural philosophy. As for mathematics, it uses fields of algebra, geometry, science of surveying, dynamics, and the science of balances. As for natural philosophy, it requires knowledge in the art of talismans, magic, and alchemy. Both require a high ability of direct intuitive perception, power of imagination. [18]

My strictly literal translation, which includes an indication of a word that I find difficult to render meaningfully, is as follows:

Its support (comes) from two parts of philosophy (*ḥikma*), the mathematical and the natural. As for the mathematical (part), to it belongs number theory, geometry, the science of proportion, the science of surveying, the science of moving automata (*ḥiyal*), the science of pulling weights, and the science of the balances. As for the natural (part), to it belongs the science of the talismans, the science of incantations, and the science of alchemy. Notwithstanding, one needs much comprehension, power of speculation [?],³ and excellence in many crafts such as the craft of goldsmithing, blacksmithing, carpentry, tinsmithing, stringing and (glazing) gold colored tiles.

² Compare pages 18ff. with Tekeli 1966, 215–323 (Arabic text), 139–212 (English translation).

³ *taṣarruf*. This word means usually something else, e.g., free disposal, action, free movement, etc. [Wehr and Cowan 1979, 598–599].

As these three renderings of this passage from Taqī al-Dīn indicate, several expressions are given meanings that they did not have in the 16th century or they are omitted:

- ‘ḥikma’ stands for philosophy in a broad sense or knowledge but does not signify science;
- ‘‘ilm al-‘adad’ does not mean algebra, which is ‘‘ilm al-jabr wa’l-muqābala’ in Arabic, but number theory;
- ‘‘ilm al-ḥiyal al-mutaḥarrika’ does not mean dynamics but refers to automata. Dynamics did not exist as a specific branch of knowledge with its proper name.

In addition, like Tekeli, Ben-Zaken does not translate

- ‘‘ilm al-nisba’, which designates the fourth of the theoretical mathematical sciences or theoretical music, i.e., the theory of proportion.

Further, in deviating from her, he also forgets to translate

- ‘‘ilm jarr al-athqāl’, which means the science of pulling weights.

The translation of ‘idrāk’—meaning, among other things: achievement, accomplishment; perception, discernment, awareness, consciousness; comprehension, understanding, grasp; reason, intelligence; sexual maturity, puberty, etc. [see Wehr, and Cowan 1979, 323]—as ‘direct intuitive perception’ results from Ben-Zaken’s belief that this word must always be understood in its more or less specific meaning within Suhrawardi’s philosophy of illumination. The translation of ‘taṣarruf’ by ‘imagination’ fits the text well but not the word, which has no relationship whatsoever to imagination or fantasy. Such a translation suggests an emendation on Ben-Zaken’s part which he ought to have announced in order to clarify his reading of the Arabic text. There is, unfortunately, no such note.

On the same page, Ben-Zaken claims:

He tells us that, when young, ‘he used to study the books of other mathematicians....I inspected texts in common use, the *Spherica* of Theodosius, the *Elements* of Euclid, the book *On Equilibrium of Planes* of Archimedes [sic], and the books of arts, which have the precise works and texts on mechanics.’

The Arabic text is much longer than revealed in Ben-Zaken’s direct quotation. It does not, however, mention the titles of the Greek books in their standardized manner, though Tekeli’s English translation does [1966, 139, 215]. Particularly revealing is the reference to Archimedes’ *On the Equilib-*

rium of Planes, which was not known under this title in Arabic at all. In my literal translation, the Arabic text says:

Thus, in the time of childhood [or: youth], I was very much in love with the science of the constructions [of clocks and] strong in reading the books of the rest of the mathematical sciences until I had certain [knowledge] of the shadow and the optical instruments in practice and in theory. I revealed the secrets in regard to their figures and their lines fundamentally and decisively. I looked into the common use [or: circulation] of the treatises on constructing [clocks], the Theodosian spheres, the Euclidean theorems, and the Archimedean polyhedra [?],⁴ the books on automata (*al-ḥiyal*) of the most subtle construction, and the treatises on the science of the steelyard (*al-qaraṣṭūn*), the balance, and the pulling of weights, [and] the like thoroughly investigated in this art [or: branch (*al-fann*)], from the basics to the utmost degree and from the letters to the conclusions [or: results]. Praise be to God.

Ben-Zaken continues:

Although he could get hold of such classics in their Arabic translations and commentaries, Taqī al-Dīn tells us that, for mechanics, he relied on sources *from other religions*, that he *gathered their useful fruits*, and that *no one in the Islamic world has come to terms with such knowledge*....In a later portion of the book, he explains that knowledge of clock-making had for some time been obtained by rote, and he states his motive for writing the book to document ideas that might fall into oblivion. [18–19]

The passages in italics show where Ben-Zaken has closely followed Tekeli's translation [1966, 140–141], which, as I will show, is faulty. Moreover, Ben-Zaken's last sentence is a summary based on an a misinterpretation: the Arabic text claims only that the author had written his work against the explicit orders of scholars of the religious sciences.

In my literal translation, the entire passage goes as follows:

What keeps arriving in these regions from their instruments, in particular, what belongs to the art (or: craftsmanship) of the people [or: tribes] of the Alans, the Magyars [*scil.* Hungarians], the French, and the Germans, is of utmost certainty and accuracy and of extreme beauty and illustration in addition to the fact that [their] instruments are plated with much gold, [although they can be procured] for a small price....During the period of my being in the service of the lord of the dynasty,...the Grand Vizier,...Excellency Aḥmad Pāshā...I regarded attentively his treasury [or: library] which was [filled] with those instruments of different

⁴ *al-tasatṭuḥāt al-arshimīdisiyya*.

constructions and [reflected on] which benefits they contained that [could] not be obtained with the astrolabe nor the quadrant. I [pondered] that truth of reflection and speculative thinking and was at home in its novel domains [as well as] previous thoughts. Nonetheless, I continued to discuss with the well-versed masters of this science from the remaining creeds and I harvested its beneficial fruits [that are] easy to use and of [great] variety until what [they contained] as drawings had been extracted by me and all of their principles on which they [rest], whether evident or hidden, [had become] clear to me. Thus, it came to me from this⁵ that it [never] was assembled by a single [person] of those who occupy themselves with this art [or: discipline] in the domains of Islam and [that never] anyone of the elites or the masses had become renowned for it. I came to understand that it was impossible for me [to obtain] the approval [or: agreement] by the *sharʿiyya* sciences, that the determination that was lamented upon (*bukiyathā*) [should] not be directed towards it in what remains of the life⁶ and that I [should] forget what I had achieved in it [so that] its trace [becomes] forgotten, obliterated, effaced, and extinct.

The list of such problems can be extended without much effort for this chapter and renders Ben-Zaken's claims about where, how, and for which purposes Taqī al-Dīn acquired his knowledge of mechanical clocks unreliable.

Ben-Zaken's misrepresentations are not limited to Arabic texts. They can also be detected in his discussions of Ottoman Turkish, German, Persian, Italian, and even English texts. For example, in the first case, Ben-Zaken describes an Ottoman miniature and its content as follows:

This miniature depicts star-like prophetic verses hanging from the sky above Sultan Murad III, heralding the rise and fall of the rules of the previous sultans.
[38]

The three names inscribed in the medallions are those of Grand viziers, not sultans: (Koca) Sinan Pasha (1580–1582; the first vizierate), (Şemsi) Ahmad Pasha (1579–1580) and (Sokullu) Mehmed Pasha (1565–1579). The texts added outside of the medallions give the Hijra dates for their respective vizierate, not any fancy 'star-like prophetic verses'.

A second instance concerns the German Protestant Salomon Schweigger (1551–1622), who visited the Ottoman Empire as the clerical member of a Habsburg embassy to the Ottoman court (1578–1581), not as a Habsburg

⁵ I.e., I understood.

⁶ I.e. for the rest of my life.

envoy as Ben-Zaken claims [24]. Ben-Zaken admits that Schweigger's report on Taqī al-Dīn is written in 'an unsympathetic tone', calling the Arab scholar 'a worthless astronomer', which is demonstrably contrary to the evidence that we possess in the latter's works. Neither Schweigger's prejudices nor his obvious incompetence when it comes to judging Taqī al-Dīn's scholarly 'worthiness' and his character—he slanders him as an 'artless charlatan, unholy rogue' [24]—moved Ben-Zaken to reflect on the 'trustworthiness' of his main witness for other 'exciting facets' of his story about Taqī al-Dīn and the observatory.

Taqī al-Dīn could not have acquired his knowledge in his own society nor could he have carried out his observations: so much was unquestionably clear to Schweigger. Hence, the German cleric proposed that the Arab scholar acquired his knowledge of Greek astronomical writings in Arabic by some 'secretly held Jew' [see 24]. Ben-Zaken, however, wants to go further. He claims on the basis of information from George Saliba [see 178n64] that 'Taqī al-Dīn knew Italian and was exposed, somehow, to Italian culture' [25]. The reference in footnote 64 is to Ambrogio da Calepino's (1435–1511) first Latin (1502), later multilingual, dictionary. Italian was only one of its languages. French was another one. Thanks to Hüseyin Sen (Utrecht), I have obtained a copy of this manuscript note. In contrast to what Ben-Zaken writes, there is no clear evidence that Taqī al-Dīn understood Italian, let alone that he had been exposed somehow to Italian culture. Neither did the Arab scholar note 'that it would be better to consult Italian sources and dictionaries' [25, ref. to n64] or 'that he read about Ptolemy in the dictionary of the multilingual Ambrogio da Calepino' [178n64]. Rather, he wrote:

واما المجسطي فمعناه الاعظم في لغتهم . هكذا قراءته في كتاب امروز طالينيو .

My literal translation:

As for 'Almagest', it means 'The Greatest' in their scrolls.⁷ I read this in the book of Amrūz Ṭāl-bīnū.

The hyphen indicates a short vowel that is not marked in the note. We are free to choose any of the three possibilities: 'a', 'i', or 'u'. In any event, we can accept that Taqī al-Dīn received some philological information from a

⁷ Or: rolls, packages, turnabout. I think that it is a spelling mistake for 'لغتهم', which means 'their language'.

book by Ambrogio da Calepino, which will have been one of the various print versions of his dictionary. However, Taqī al-Dīn used the French form of the Italian author's first name and did so in a manner that seems to reflect a spoken rather than a written version. Thus, it is unlikely that he knew Italian and had been exposed to Italian culture. It is even doubtful that he had read the entry in its French version himself.

Not satisfied with his embellishment of Saliba's report, Ben-Zaken extends a storyline suggested by Schweigger. In this account, Taqī al-Dīn is cast as a prisoner captured by Italian pirates on one of his two sea voyages from Alexandria to Istanbul (1549–1552; 1560s), who spent some time as a slave in the household of an unknown Italian mathematician from whom he learned mathematics, astronomy, and further skills [25–27]. In order to boost his tale, Ben-Zaken cites three stories of three other captives. The only one of the three who was undoubtedly involved in sharing knowledge from one side of the Mediterranean to the other was the captive and temporary convert to Catholicism, Leo Africanus [25]. In his case, though, the transfer went from Arabic to Latin. Thus, he is not very convincing support for Ben-Zaken's story about Taqī al-Dīn. The second example is the Ottoman judge Muṣṭafā Efendi who was captured by the Hospitaller knights and imprisoned at Malta for two years before his ransom payment arrived and brought him back home [25]. According to his own description of the years of his captivity, he was never involved in any exchange of knowledge. Finally, the third example is the so-called Hajji Ahmet, the 'probable author' 'of a world map that was printed in Venice in 1560 and delivered to the Islamic world' [26]:

[He] tells a story of woes, according to which he was a suffering captive in Italy. We learn, further, that he requested that his Muslim brothers purchase the map so that the income might be used to set him free. [26]

Footnote 72 [179] links these claims to a paper by Jerry Brotton [2000], though without giving a specific page number. This is not surprising since the text printed by Brotton contradicts both points made by Ben-Zaken, despite Brotton's own mistakes that make clear that he too was not able to read the quoted title of the map or its text in its original language, which he claimed was Arabic though it is Ottoman Turkish in both cases.

Brotton relied primarily on V. L. Ménage's analysis of the map, which proved that both map and text were full of linguistic, geographical, and historical mistakes that no educated Islamic scholar, the *persona* imputed to Hajji

Ahmet, would have committed. Ménage had reasonably concluded that the map and text had been concocted by people in Venice, and he presented archival documents from 1568 linking the printed sheet to two translators of Ottoman Turkish of the Venetian Republic—the well known Michele Mambre (or: Membrè) and Cambi, about whom almost nothing is known—and to the Venetian publisher of the map, Marc’ Antonio Giustinian [Ménage 1958]. Brotton, however, writes about the map and its Ottoman Turkish text as though he were able to understand it, and as though it was he who had discovered the map’s fabrication. Brotton thus aimed to deceive his readers about the language of the map and its texts as well as about the identification of some of the Venetians involved in its fabrication. In following Brotton, Ben-Zaken has not only ignored newly published studies by Antonio Fabris [1989] and Ben Arbel [2002] that counter Brotton’s claims, he has also proved incapable of correctly summarizing Brotton’s repetition of Ménage’s results.

Brotton’s incomplete citation of Menage’s text is as follows:

In the name of God, the Merciful, the Compassionate: O ye wise and O ye learned, the blessings of God be upon you! Be it known unto you that I...Hajji Ahmed from the City of Tunis.... became, through the decree of revolving destiny, a captive in Europe [Firengistan].⁸ There I was bought by one of the Frankish lords, a good and learned man, so that I never lacked freedom to perform my religious duties or failed to fulfill them according to the rule and prescription of Islam; and thanks to the learning I had acquired the people here treated me with all honour and respect. Now the people of these countries have drawn and produced this presentation of the world according to the teaching of the philosophers of old, Plato, Socrates, Abu’l-Fida and the great Lokman and have in this map written down and communicated fully, according to the

⁸ Surprisingly, the text left out by Brotton from Ménage’s translation [1958, 107–108] is as follows:

- (1) this poor, humble and feeble creature, who stands in need of the mercy of his Generous Lord,
- (2) had from my childhood followed the *dānishmend*-course in the *medrese* of the city of Fez in the Maghrib. Over a long period I devoted most of my life to the zealous and persistent pursuit of learning and wisdom and an honourable name, but after I had acquired the desired,

At the end of this text, Brotton also left out this sentence:

- (3) Thus it is my hope that I may be delivered with glory and honour from Firengistān and that the Self-Sufficient God may bring about His servant’s return safe and sound to the lands of Islam.

demands of science and logical arrangement, the facts concerning the Heavens and the surface of the Earth, in order that those who peruse it, of low and high degree, may draw great benefit from it. I therefore, on seeing this really excellent and important work, and realizing that it was of value and essential to all Moslems and their rulers, translated it systematically from the language and script of the Franks into the Moslem script; and they undertook to grant me my manumission as the reward of my labour. But I swear by the Mighty and Gracious God that the troubles and trials that I underwent before bringing it to this form are beyond description. However, praise be to God, Who has granted us understanding and solicitude for others, for by means of this valuable work I have become the instrument for benefiting all the Moslems. [Brotton 2000, 35–36].

None of the examples given by Ben-Zaken thus confirms that Taqī al-Dīn had been a captive in Italy or that he had learned his sciences as well as technical knowledge there or that he was instrumental, as Ben-Zaken claims in a further twist of the story, in the printing of (a 13th-century) Arabic version of Euclid's *Elements* by the Medici Press in Rome [25]. This twist is the result of Ben-Zaken's misunderstanding of Schweigger's German text and his ignorance of the year when the Medici Press published this Arabic text. The volume appeared in 1594, after Taqī al-Dīn had been dead for nine years. Ferdinando I de Medici had acquired the manuscript for the Press in a collection of more than 100 in 1586 from the former Jacobite Patriarch Ignazio Ni^cmat-Allāh Aşfar of Mardin, who had taken refuge in Rome, i.e., a year after Taqī al-Dīn's demise. There was, then, no chance that he could have been involved in preparing the manuscript for print.⁹ Furthermore, Schweigger never claimed that the Arab scholar was involved in this project in Rome. Instead, Schweigger was of the opinion that Taqī al-Dīn had translated the works of Ptolemy, Euclid, Proclus and other famous astronomers into Arabic:

er bracht zu wegen Ptolemei/Euclidis/Procli/vnd andrer berühmter Astronomorum Schrifften in Arabischer Sprach/. [Schweigger 1639, 91]

But this is utter nonsense.

Similarly serious mistakes can be found in Ben-Zaken's representation of Pietro della Valle's Persian text on Tychonic astronomy (composed in Goa in 1623–1624) and its Italian translation (executed in Rome in 1631). Some of

⁹ <http://www.iranica.com/articles/italy-viii-persian-manuscripts-2>.

them concern codicological aspects, i.e., the material appearance of the manuscript/s. Others concern the text more specifically. He writes on page 46:

Della Valle's handwriting in the manuscript letter to al-Lārī appears in a column of Italian and a column of poor Persian, but also includes phrases and terms in Arabic, Ottoman-Turkish and Latin.

Given that Ben-Zaken here describes the text as consisting of two columns, one in Italian and the other one in Persian, and speaks of della Valle's handwriting, I had thought that he was referring to the language and vocabulary of MS Città del Vaticano, Biblioteca Apostolica, Persiano 9. This manuscript, however, does not contain Ottoman-Turkish or Latin words. That it contains Arabic words is not surprising given the substantial number of Arabic terms that make up medieval and early modern literary as well as philosophical and scientific Persian. But should he be referring to the Persian treatise and its Italian translation, then their description as columns is unfortunate, since the respective texts cover opposite pages and only the Italian translation was undeniably written by della Valle himself. Again, the Persian text quite appropriately contains Arabic but no Ottoman or Latin phrases and terms, except for a number of Latin forms of personal names like Khrīstufurus Bur-rūs (Christophorus Borrus), Tikhūn Brāhah (Tycho Brahe), Pavlus (Paulus), Khrīstustumus (Chrysosthomus), Qusmus Midiqī (Cosimus Medici), Pinayda (Pineda), and (at the end of the text, but not in the marginalia) Kālilyūs (Galileus), and Kaplarūs (Keplerus) as well as two technical terms in Latin and one Turkish term that was standard in Safavid administrative geography for 'province'.

The Latin terms are 'spīrah' and 'āpūkālīpsis' in the Persian text [ff. 12b, 27b] and in the Italian translation, they are 'spira' and 'apocalisse' [ff. 12a, 27a]. Della Valle explicates 'spīrah' by its Portuguese equivalent 'parafuso' and supplies an image of a spiral.¹⁰ In addition, there is an Italian word, 'dūkā' ('duke') [f. 19b].¹¹ Della Valle added that he used the Portuguese 'parafuso'/'parafūsu' so that some traveler not knowing Latin but Portuguese who came through Lar might be able to translate the word into Persian [ff. 14a–b]. The Turkish term, not surprising for a dynasty whose vernacular was a Turkish dialect, is 'ülkah' ('ülke') [f. 19b]. In sum, della Valle's Persian is not at all that poor, though it is certainly not on par with the sophisticated literary language of

¹⁰ 'Spira' and 'parafuso' appear also on ff. 12a–b, 16a–b, 17a–b.

¹¹ Compare the Italian translation on f. 19a.

the time nor even the language of contemporary scientific texts in Persian. In effect, this manuscript provides us with clues about della Valle's lack of familiarity with these two forms of cultural communication and, hence, with the literary and scientific texts even after his stay of six years in Safavid Iran. Still, it is a fascinating witness to spoken early modern Persian and of the kind of language that Catholic visitors of Iran were interested in and able to learn.

Ben-Zaken's subsequent claim

...but certain autobiographical insertions on the margins of the introduction and the concluding sections introduce the possibility that the Copernican cosmology, based on the Galilean discoveries, might be a better world system. [47–48]

cannot be supported on the basis of the two extant manuscript copies. The only insertions to be found in the margins are either corrections that the copyist added in rectifying his own mistakes or additions of words that he could not read before. A few free spaces are left indicating there might have been more problems that could not be solved. Granted, in the third of his four chapters, della Valle explicitly refers to Kepler, Galileo, and Grand Duke Cosimo II. He calls Kepler 'another astronomer, ...an observer of the *qayṣar* [i.e., Rudolph]' and 'famous among the Franks', and Galilei 'a famous observer in the province of Toscana, a province in our country Italy'; and he reports that the newly discovered 'four or five little planets which rotate around Jupiter' were named *midīqī* in honor of the Grand Duke. Given these clear statements about Galilei and Kepler, Ben-Zaken's mistaken description of the material properties of the manuscript and its text seems strangely unnecessary, though it is in line with his methods for telling the story of Taqī al-Dīn. Characteristic of Ben-Zaken's working practice is also the absence of any folio numbers in the manuscript that would specify where the alleged 'autobiographical insertions in the margins of the introduction and the concluding sections' occur [see 183n1].

Neither can Ben-Zaken's claim that della Valle 'mentions "the end of Kepler's life"' [185n42] be found in either the Persian text or its Italian translation. The reference made in this footnote is to ff. 2a–b where della Valle speaks only about Borri. The only time that della Valle speaks of Kepler is on ff. 21a–b:

هفتمی بقول منجمی دیگر کپلرُس نام که هم اورا راصد قیصر ودر میان فرنگیان
مشهور است اینچنین است

La settima per detto d'un altro astrologo chiamato Keplero, che'esso ancora è Mathematico di Cesare, e famoso tra gli Europei, es in tal guise.

Neither the Persian nor the Italian wording leaves any doubt that della Valle speaks of Kepler as being among the living. Ben-Zaken's erroneous claim turns out to be the result of his misinterpreting a passage on f. 4b because he surprisingly misreads a clearly written, standard Islamic formula indicating that a person mentioned by a name, here Rudolph II, had deceased: 'ghafara llāhu lahu' ('May God pardon him'). The passage is about Brahe and his work, not Kepler. The Italian translation (f. 4a) adds after the emperor's name equally clearly: 'che Dio gli perdoni'.

Three quotations from della Valle's Persian astronomy center on the Book of Job. In discussing them, Ben-Zaken speculates that della Valle used the Augustinian Diego de Zúñiga's (1536–1597) commentary on this book [61, 63]. While it cannot be excluded that della Valle read this work in Goa (which Ben-Zaken should have explored in the light of archival documents available in Goa and the collection of books in the Goan library formerly belonging to various missionary orders), della Valle does refer three times explicitly to the commentary by the Jesuit Juan de Pineda [ff. 23b,8; 24b, 14; 25b,3], something that Ben-Zaken has overlooked. As Ben-Zaken would have it:

This is the abstract of the book of Christopher Borrus, which I translate. It has made me content, and I also agree with it. But, certain verses of Job the prophet raise a little doubt. The Book of Job was translated to Latin and was in the hands of observant believers, but the real Book of Job the prophet is in the language of Hebrew and Chaldean. [61]

One should look for the original Book of Job in the original language. Therefore one should look for the saying of Job in the original language and what power of benefit his saying has. So if one would look at the original piece that is the statement of Job himself, that is good! But if it is the statement of God to Job then it is a command of God and we cannot say anything against it. [63]

...we do not have the Book of Job in Hebrew and Chaldean that could point out the cosmological truth. With God's will these original texts would someday resurface from the treasury of the basement of the Vatican. ...for the time being we could avoid relying on a sole source like the Vulgate [by] consulting commentaries on the Book of Job in Hebrew and Chaldean. [64]

But, on comparison with the Persian original and its Italian translation, it becomes clear that Ben-Zaken has misunderstood the Persian as well as the

Italian texts. To aid the reader, I provide della Valle's Italian translation of the Persian original followed by my own:

Questo é il Compendio del Trattado del Pré Cristoforo Borro, che il pouero ha tradotto (cioè io ha tradotto) al quale queste due parole aggiungiamo che la detta opinione al pouero (cioè a me) piace assai: solo quella parola, che è nel libro di Job Profeta, da un poco di dubbio; perche Pineda, che ha scritto l'esplicatione di Job, la sua esplicatione l'ha fatta in lingua Latina. e sopra'l Libro di Job nelle medesima lingua Latina interpretato, nella traduttione di Lui che é riceuuta della Chiesa dei Latini cioè della Congregatione de' Fideli di lingua Latina; ma il Libro originale di Job Profeta in lingua Ebraea/e Chaldea è scritto. Per la qual cosa bisogna uedere quella parola nella sua lingua originale che forza, e che proprietà hà, e se la dichiarazione di Pineda, conforme a quella uiene a proposito. Se la parola originale de detto Profeta è capace di questo significato, bene: ma se nõ, la parola del Profeta Job è parola di Dio, et è di fede; non possiamo dir contra quella. ...il detto libro di Job Profeta in lingua Ebraea et Chaldea non habbiamo, per potere alla certezza di questo arriuare: ma sarà, piacendó a Dio, nel paese nostro Roma la grandissima, che è palagio di scienze; e como è Sede di Pietro, che fù capo della fede, e capo de' dodici Apostoli: et è sede del Successor di lui, e Vicario della Presenza di Giesù, che è il Papa, di là vien fuori ogni esplicatione de' libri della fede, che sia riceuuta dalla Chiesa vniversale. Là dunque meglio la certezza di questa opinione co'i libri Ebrei i Chaldei comprenderemo: non da noi solamente, ma co'l consiglio di molti sauij che in lingua Ebraea e Chaldea siano assai dotti.[f. 25a]

This is an abbreviation of the treatise by Father Christophorus Borrus, which [this] poor man has translated. After it, we have added these two [statements], the opinion of which pleases [this] poor man. Only that [statement] which [is in the Book] of the Prophet Job gives a little doubt, because Pineda, who wrote the interpretation of Job, made his own interpretation in Latin. Furthermore (*bālāyi*), it was translated into the very same Latin language in his translation, which was accepted by the Church of the Latins, i.e., the community of the believers [who speak] Latin. However, the original Book of the Prophet Job was written in Hebrew and Chaldean language [*sic*]. Therefore, it is necessary to see what that [statement] is in its original proper language, which power and which property it has, and if Pineda's explanation may be [shown] to agree with it.

If the original [statement] of the said prophet admits this meaning, fine. If not, [then] the Prophet Job's [statement] is a divine word and a Holy text (*naṣṣ*).¹² We cannot speak differently [than] it. ...we do not have the said book of the Prophet Job in Hebrew and Chaldean language [*sic*] so that we might arrive at the truth

¹² I.e., the text of the Qur'an.

of this statement. But, if God wills it, all interpretation accepted in the Catholic Church of the books of faith will come from our country Rome the Great, which is the abode of knowledge, and because [it is] the throne of Peter, who was the head of faith and the head of the twelve apostles, and the throne of His deputy, (*khalife*)¹³ that is, the deputy of Holy Jesus (*Hadharat-i ʿĪsā*), who is the Pope. Then, we will discover the truth of this opinion in the Hebrew and Chaldean books there, not by us alone but with the advice of many scholars who are very learned in the Hebrew and Chaldean language [*sic*]. [f. 25b]

The problems posed by Ben-Zaken's stories are not limited to mistaken, misappropriated, or fanciful translations. Similar mistakes exist in regard to simple historical statements concerning dates, meetings, exchanged materials, or royal titles. Two examples will suffice to show this.

First, the caption on page 58 reads: 'Figure 13. The Pythagorean itinerary of Pietro della Valle, as illustrated in his journal'. The map shown is from Pierre Du Val (1619–1683), a French geographer, who began his career in 1662. He produced this map on the basis of the French translation of della Valle's *Viaggi* that was published in Paris in 1664. It was not part of the Rome edition of 1650, as Ben-Zaken maintains on the basis of a Houghton Library copy to which this map was added before the frontispiece. Neither was it part of his 'journal', i.e., his *diario*, which contains no maps of this kind, only sketches of local vistas, so to speak. Ben-Zaken's idea of a 'Pythagorean itinerary' of della Valle is as farfetched as his claim that the Italian traveler was on a relentless search for an ur-text of the Book of Job.

Next, we have the following amazing description of where and how della Valle first met the Italian Jesuit Christoforo Borri at Goa:

They stayed in the same monastery and met for the first time at a midday meal. They exchanged views about the various Eastern cultures they had explored. Borrus bragged of how he had impressed the Chinese *literati* by making accurate astronomical predictions, thus convincing them to convert to Christianity. In response, della Vella mentioned meeting a brilliant Persian astronomer Mullah Zayyn [*sic*]¹⁴ al-Dīn al-Lārī, who had firmly rejected the possibility of conversion. Borrus then offered to use the same approach that had proved successful in China: to send a translation of his book on the Tyconic system to al-Lārī, with the hope of convincing him that the advanced state of European astronomy

¹³ I.e., caliph.

¹⁴ This is not a typo on Ben-Zaken's part but his persistently mistaken transliteration of the Arabic word.

resulted from religious superiority. Quickly agreeing, the two men—della Valle, trained in classical and Near Eastern languages, and Borri, skilled in astronomy, cartography, and mathematics—worked to translate into Persian a short Latin work by Borri on the Tycho system. [47]

The primary sources available for evaluating this impressively detailed account are:

- (1) della Valle's Persian treatise (with his Italian translation) on Borri's summary of Brahe's astronomy,
- (2) various editions of della Valle's printed letters,
- (3) della Valle's unpublished diary,
- (4) a newly recovered manuscript of della Valle's journey that was auctioned on 13 November 2008 by Sotheby's,
- (5) della Valle's unpublished letters and his notebooks compiled in Rome as well as
- (6) three Latin versions of Borri's account of Cochinchina and Borri's later book on astronomy *De tribus coelis*.

Borri's works do not mention della Valle at all. Della Valle mentions Borri in the Persian treatise with Italian translation, in the printed letters, in a few of the original letters, but not in his diary.

According to the description of della Valle's autograph that was auctioned by Sotheby's, its text does not seem to mention Borri, although I cannot guarantee this since the three pages published by Sotheby's in its description of Lot 81 are not in a readable resolution and my efforts to contact the new owner through Sotheby's have so far been unsuccessful.¹⁵ These pages do, however, bear on the difficult issue of dating the arrival of either of the two men at Goa, since della Valle explicitly states that he arrived on 8 April 1623 and wrote his notes about Goa on May 13 of the same year. According to Olga Dror, he met Borri for the first time on 10 April 1623, i.e., two days after his arrival [2006, 41]. But she was not in possession of any more specific information about the where, the when, and the what of their meeting. In contrast, she knew that Borri had lived several years in Cochinchina, the southern part of what was later to become Vietnam, and one year on Macao, but never in China. She also determined that his knowledge of the local language was so limited that he could not engage in a sophisticated debate with anybody, let alone

¹⁵ http://www.sothebys.com/app/live/lot/LotDetail.jsp?lot_id=159488098.

a member of the Chinese *literati* who did not speak this language either, and that he did not understand the two main local religions, Buddhism and Daoism, very well. Furthermore, in his account of his time in Cochinchina, Borri remained vague about his personal role in the conversions of the locals, which other Jesuit sources contribute primarily or solely to a second missionary working there in this period [Dror 2006, 31–32, 37–39].

Thus, Ben-Zaken's story of the encounter between della Valle and Borri is at odds with the picture of the Jesuit and his activities in East Asia that is discernible in the extant sources. His mistaken claim about Borri's presence in China may be the result of a faulty inference from the stated intention of the Jesuit Society to send its member to a Chinese mission and his (mis)reading of della Valle's Persian treatise or its Italian translation:

اولکه چین رسیده در بلدی نزدیک چین که اورا کوچینچین یا کاجوچین مگویند
چند سال اقامت داشت.¹⁶

...et arriutato in fin a Cina, in un certo paese uicino a Cina, che lo chiamano Cocincina, o Caciocina. [MS Città del Vaticano, Biblioteca Apostolica, Persiano 9, f 2b, Italian translation f 2]¹⁷

Unfortunately, the mistakes committed by Ben-Zaken are not exhausted by these examples. As we have emphasized, *Cross-Cultural Exchanges* may well qualify as a good narrative. Regrettably, it is nowhere near so successful as history.

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¹⁶ The text adds a superfluous 'و' before 'یا'.

¹⁷ For the change of plans of the Jesuit Mission regarding Borri, see Dror 2006, 31–32.

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