

Overlooked: the role of craft in the adoption of typography in the Muslim Middle East

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Published Version

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(2022) Overlooked: the role of craft in the adoption of
typography in the Muslim Middle East. In: Reese, S. (ed.)
Manuscript and Print in the Islamic Tradition. Studies in
Manuscript Cultures, 26 (26). De Gruyter, Berlin, pp. 21-60.
ISBN 9783110776034 doi:
<https://doi.org/10.1515/9783110776485-002> Available at
<https://centaur.reading.ac.uk/106214/>

It is advisable to refer to the publisher's version if you intend to cite from the work. See [Guidance on citing](#).

Published version at: <https://www.degruyter.com/document/isbn/9783110776485/html?lang=en>

To link to this article DOI: <http://dx.doi.org/10.1515/9783110776485-002>

Publisher: De Gruyter

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Overlooked: The Role of Craft in the Adoption of Typography in the Muslim Middle East

Abstract: This article seeks to contribute a new perspective to the recently revived discourse about the beginning of printing with Arabic movable type in the Middle East. The historiography of Arabic print has only tangentially engaged with the visual qualities of texts, and when it has done so it often failed finding an approach that does justice to the appearance of documents. The fidelity of the typographic representation of the script, and questions related to craft, formal conventions, and the reading process, are barely addressed in scholarship of Arabic print history. Yet writing and print are visual media and cannot be fully understood without investigating their material properties. This paper therefore emphasises the materiality of typography and aspects of typographic craft and reminds us that print is foremost a trade which must fulfil certain requirements in order to thrive. The argument investigates Arabic typography for its fitness for purpose, juxtaposing economic factors, typographic considerations, and cultural aspects. Relating these elements to the reading process, this paper argues that formal criteria of typography are an overlooked explanation for the long disinterest of the Islamic world in typography.

1 Introduction

In a recent paper, Kathryn Schwartz renewed the debate on the beginnings of print in the Muslim Middle East and fundamentally challenged established explanations and lines of argument.¹ Demonstrating the porous foundations of a frequently repeated rationale, namely the lack of evidence for an alleged ban of printing by Ottoman sultans, Schwartz forcefully argued for a reconsideration of the origins of print culture in the Middle East. In her narration, European experiences and historiography of print defined how scholars approached and

¹ Schwartz 2017. Although Schwartz was not the first to challenge established narratives, her critique is the most substantive of recent publications. Another contribution that cast doubt on the historiography of print in the Middle East is found in Sajdi 2009.

assessed the trajectory of print in the Middle East, failing to consider the specificities of the region. According to Schwartz, enquiries into the regional history of print were always grounded in comparisons to the role the technology had played in Europe, imbuing the entire discourse with an ahistorical bias. Her paper closes with a demand for more fine-grained analysis, consideration of specific locales, ‘attention to practicality’, and a more critical attitude to sources and precedent. In her reading, the question ought not to have been why did the Ottomans not take up print, but rather why should they have printed?

Conversely, Schwartz’s paper, and most of the debate about the origins of printing in the Muslim Middle East, does not question why the Ottomans began to print when they eventually did. This leaves a considerable gap in our understanding of the adoption of the medium and does not appear to be fully consistent. Whereas fierce criticism is directed at the uncritical assumption that letterpress printing ought to have been taken up by every society that encountered it, this stance seems to soften once the Muslim Middle East adopted this Western import. Scholars largely seem to accept that by the nineteenth century printing had become inescapable, jettisoning the very arguments that are advanced to argue against technological determinism. Indeed, some of the evidence that is used to demonstrate the lack of interest of the Muslim Middle East in printing, could equally underline the puzzle of the late début. When Schwartz cites from the Ottoman writer İbrahim Peçevi’s (1574–1649) ‘Analysis of the Printed Writing of the Unbelievers’, it is meant to demonstrate that the Ottomans did not need printing:

The invention of printing by the unbelievers is a very strange art, and verily an unusual invention ... [I]t was devised in the year 1440 in [Mainz] by a wise man called Aywan Kutanbark [i.e., Johannes Gutenberg] ... [S]ince then all the books by the unbelievers are produced by printing ... When one intends to print a book, it is as hard as handwriting to arrange the types in lines. But once arranged one thousand copies can be printed in less time than copying one volume by hand.²

Yet, in Peçevi’s quote lies a compelling answer to the question that Schwartz poses: why print? Because ‘once arranged one thousand copies can be printed in less time than copying one volume by hand’. Although falling short of an explicit recommendation to adopt print, the rationale shows that Peçevi understood the potential

² Schwartz 2017, 28. Onur Yazıcıgil suggests a slightly more nuanced translation of the last sentence, which underlines Peçevi’s appreciation of the power of print: ‘But once arranged, in less time – printing a thousand volumes wouldn’t take as much trouble as writing (*khatt*) a single volume’. Personal correspondence with the author, 2021.

value and power of print. He appreciated that it allows for the multiplication of documents at a rate and volume that could not be matched by even an army of copyists, offering the key economic argument in its favour. Irrespective of the European experience of print, that the Ottomans and other Muslim societies could have seen relevance in this potential is apparent in Peçevi's account.

It also shows that its author had no qualms about comparisons with – and enquiry into – the ways of 'the unbelievers'. The juxtaposition of divergent trajectories of societies suggested itself to the contemporary observer, and why should it not attract historical investigation today? As Ami Ayalon argues in this context, 'grand comparisons between civilizations are too exciting and gratifying to avoid and should not be given up because of avertible methodological hazards'.³ Reducing the motivations and questions of generations of scholars to superficial Eurocentric biases appears like a simplification itself. As Schwartz acknowledges, the tentative explanations that were advanced thus far were diverse. They featured numerous aspects beyond the alleged ban on printing, including considerations of economic and demographic circumstances. Notably, parallels in technological transfers raise legitimate questions. We know that other techniques and inventions were readily embraced and adopted by the Ottomans, whether they had come from the East or from the West. The existence of 'scores of able copyists' – alluded to by Schwartz when asking 'why print?' – does not itself provide a convincing reason for the Ottomans to forego this new medium. After all, bowmen existed and yet firearms were taken up without hesitation. As Ayalon paraphrases David Landes, 'why [...] would the Ottoman state and its subjects in the Middle East turn their backs for such a long time on a device which had proven to hold so many benefits in neighboring Europe?'⁴

But more importantly, and beyond the comparison to Europe's history, the juxtaposition of the region itself, over time, may lead to the same question. For we know that printing *did* take off eventually, and that it burgeoned in a manner most scholars consider revolutionary. The second half of the nineteenth century saw a rapid spread and increase of printing and publishing activities throughout the region. As Orlin Sabev concludes a recent paper, 'by the 1870s the Ottomans seem to have become quite accustomed to printed books and were determined to resolve the incompatibility between the cursive Arabic script, in general use from the seventh century, and printing with movable type, which started only in the 1720s, in favour of the latter'.⁵ Yet how 'the Ottomans'

3 Ayalon 2016, 4.

4 Ayalon 2016, 5.

5 Sabev 2013, 117.

became accustomed to this new medium remains unanswered, and without discussing this aspect any analysis of the late *début* will remain incomplete.

What had changed by this stage that made the medium and the technology not only acceptable, but a resounding success? The scribes, evoked to explain both, the rejection of typography as well as why letterpress printing was unnecessary, were still practising their trade; the sultan was still in power, and had to fear the power of a public sphere as much as his predecessors in centuries past; the readership was still minuscule, albeit growing slowly; the *'ulamā's* conservative tendencies probably were not wholly different; the technology still had European origins, and crucially, it was still much the same as when it first arrived in the Ottoman Empire: in 1800 type was cut and cast almost identically to how it was done in the fifteenth century; it was still composed by hand using a compositor's stick; and it was printed on manual presses using hand-made paper. Gutenberg would have recognised every part of an early nineteenth century print shop.

Thus, it appears to me that despite the revised perspective we must ask again why did Muslims in the Middle East not print with type, if the purpose of the medium and its potential were clearly appreciated, and why did they change their mind so comprehensively in the course of the nineteenth century? What was so different if many, if not all the circumstances that feature in the discourse about the genesis of print publishing in the Middle East had barely changed?

In her conclusion, Schwartz emphasises the applied aspects of printing, noting that 'although printing has acquired meaning as a civilizing force, it is in the first instance an act'.⁶ Embracing her call for more detail and attention to practicality, I would like to add that printing is foremost a business. Whereas there are instances in which printing loses commercial aspects, which I will address later, as a mass medium of the public sphere printing is first of all a trade. In that context and role, it needs to fulfil specific requirements that may help us to better understand why printing was taken up eventually in the Middle East. In the present paper, I would like to approach these questions through the introduction of a concept that is largely absent from most contributions to this debate: it is fitness for purpose. In the context of print as a new medium, fitness for purpose has three aspects and only if all of them are fulfilled does it present a viable proposition. They are (1) economic, (2) cultural, and (3) physiologic, all of which are interconnected. In this paper I will discuss these aspects in the above order: section two argues that Arabic typography as practised in

⁶ Schwartz 2017, 29.

Europe could not have been perceived as a desirable new technology in the Middle East and it queries the viability of printing in the Middle East before the nineteenth century. It emphasises the practical aspects that running a print shop involves, including the sourcing of equipment and trained staff, and that any *shop* ultimately must be profitable. Against this background, section three asks who pursued printing activities in the Middle East before the nineteenth century and discusses the circumstances and potential motivations of these pioneering efforts. Section four focuses on the quality of Arabic type as a key factor for the continued failure of typography to become accepted. It juxtaposes the typographic page to the manuscript page and identifies potential reasons for the shortcomings of early Arabic types. Section five continues this argument, emphasising that typography, like any other craft, is practised on a scale of accomplishment, challenging the implicit assumption in much of the literature that any Arabic typography was fit for its purpose. Section six provides a cursory digression into legibility research, arguing for an appreciation of typographic quality as a key determinant for the ease and pleasure with which a text is read, and in consequence, for the acceptance of letterpress printing in the Middle East.

2 Was it worth it?

Economic considerations of printing in the Middle East hinge on evidence from the period, and so far, little tangible information has been unearthed. In want of precise data, literature on the subject of Arabic print history often has to resort to historical texts. One such source is found in Antoine Galland's (1646–1715) introduction to Barthélemy d'Herbelot's (1625–1695) *Bibliothèque Orientale*. Galland's anecdote that a Medicean print edition of Avicenna (see Fig. 1), although priced lower than manuscript copies of the same text, remained unsold for a long time on the shelf of an Istanbul bookseller is frequently cited in the literature to demonstrate the rejection of typography.⁷ But beyond the oft-quoted dislike of Arabic print, Galland's account also framed European Oriental

⁷ Galland 1777. The contemporaneous account by the American James Mario Matra (1746–1808) relates generally prohibitive book prices. He was posted to Istanbul as a British diplomat in the 1790s, and in a letter to Sir Joseph Banks he wrote: 'As soon as I arrived here, I began to study the language of the country, and among the very many impediments I saw I must encounter, the scarcity, and extravagant price of Books was not the least: multitudes of the Natives, though very desirous of acquiring knowledge were prevented by the same cause' (quoted in Clogg 1979, 68).

publishing as a commercial endeavour. He noted that the Arabic publications of the *Typographia Medicea* could not possibly have targeted a European readership, which lacked grammars or dictionaries, making Arabic texts largely inaccessible.⁸ According to Galland, instead ‘one made this big investment in order to trade these books in the Levant, a plan that failed initially, because the Muslims did not want to take the volumes that were brought to them’.⁹ Galland pondered explanations for the disinterest of the intended readership, amongst them the alleged Muslim fear that print may desecrate the Qur’ān, and the potential loss of livelihood for countless scribes and copyists. Puzzled, he noted that Arabs, Persians, and Turks cannot stand print despite its advantages, and that they prefer reading mediocre handwriting, no matter how well the print was done.

Ironically, Galland plausibly described a miscarried commercial endeavour but could not see the central reason for its failure. Galland’s conviction of the advantage of print, and his lack of appreciation for the visual qualities of text, made the rejection of the medium incomprehensible.¹⁰ A bias that is thrown into sharp relief by the apparent facts: one could not sell printed books to Muslim readers with type that was made in Europe, and there were glaring differences between the visual quality of manuscripts and Arabic typography. Even though the publications of the *Typographia Medicea* used Arabic fonts that had been commissioned from one of the most able and renowned punchcutters of his time, the resulting typography remained unacceptable to readers who were familiar with Islamic manuscript culture.¹¹ A contemporary of Galland, the German Carsten Niebuhr (1733–1815) reported similar observations from his

8 The *Typographia Medicea* was part of the Catholic church’s propaganda effort. Conceived in 1578 by Pope Gregorio XIII as the Papal Polyglot Printing Press, from 1584 it evolved into the *Typographia Medicea* with the financial support of Cardinal Ferdinando de’ Medici. Both establishments had considerable financial and political support and sought to advance Catholic missionary activities through the making of religious publications in the native languages and scripts of the Near East and Slav countries. The most detailed account of its work in Arabic typography is found in Vervliet 2008.

9 ‘Mais, on fit cette grande dépenfe dans la vûe de faire commerce en Levant de ces Livres, deffein qui échoua d’abord, parce que les Mahometans ne voulurent pas recevoir les Exemplaires qu’on leur porta’ (Galland 1777, xxix).

10 Galland thus set a precedent for much of the contemporary scholarly debate that is largely reluctant to accept visual properties as a key determinant for the success – or failure – of typographic print.

11 Robert Granjon was a master punchcutter whose work in Latin and Greek scripts is widely regarded to rank amongst the most accomplished Renaissance types.

participation in the Danish Arabia Expedition (1761–1767). In his 1772 *Travels Through Arabia and other Countries in the East* he noted:

The hand-writing of the Arabians in the common bufinefs of life is not legible. The orientals, however, value themselves on their writing, and have carried the art of making beautiful written characters to high perfection. But the Arabians value chiefly a species of elegance, which confits in their manner of joining their letters, the want of which makes themselves diflike the ftyle in which Arabic books are printed in Europe.¹²

Thus the rejection of printed Arabic in the Middle East appears to have been well known, and Ottoman authorities, as well as potential local entrepreneurs, would have seen the commercial failure of European Arabic typography, making it an improbable role model to follow. If its products had no market in the region, why would one adopt it?

Setting the example of European productions aside, also the significant initial investments would have created a hurdle in the adoption of Arabic typography. In addition to presses, a prospective printer needed type, suitable paper, printer's ink, and various accessories. All of these investments in plant and consumables were locked until the books had been sold and could only ever be reclaimed through economies of scale. Multiplication constituted the central advantage of print over manuscript production, yet only if the books found buyers. For print to be viable, the edition had to exceed a minimal number of copies, typically a few hundred, which required a lot of paper – the most expensive consumable – and the produced volumes had to be stored too, adding to the costs.

Furthermore, sourcing the required equipment and consumables locally was difficult. Although we know of traces of a printing trade practised by minorities within the Ottoman Empire from the late fifteenth century, its extent was limited. Whilst Jewish refugees of the Catholic conquest of Spain brought their craft to Istanbul in the early 1490s, these printshops 'were largely closed from 1590 through the first three decades of the seventeenth century'.¹³ Jewish publishing resumed on a moderate scale in the mid-seventeenth century, but activities remained limited as the economic and political standing of the Ottoman Jewry weakened, and by the nineteenth century Thessaloniki had replaced Istanbul as a centre of Hebrew publishing. The estimated 809 Hebrew titles that are known to have been printed in Istanbul between 1493 and 1860 – a yield of just over two titles per year – demonstrate that this minority trade happened on

¹² Niebuhr 1792, 261.

¹³ Shaw 1991, 145.

an exceedingly modest scale, arguably too small to have had significant influence beyond its confessional boundaries.¹⁴

Armenian printing began in Istanbul as early as 1567, yet the first workshop operated a mere two years, and only in the eighteenth century the centre of Armenian printing moved from Europe to the Middle East.¹⁵ Meliné Pehlivanian identifies access to equipment and material as an important factor in the uptake of the technology in the region.¹⁶ Only once the economic situation deteriorated for Armenian publishers in Europe did they settle in Istanbul and, according to Pehlivanian, they did so because the location was beneficial for their businesses: ‘On the one hand it was close enough to Europe to make procurement of the necessary technical equipment, paper and printing ink possible, on the other hand it was close enough to the Armenian homeland to shorten significantly the transport routes to potential buyers’.¹⁷

Moreover, there was little local competence that could be used. A letterpress print shop relied on the skills of multiple specialists, including punchcutters, type founders, typesetters, and pressmen, all of whom required training. Where and how could this staff be found in an economically viable manner? From our contemporary perspective, the established workshops of religious and ethnic minorities in Istanbul again suggest themselves as a potential recruitment ground for skilled labour. Indeed, it has been reported that İbrahim Müteferrika (1674–1745) employed the help of Yonah ben Yakob Ashkenazi (d. 1745), a Polish Jewish migrant who became a central figure in the revival of Hebrew printing in the Ottoman Empire.¹⁸ He has been credited with having ‘designed and cast the Arabic letters’ used by Müteferrika, and to have ‘advised him on how the press should be operated’.¹⁹ Yet, other sources also report that his printing endeavours relied on presses imported from France and trained staff that was hired in Vienna, indicating the reliance on foreign equipment and

14 Tamari 2002, 46–47.

15 Kévorkian 2014, 123.

16 Pehlivanian 2002, 56. Pehlivanian stresses that ‘because of [Armenia’s] great distance from Europe the printers were faced with major supply problems for equipment and paper. At that time Europe alone offered the necessary prerequisites for book printing’ (Pehlivanian 2002, 55).

17 Pehlivanian 2002, 56–57.

18 Shaw 1991, 146.

19 Shaw 1991, 146.

competence.²⁰ Even paper, a consumable that formed as much part of manuscript culture as of print culture, had to be imported.²¹

This dependency had not eased by the nineteenth century either, as is apparent from the state-sponsored reconnaissance missions of Mirzā Šāliḥ (d. after 1841) and Niqūlā al-Masābkī (d. 1830) in the 1810s.²² Further to their respective apprenticeships, and studies of Western habits, concepts, and techniques, they returned to Iran and Egypt, respectively, with European hardware, destined to initiate local workshops that were modelled on Western examples. This suggests that although extant, the printing trade that was run by religious and ethnic minorities in Istanbul was unable to provide in sufficient quantities and with reliability the plant, or the staff, or the training for any aspiring Muslim printer. New ventures thus relied on imported material and equipment for the initial setup, further driving up the necessary capital investment – an investment that did not promise many, if any, returns. As Nile Green argues, the invention of the mass-produced iron hand press in 1800, and the resulting availability of second-hand presses and a steep drop in prices, played a key role in enabling the adoption of letterpress printing in the Middle East and South Asia.²³ But prior to that, when even small quantities of imported books found no buyer in the region, how could anyone have hoped to make any profits from a printing business?

Here it is worth pausing and reflecting on the pioneers of Arabic print culture in the region. For who did, against the demonstrated odds, initiate printing ventures in the Middle East before the mid-nineteenth century?

20 Duda 1935, 236. The Swedish diplomat Edvard Carleson related in a letter from 20 July 1735 that Müteferrika had ‘acquired some indispensable workers from Germany together with some type founders, who made the characters, so he was able to start working immediately.’ Carleson 1979, 21–26.

21 By the eighteenth century, papermaking had largely stopped across most of the Middle East. According to Bloom (2001, 216), ‘Syria, Egypt, and North Africa [...] had effectively stopped making paper and instead imported their supplies from Europe.’ A situation that was echoed in the Ottoman lands, where ‘the paper mills in Istanbul and Amasya that produced paper for the manuscript industry had long since been unable to compete with the European market and were no longer in use by the eighteenth century; thus, European merchants provided much of the paper necessary for the Ottoman manuscript and book market.’ Gencer 2010, 159.

22 Mirzā Šāliḥ was one of four students that the Persian Prince ‘Abbās Mirzā sent to England in 1815 to learn about the new sciences and technologies of the Western world. See Green 2009. In the same year, Muḥammad ‘Alī of Egypt dispatched Niqūlā al-Masābkī, a young Syrian Christian, to Italy to train as a printer and purchase printing plant to be used at the Būlāq press. See Ayalon 2016, 22.

23 Green 2010.

3 Who could be bothered?

Starting a print shop in the Middle East could not have appeared as a smart business idea to any Ottoman Muslim until well into the nineteenth century. The evidence available would have suggested that letterpress printing was an expensive, cumbersome, foreign technology. Moreover, as discussed above, for readers familiar with the Islamic manuscript tradition, its products were ghastly-looking, often error-ridden, and thus unsellable to the already minuscule potential market. As J.R. Osborn summarises more diplomatically, ‘early Arabic types are frequently described as “unsatisfactory,” “unrefined,” and “inelegant”’ [and] appeared “decidedly unlovely” to discerning eyes’.²⁴ Indeed, in this light Schwartz’s question may be emphasised to *why would anyone in his right mind want to print?*

To examine this further, it is necessary to reflect on the potential motivations of individual pioneers of printing in the region. Whilst necessarily relying on conjecture, focussing on what we know about the actual agents of this change – human actors, as opposed to grand civilisational concepts – may contribute to forming a more complete general picture.

3.1 İbrahim Müteferrika

No one less than İbrahim Müteferrika, the celebrated pioneer of Arabic typography, suggests himself as our starting point. Müteferrika was not a businessman, at least not from the start. When he began the preparations for his printing endeavour around the year 1719, he was in his late forties, having had a successful career as an Ottoman soldier and bureaucrat.²⁵ As early as 1713 he served as a *sipahi* in the Imperial cavalry, and by 1716 he was appointed as *müteferrika*, a high-ranking position in the Ottoman bureaucracy.²⁶ During the same year Müteferrika was dispatched on a diplomatic mission to Belgrade, and became the liaison officer to Prince Ferenc Rakoczi (1676–1735) supporting activities against the Habsburg monarchy. After the beginning of his printing activities,

²⁴ Osborn 2017, 94.

²⁵ Müteferrika appears to have moved to the Ottoman Empire in the 1690s when he was in his twenties.

²⁶ Erginbaş 2013, 64. According to Joseph von Hammer, a ‘Müteferrika İbrahim’ was sent as an envoy to the Habsburg court as early as 1715 (Hammer 1831, 193). However, more recent research questioned if the two İbrahims were the same person. See Afyoncu 2001, 609–612.

we know of further diplomatic voyages that took him to Salonica (1731), Poland (1736), Romania (1738), and Dagestan (1738). Furthermore, he became the scribe of the Ottoman artillery in 1738 and was appointed official Imperial historian in 1744.²⁷

In short, İbrahim Müteferrika had no need to set up a business. He was a respected and successful Ottoman official and easily lived off this activity. According to Sabev, as a *müteferrika* he earned between 300 and 360 kuruş per year, and as a liaison officer a further 600 kuruş.²⁸ To put this into perspective, we can refer to other data from Sabev's comparison of inheritance inventories. There we gather that a modest house in Istanbul was estimated to be worth 133 kuruş (in 1734), whereas Müteferrika's house was estimated at 2500 kuruş (in 1747), indicating considerable wealth: not only was his house worth 19 times that of a modest dwelling, he also earned as much in merely two and a half years, and that is prior to starting his printing activity. It therefore appears implausible that Müteferrika's motive to initiate the first Muslim printing press could have been based on economic considerations. Rather, it is likely to have been driven by loftier aspirations towards progress and modernisation, and by the emulation of European models, a recurring feature of the Tulip period.²⁹ Importantly, his comfortable economic standing meant that Müteferrika's printing enterprise did not need to create a profit, or break-even. Success indicators that would be used for a conventional business therefore do not apply fully to Müteferrika's endeavour. Whether he sold 50% or 70% of his print runs may have been only a tangential concern, if other sources of income could be relied on to cover lifestyle and subsidise the print shop.³⁰ Moreover, the trickle of books that were produced during Müteferrika's lifetime, in combination with known biographical details of his continued diplomatic career, suggest that for him printing was a leisure activity, not a necessity.³¹ Seventeen publications over the course of twenty-four years is a meagre output by itself, and the selection

²⁷ Erginbaş 2013, 65–66.

²⁸ Sabev 2009, 185.

²⁹ A parallel has been identified by Sebouh Aslanian in the emergence of Armenian printing activities. He notes that profit motives were the exception in the history of the Armenian book, and that the small reading market and literacy rates precluded pursuing printing as a capitalist enterprise. Instead, sponsors supported printing presses 'as a form of cultural patronage for both Church and "nation"' (Aslanian 2014, 60).

³⁰ At the beginning and for the initial establishment of the print shop Müteferrika also enjoyed the financial support of Said Effendi, another high-ranking Ottoman official.

³¹ Books published per year: 1729 (3), 1730 (5), 1731 (0), 1732 (3), 1733 (1), 1734 (1), 1735–40 (0), 1741 (2), 1742 (1).

of titles, overwhelmingly directed at an intellectual elite rather than a broad audience, contribute to a picture of an ideologically driven private pursuit, not that of a pioneering business.³² Indeed, a professional full-time printer does not halt operations for more than four years, and if he does, he finds it difficult to resume his work afterwards for a lack of funds.

Whereas Sabev has argued that Müteferrika's pioneering effort was not the commercial disaster that earlier scholarship made it out to be, his conclusion was primarily based on the percentage of books sold.³³ However, this reading does not factor in whether the initial investments were amortised, whether employees could be paid, and whether Müteferrika could make any profits at all, or indeed, whether he could have lived from this activity. Unfortunately, although we know from the figures reported by Sabev that the average value of a book in Müteferrika's estate was estimated to be around 7 kuruş, we have no evidence that would allow us to gauge the profit that Müteferrika could make from a sale. Whereas it is well established that paper was the principal cost of book production, locking up considerable capital, there are too many unknown factors to even guess what the profit margins of Müteferrika's books were.

Yet, taking the perspective that printing was principally a commercial activity may also provide a clue to the abandoning of the print shop after Müteferrika's death. Whereas for Müteferrika – a high-ranking court official with a secure regular income – the performance of his print shop may have been satisfactory, few others could have shared this position. For prospective Ottoman printers who were not as ideologically committed and economically secure, Müteferrika's example may have been more of a deterrent than a model to follow, as was suggested by a contemporary source as early as 1732. In one of his letters from Istanbul, César de Saussure noted:

It is to be feared, he says, that this printing house will fall when Ibrahim Effendi dies, because he says that the profits are so small, that there is reason to believe that no Turk wants to take charge and will only continue new establishments if they can make big profits there. They are too interested [in making money].³⁴

³² On this aspect see Kunt 2008.

³³ Sabev 2007.

³⁴ 'Il est à craindre, dit-il, que cette imprimerie ne tombe, lorsque Ibrahim Effendi viendra à mourir, parce qu'il dit que les profits sont si petits, qu'il y a lieu de croire qu'aucun turc ne veuille s'en charger et à continuer de nouveaux établissements que les gros profits qu'ils y peuvent faire. Ils sont trop intéressés' (de Saussure 1909, 95; cited in Gdoura 1985).

After Müteferrika's death, the print shop was closed. It nominally reopened in the mid-1750s, yet only to publish a reprint of the *Lugat-ı Vankulu* and close again.³⁵ When Carsten Niebuhr, the German explorer whom we have encountered before, travelled the Ottoman lands in the 1760s, the impression that Müteferrika's legacy made on him appears unambiguous in its assessment:

Books are scarce in Arabia, because the Arabs have a dislike of printed characters. Their intricate alphabetical writing is best performed with the hand; they can hardly read books from our presses. It was for this reason, that the attempt of *Ibrahim Effendi* to introduce printing at Constantinople failed of success, and the renegade was ruined by the project.³⁶

In 1784 a new initiative sought to revive Müteferrika's enterprise under the helm of two Ottoman officials, Ahmet Vâsîf (c. 1735–1806) and Meḥmet Raşîd.³⁷ Yet merely a handful of editions were printed, and in 1797 the remainder of the first Ottoman Muslim printing house was bought by the state and turned into a government press, heralding the coming of the next pioneering force of Arabic print culture in the Middle East.

3.2 Government presses

State presses, first in Istanbul and later in Cairo, became forerunners of the Middle Eastern print revolution that was to unfold half a century later. Yet, the beginnings of their activities were slow and limited. Initially the publications of the Ottoman Imperial press were restricted to texts of law, propaganda material, and teaching manuals. Over the course of the first quarter of the nineteenth century, the breadth of genres gradually increased and began to include literature as well, yet the state press did not demonstrate aspirations to reach a wide audience, but rather sought to further cement its publishing monopoly.³⁸ The modest output of 73 titles before 1823 testifies to the limited reach and vision of the Ottoman Imperial press, which is also related by contemporary accounts. In a letter of October 1830, Baptistin Poujoulat recorded that the director of the Imperial press told him that there was little activity because the government rarely ordered anything to be printed, and that only a single publication made

³⁵ For details see Gdoura 1985.

³⁶ Niebuhr 1792, 92.

³⁷ Gdoura 1985, 236–237.

³⁸ See Neumann 2002, 232–233.

some sales. In conclusion Poujoulat noted: ‘The government does little more for this establishment than what it does for many others, it allows them to exist.’³⁹

The renowned Cairene Būlāq press, founded in 1820 at the behest of Muḥammad ‘Alī, at first followed a similar trajectory. It was conceived and implemented as a top-down initiative aimed at modernising state and society, and at the beginning its publications were hardly meant to be popular. Designed as a tool of the administration, Būlāq primarily produced textbooks, military manuals, and state publications such as administrative circulars, public notices, and the official bulletin *al-Waḡā’i’ al-Miṣriyya*. The latter merely had a circulation of 600 copies per issue, despite the compulsory subscription for senior officials whose salary was above a certain threshold, which underlines the prescriptive function of Būlāq in the first decades of its existence.⁴⁰ Muḥammad ‘Alī (1805–1848) saw the press as a prestige project, and provided ample funds, assigned competent staff to run it, and took close personal care of its development. Yet, as Ami Ayalon notes, ‘state publishing under the Pasha was primarily designed for a select circle of consumers, mostly officials and graduates of the new government schools. Save for a small group of educated men, the general populace, vastly illiterate, was left out of it’.⁴¹ As a consequence, the publications did not have to win anyone over, and the press did not need to sell what it produced to keep running. Indeed, the account by Poujoulat, written upon a visit of the establishment in April 1831, suggests as much. Wondering whether the publications of the Būlāq press achieve the potential of the printing house, he came to a dire assessment:

[...] the Pasha’s printing press would perhaps have rendered greater services if it had reproduced elementary works on the geography and on the history of Egypt, books for the training and education of the people, the most renowned masterpieces of Arabic literature; books on tactics and medicine may have their uses, but address themselves to only a tiny number of readers. None of the others, with few exceptions, have any market or any circulation. They are multiplied by the press only to be stacked up in warehouses where it seems they are condemned to an eternal oblivion. No-one buys them, no-one reads them, because they do not accord with the needs of the present, nor with the spirit of the populace who require instruction and enlightenment; even at first glance it is easy to see how it

39 ‘Le gouvernement ne fait guère pour cet établissement que ce qu’il fait pour beaucoup d’autres, c’est de leur permettre d’exister’ (Poujoulat 1834, 58).

40 Ayalon 1995, 14–16.

41 Ayalon 2016, 23.

stands with this printing press, set up at such great cost, like so many other industries imported from Europe with insufficient care taken to adapt them to the country.⁴²

For the first few decades of their existence, the Ottoman Imperial press and the Būlāq press thus operated under conditions that had little in common with the circumstances of private commercial publishing.⁴³ Similar to Mūteferrika's endeavour, these entities did not produce for a market of discerning customers, but published works that corresponded to the convictions and ideologies of the men in charge. Commercial considerations that hinged on actual demand, or at least the potential demand for publications, seem to have been a negligible factor in the working of these printing houses. This atypical characteristic was shared by the third force that pioneered typographic print in the Middle East: Christian missionaries.

3.3 Christian missionaries

Against the backdrop of the Evangelical revivals of the eighteenth and early nineteenth century, missionary activities proliferated, spawning numerous mission presses around the world.⁴⁴ In the Mediterranean, the British Church Missionary Society (CMS) was the first such institution to establish a mission press that printed in Arabic. It began its activities in 1822 on the island of Malta

42 '[...] l'imprimerie du pacha aurait rendu peut-être de plus grands services, si elle avait reproduit des ouvrages élémentaires sur la géographie et sur l'histoire de l'Égypte, des livres propres à l'instruction et à l'éducation du peuple, les chefs-d'œuvre les plus renommés de la littérature arabe; les livres sur la tactique et sur la médecine, peuvent avoir leur utilité, mais ils ne s'adressent qu'à un très petit nombre de lecteurs; tous les autres, à quelques exceptions près, n'ont point de débit, point de circulation, et ne sortent de la presse qui les multiplie, que pour être entassés dans des magasins où ils paraissent condamnés à un éternel oubli; personne ne les achète, personne ne les lit, parce qu'ils ne répondent ni aux besoins du temps présent, ni à l'esprit de la population qu'il s'agit d'instruire et d'éclairer; il est aisé de voir au premier coup d'œil qu'il en est de cette imprimerie établie à grands frais, comme de beaucoup d'autres industries qu'on a importées d'Europe et qu'on a trop négligé de mettre en rapport avec le pays' (Poujoulat 1835, 298–299).

43 Ian Proudfoot highlights a disparity between the reputation of the Būlāq press and its early output: 'The later fame of the Būlāq press may lead to an overestimate of its early scope and impact. Only after its disbandment and relaunching in 1861 did it take up large scale printing of books on history, language, literature and religion, in addition to technical works. Most of the Būlāq editions of Arabic classics date from the last thirty years of the nineteenth century' (Proudfoot 1997, 162).

44 For the activities of one evangelical organisation alone see Coakley 1998.

and printed its first Arabic volumes in 1825.⁴⁵ Yet the printing of Christian propaganda in Arabic was not new. From the first extant case of a letterpress-printed Arabic book, the 1514 *Kitāb ṣalāt al-sawāʿī*, commissioned and funded by Pope Julius II (1443–1513) and intended for distribution amongst Christians in the Middle East, Christian propaganda was one of the primary forces that drove Arabic typography in Europe.⁴⁶ The renown Arabic publications of the *Typographia Medicea* in the late sixteenth century were part of Pope Gregory XIII's (1502–1585) mission that aimed at 'reuniting the non-Roman Christians, particularly those of the Near East and Slav countries, and providing books in their own languages and scripts',⁴⁷ and the Propaganda Fide press, established in 1626 in Rome as a tool of the Counter-Reformation, was one of 'the main exporters of Arabic books in the seventeenth century. [It] published a long series of Arabic books: catechisms, devotional and doctrinal tracts [...] and, most important of all, the complete Arabic Bible'.⁴⁸ From the eighteenth century the influence of Christian Arabic texts printed in Europe led to the establishment of the first Arabic printing press in the Middle East, namely in Aleppo in 1706 under the guidance of the Melkite Patriarch of Antioch, Athanasius Dabbās. It was run by 'Abdallāh Zākhir, who in 1733 went on to set up another print shop in the Greek Catholic monastery al-Šuwayr in the Lebanese mountains.⁴⁹ The scope and influence of the local Christian presses remained, however, marginal, and Christian books printed in Arabic continued to be exported from Europe. According to Roper 'these were sent in considerable quantities throughout the 17th century [and] in the 18th century renewed efforts were made to supply such texts despite the emergence of local presses'.⁵⁰

A commonality of these diverse printing endeavours were their aim – proselytism – and source of funding: religious authorities. As in the aforementioned examples of pioneers of Arabic typography in the Middle East, Christian printing presses, European and local alike, were not set up or run as commercial entities. They received the means for their operations from Church or theological patrons and produced their publications without market demand. Commercial success and profitability, key drivers of mass print culture, were no factors in missionary operations, and the fact that sources tell of the number of publications

⁴⁵ For an extended account see Roper 1988.

⁴⁶ Krek 1979.

⁴⁷ Vervliet 2008, 433.

⁴⁸ Roper 2009, 78.

⁴⁹ Glaß and Roper 2002, 178–179.

⁵⁰ Roper 2009, 77.

that were ‘distributed’, rather than ‘sold’, qualifies the sometimes impressive quantities.⁵¹ Here, as in the case of Müteferrika and the centralised government printing works, was not a model for private entrepreneurs and mass publishing. The subjects chosen for publication were largely unaffected by the potential audience, but determined by ideology and an elitist, top-down attitude towards the readership. The publisher, whether government, private press, or mission press, did not strive to publish titles with the widest possible appeal, but pursued their own agendas. Whether with largely technical and utilitarian aims as in Muḥammad ‘Ali’s prescribed printing endeavour, or the more metaphysical goals that were pursued by Christian missionaries, what the potential readership, however minuscule, wanted to read appears to have been of secondary concern. Indeed, this stance was reflected in the visual presentation, which did little to convince anyone to buy or read the publication.

4 Hurdles for success? The first Middle Eastern Arabic fonts

None of the pioneers of Arabic letterpress printing in the Middle East produced publications that matched the level of aesthetic achievement found in contemporary manuscript production (see Fig. 2). As asserted by Emanuela Conidi in her conclusion to the most in-depth enquiry of the subject, ‘the development of Arabic typeforms resulted in a divergence from the Islamic calligraphic tradition and established a typographic image of the script that discontinued that of manuscript practice’.⁵²

As Conidi demonstrates, the exact reasons for this shortfall of typography were manifold and varied from case to case. In the present context suffice it to point out some of the potential factors, amongst them competence in the Arabic script. As mentioned before, İbrahim Müteferrika relied on the skills of Yonah ben Yakob Ashkenazi for his Arabic fonts. Ashkenazi, however, was of Polish origin. He had fled Galicia shortly after the Khmelnytsky massacres (1648–1657)

⁵¹ Roper relates that when in the 1720s the Anglican Society for Promoting Christian Knowledge issued a Psalter and a New Testament, ‘within six years, 5498 Psalters and 2512 New Testaments had been distributed in the Levant, and many more were sent in subsequent years’ (Roper 2009, 79).

⁵² Conidi, 2018, 625.

and established a Hebrew press in Istanbul in 1710.⁵³ There is no record of Ashkenazi printing in Arabic, and his renown is based exclusively on his works in Hebrew. Arabic appears to have been at least the third script he had learned (after Latin and Hebrew), and there is no evidence of him having had experience in cutting Arabic type when Müteferrika engaged his services. Although prior type-making may in principle have qualified Yonah ben Yakob Ashkenazi for the task, his limited exposure to the Arabic script and lack of experience in making Arabic type may have had a negative influence on the quality of the fonts.⁵⁴ Although Müteferrika's typography was significantly better than any Arabic letterpress print that had been produced before, it remained far removed from the aesthetic norms of Ottoman manuscript practice (see Fig. 3). The column is too wide, interlinear space is insufficient, lines are poorly aligned, individual letterforms lack definition, and numerous sorts are smudged with ink. In combination these aspects result in overly dense, dark, and cluttered pages, and the text gives a patchy, irregular impression that does not invite to read. Comparing Müteferrika's edition to a contemporaneous manuscript (see Fig. 2) shows that the type lacks the even rhythm, has none of the forward-leaning dynamism, and, crucially, is significantly less clear than the handwritten text.

The Bülâq press also initially lacked expertise for Arabic type-making. Niqûlâ Masâbkî, introduced above, was the man responsible for the first Arabic fonts of the press. He was a Syrian Christian and learned his trade first at the French press in Cairo and later in Milan. Although of Middle Eastern origin, his cultural environment was removed from Islamic manuscript culture, and his training in French and Italian workshops could hardly have advanced his competence in the Arabic script. Masâbkî's Arabic fonts that were used for the first publications of Bülâq were clumsy and were replaced within a couple of years by type that originated from Istanbul's Imperial press (see Fig. 4).⁵⁵

There a copy of the Arabic *naskh* type made by Bōghos Arabian (1742–1835), an Ottoman Armenian type-maker, was in use since 1797.⁵⁶ It constituted a substantial improvement over Müteferrika's type and remained in use for decades.

⁵³ Shaw 1991, 145–146.

⁵⁴ Contemporary practice demonstrates that a type designer who excels in one script may not have any success with type for another script, and there is no reason to believe that this would have been different in the eighteenth century.

⁵⁵ J. Heyworth-Dunne notes in relation to Masâbkî's type that the fonts displayed a 'total disregard of the Oriental idea of beautiful calligraphy' and that 'the need for type more in keeping with the rules of calligraphy and the taste of the Turks was soon felt, for they used to pay more attention to calligraphy than the Egyptians' (Heyworth-Dunne 1940, 330).

⁵⁶ See Öskal and Yazıcıgil, 2015.

It became the model for the fonts that were used for most books made at Būlāq in the second half of the nineteenth century. Yet, it had fewer ligatures and letter variants, and for justification it relied on a single swash variant of the letter *kāf* and a handful of sorts with elongated joining strokes, lending it a distinctly typographic look.⁵⁷

We lack explicit evidence about the making of Mūtefferika's types, as well as for those that were used at Būlāq. Christian missionary presses, however, left traces of their operations, some of which provide stark insights into prevalent attitudes to printing in the vernacular. In the context of India, Graham Shaw has shown the contempt for indigenous cultures by Western missionaries. Not only did Jesuit missionaries in the sixteenth century print Christian texts in the Konkani language using Latin characters for lack of a suitable Devanagari font, but some even anticipated Indian scripts to disappear altogether in favour of Latin:

The vernacular characters are not adapted to the progressive spirit of the age. As the native mind begins to rise to the level of western civilization, it will demand a literature co-extensive with its new wants. This can never be furnished in any of the barbarous characters now in use.⁵⁸

Whilst an individual testimony that may not be representative of all missionaries, it remains indicative of a mindset in which notions of Western and Christian superiority over the 'uncivilised' heathens formed part of the missionary calling. Considering the intrinsic relation of form and content, it is hard to imagine that this attitude would not have had a bearing on the appearance of Christian missionary publications. For indeed, until the mid-nineteenth century Christian Arabic publications relied on barely legible and culturally alien type that situated them squarely outside the canon of Islamic manuscript culture (see Fig. 5). As a consequence, early Christian Arabic typography appears to have remained

⁵⁷ In printing, ligatures are combinations of more than one letterform on a single typeform, typically creating a new, composite shape. In the European typographic tradition, ligatures were developed for letter combinations that created difficulties during composition (for example to resolve the collision between a wide *f* and the dot of the *i*). Because most Arabic letters join and may adopt numerous forms that depend on the surrounding letters, the concept of ligatures does not provide an adequate technique to reproduce this characteristic of the script. Whereas Latin ligatures were made for odd combinations, the merging and transformation of Arabic letters is the norm. For Arabic this inverse quantitative relationship makes ligatures inefficient, and their use for a small selection of letter combinations results in formal inconsistencies.

⁵⁸ Cited in Shaw 2012, 27.

in a bubble, with little bearing on the wider Islamic culture within which it operated.

This changed only once a culturally more sensitive, and a more reader-minded stance emerged, that was expressed through more suitable typography. From the moment that Christian presses used Arabic text fonts that aimed to reproduce the *naskh* manuscript hand faithfully, notably the ‘American Arabic’ fonts that were developed for the press of the American Board of Commissioners for Foreign Missions in Beirut, they began to play a more relevant role in the emergence of a local print culture.⁵⁹

Although the three pioneering forces of typography in the Middle East – Mütferrika’s private press, government print shops, and Christian missionary publishing – operated under diverse circumstances, they shared the fact that their typography was largely inadequate and unsuccessful. The typefaces did not reproduce accurately the forms, proportions and characteristic features of manuscript hands, and the resulting typography remained far removed from the aesthetic achievements of manuscripts. In this regard the first tentative steps of Arabic letterpress printing in the Middle East were markedly different to those made in sixteenth century Europe. As Lucien Febvre and Henri-Jean Martin observe, there ‘the earliest incunabula looked exactly like manuscripts’, and Gutenberg’s 42-line Bible ‘faithfully reproduced the handwriting of the Rhenish missals’.⁶⁰ Febvre and Martin even argue that ‘the first [European] printers, far from being innovators, took extreme care to reproduce exact imitations’, and that they were so successful at it that ‘the layman sometimes has to examine a book very carefully before deciding whether or not it is printed or handwritten’.⁶¹

Against this background we may ask whether Gutenberg’s invention would have had the same success, if its typography had been as far removed from manuscript aesthetics, as early Arabic typography was? Or inversely, we may wonder what would have happened, if the Arabic typography of the *Typographia Medicea* would have been such an accurate reproduction of prevalent manuscript practice that laymen would not have noticed the difference at first sight? Knowing that Arabic letterpress printing provided no aesthetic match for copying by scribes, and that a comparable quality was not achieved for Arabic typography

⁵⁹ See Glaß 1998. William Jowett, the Superintendent of the CMS press in Malta, realised that the appearance of books was critical for their acceptance. He knew that in order to stand a chance to be accepted, missionary books ‘should bear, as much as possible, a native aspect. The kind of paper and typography to which the eye is accustomed, will give more ready acceptance to Books (sic)’ (cited in Roper 1988, 108).

⁶⁰ Febvre and Martin 2010, 77.

⁶¹ Febvre and Martin 2010, 77.

until the last quarter of the nineteenth century, the time of the large-scale adoption of letterpress printing, it is difficult to imagine that the fidelity of the typographic image to its manuscript model was anything but central in the acceptance of the medium in the Muslim Middle East.

5 Not every piece of typography is good typography

In the discourse on the beginning of Arabic typography in the Middle East, considerations of the visual and aesthetic aspects of typography are few and far between. Whilst most scholars note in passing that the look of typography may have had some influence on the emergence of print culture, there appears to be reluctance to fully engage this aspect.⁶² This hesitation dates back to Galland, and his blind spot for the importance of the quality of type in the medium of print was shared by generations of Oriental scholars after him. Despite numerous accounts from various parts of the Arabic script world that describe the rejection of print based on aesthetic grounds, it is yet to be accepted as a key factor in the disinterest of the Muslim world in typography.

Examples for this aversion abound in the literature: when Lutz Berger references Galland's account that Arabic volumes of the *Typographia Medicea* were not sold because of their ugliness, he hastens to add that close scrutiny of the title page reveals an 'ugly grammatical error', projecting the description of a visual characteristic on the textual integrity instead;⁶³ when Geoffrey Roper acknowledges the commercial failure of these publications, he attributes it to the 'firm resistance of Middle Eastern Muslims to such an alien innovation', turning what may be a discrete choice on aesthetic grounds into a general (and irrational) rejection, ignoring the explicit sources;⁶⁴ and when Ami Ayalon refers to the 'dislike of printing on esthetic grounds', he qualifies it as 'rather

⁶² Exceptions are Ian Proudfoot and more recently J.R. Osborn. Proudfoot explicitly identifies aesthetics as a key component in the rejection of typography in the Muslim Middle East and underlines the profoundly different reaction to lithographic printing (Proudfoot 1997); Osborn highlights the functional difference that arises from the visual disparity of European type, and its negative influence on the acceptance of the medium: 'Literacy not only teaches readers to recognize shapes; it leads to expect patterns of similarities and contrast.' (Osborn 2017, 94)

⁶³ Berger 2002, 17.

⁶⁴ Roper 2009, 77.

nebulous'.⁶⁵ Visual aspects, it appears, are an awkward terrain for experts of textual enquiries, as recently acknowledged by Dagmar Riedel:

One of the unintended side effects of the vigorously championed digitization of Islamic books is the proliferation of a seemingly decorative use of manuscript pages on academic websites and publications, since the widespread use of digitization has made it so much easier to obtain affordable high-quality scans [...] I suspect that the use of undocumented images as illustrations most likely reflects a learned lack of interest for the materiality of written texts. As long as graduate education in Middle Eastern and Islamic Studies is centered on teaching scholars how to base their arguments on the meaning of words only, the text's embodiment in any particular medium is perceived as secondary and illustrations, as nice as they may be, are accidental.⁶⁶

The apparent hesitation to discuss visual aspects and aesthetic accomplishments may thus be the well-placed caution of scholars trained in other aspects and techniques who are fully aware of the limits of their competence.⁶⁷ Alternatively, it may suggest an implied assumption that all typography is good typography, making any in-depth discussion unnecessary. Either standpoint is likely to reflect a fear of veering too far from 'scientific' methods, and into the dangerously subjective area of aesthetics that any discussion of visual characteristics may entail.

To alleviate these concerns, it may help to recognise typography as an applied craft, rather than the 'civilizing act' that Kathryn Schwartz has identified as a recurring theme in the literature. This means that like any other craft, typography features a wide gamut of performance, from abysmal to superb; from barely intelligible, to sublimely clear. Recognising that not every instance of typographic work is a successful example of this craft may help to further illuminate the adoption of the medium. It means that just because someone printed something in Arabic, it was not necessarily a shining model for others to follow and imitate.

⁶⁵ Ayalon 2016, 12–13.

⁶⁶ Riedel 2012.

⁶⁷ When this caution is not maintained, limits of judgement become apparent. Roper, for example, qualifies the Arabic types of which Galland reported that they were too ugly to sell books set in them, as of a 'high technical and aesthetic standard' (Roper 2002, 142); in another paper Roper describes the Arabic types made by the English type founder Richard Watts for the Church Missionary Society press in Malta as 'quite elegant in appearance', even though the mission's Superintendent had already rejected them as unusable in the 1820s (Roper 2004, 112).

It also means that there are tangible criteria of typographic quality that are independent of subjective preference or fashion.⁶⁸ As in any *métier*, there are recognised marks of accomplishment and craftsmanship which, in their totality, determine the fitness for purpose of a typographic work. Indeed, we may remind ourselves that typography – as well as type-making, typesetting, printing, etc. – owes its standing as a distinct profession to the existence of such criteria. Only verifiable parameters enable the emergence of a model of training in which mastery can be achieved by the apprentice – historically the central route of transmission in the printing trades. Moreover, this is what distinguishes typography as a craft from related domains such as calligraphy and other artistic pursuits which, unlike typography, may be pursued for their own sake and outside of frameworks of evaluation.⁶⁹

If we understand typography as a communication device, it becomes readily apparent that its success and usefulness can be judged, and to some extent, measured. In order to communicate, and thus achieve its fitness for purpose, typographic practice must adhere to norms. Just like a child's made-up language struggles to convey meaning to anyone else, typographic design that does not heed visual conventions fails to achieve its principal duty: to communicate content. An early proponent of the idea of 'transparent' typography as a conveyor of meaning was Beatrice Warde (1900–1969), who expressed that 'type well used is invisible *as* type, just as the perfect talking voice is the unnoticed vehicle for the transmission of words, ideas.'⁷⁰ Whereas Warde's framing may appear too narrow today, in the context of the introduction of typography in a culture that is unaccustomed to letterpress printing, it remains apposite.⁷¹

68 By typographic I mean that which relates to type-making as well as to typography, i.e. the use of types in the composition of texts.

69 Note that this refers to calligraphy as an expressive art form. There are of course calligraphic cultures which employ such objective criteria. Notably classical Islamic calligraphy is governed by strict rules, and the transmission follows a master-pupil model in which explicit certificates of mastery of individual writing styles are issued.

70 Warde 1955, 13.

71 Most contemporary commentators consider Warde's framing as overly simplified. A key criticism is that Warde's text seems to gloss over the active role that type and typography play in conveying *and* modifying the content. Because typography organises the content, and ideally amplifies its structure, emphasis, and character, critics argue, it cannot be transparent. This overly literal reading (see e.g. Lussu 2018) can in turn be criticised for a rather self-conscious stance that assigns undue importance to the intention of the designer at the expense of the perception of the reader. A more charitable and measured re-reading is found in Kinross (2018), which, fairly, identifies Warde's text as ultimately concerned with the reader, rather than the maker of typography.

Type that deviated from the expected norms of letter shapes, proportions, and word formation, and typography that was far removed from established document appearance could hardly have been recognised and accepted as a replacement of manuscript writing, a highly successful communication device. As Niebuhr testified already in 1772, '[the Arabs] can hardly read books from our preffes', which would have made typography rather unappealing.⁷²

Indeed, the tension between reader expectation, visual convention, functionality, stylistic expression, and physical implementation is at the heart of typography. Key to making a successful type for reading, and a central challenge for the designer, is the need to create within a narrow margin of formal variation. In the words of Walter Tracy (1914–1995), for many years the Typographic Adviser of the British Linotype company:

It is a matter of constant interest that new text types continue to be created and added to the substantial list of those in current use [...] yet in all of them the characters conform to certain rules of shape and structure which, it might be thought, would severely limit the possibility of new invention and individuality.⁷³

This constraint can be assumed to be particularly severe when typography is introduced for the first time in a manuscript culture where formal expectations are closely attached to the appearance of established writing practice. In the context of the first European attempts to make Arabic types, and their comprehensive failure in the Middle East, it is worth recalling Fiona Ross's first criterion in the assessment of a typeface: 'An understanding of the writing system to be represented and an appreciation of typographic traditions are fundamental to a satisfactory design'.⁷⁴ Although Ross grants some stylistic elements to be founded in taste, she notes that 'the clarity and constancy of the image they produce contribute to the quality of a typeface', and that 'observance of proportional relationships and evenness of texture' are central for a sound typeface in which 'all the lettershapes of the fount should be readily differentiated and yet form a cohesive whole'.⁷⁵ Regarding the functionality of typefaces, Ross lists 'readability at small text sizes and good character fit at display sizes' as two

⁷² Metin Kunt argues along similar lines when he calls the disinterest of the Ottomans in typographic print 'a classic case of old technology too efficient to be easily displaced by new technology too cumbersome and too expensive to become an immediate alternative' (Kunt 2008, 97). He ignores, however, the role of visual accomplishment.

⁷³ Tracy 1987, 56.

⁷⁴ Ross 1999, 2.

⁷⁵ Ross 1999, 2.

typical examples.⁷⁶ To this one may add type made for specific media, type for output in discrete technical conditions, type for reading under certain circumstances, type made for particular textual genres, and many more.⁷⁷

Further to these considerations of type-making, there are criteria that determine the quality of typography. The position of the column on the page, the extent of the margins surrounding it, the relation of type size to line width and interlinear space, the arrangement of navigational aids like page numbers and running headers, the visual distinction of various textual elements, etc., all contribute decisively to the success of a typographic design. Moreover, all of them can be defined better or worse, with a narrow spectrum that may be called ideal, framed by the task and the circumstances at hand. In the Western context, there is a host of guidebooks, manuals, and reference works that set out the corresponding rules, conventions, and best practice examples for typographic composition.⁷⁸

6 Can it be read?

In many cases this tacit craft knowledge, founded in five hundred years of European trade transmission, is confirmed today by experimental research. As Timothy Slattery concludes in a concise overview of psycholinguistic studies of typographic parameters, ‘eye movement recording, in conjunction with appropriate experimental design, has helped dispel the assumption that typographical variables can only have a main effect on reading performance’, and that ‘these studies have not only found reliable typographic effects, they have also shown that these effects differ for different words and different readers’.⁷⁹ In 2005, for example, Kevin Larson and Rosalind Picard were able to demonstrate that better typography led test participants to greatly underestimate the time that they had spent reading. According to the researchers, this ‘indicates that

⁷⁶ Ross 1999, 2.

⁷⁷ The latter has a parallel in Islamic manuscript practice that was already identified by Niebuhr: ‘The Arabians, Perfians, and Turks, write Arabic in fets of characters differing in several particulars from one another. They have also different modes of writing for different forms of bufinefs, each of which has its particular name’ (Niebuhr 1792, 261). This parallel was recently elaborated on by Osborn (2017).

⁷⁸ See for example Bringham 2019; Hochuli 2011; Luna 2018; Mitchell and Wightman 2005; Willberg and Forssmann, 1997.

⁷⁹ Slattery 2015, 70.

good quality typography is responsible for greater engagement during the reading task'.⁸⁰ Moreover, Larson and Picard showed that better typography 'appears to induce a positive mood, similar to earlier mood inducers such as a small gift or watching a humorous video' – a momentous finding when considering the role of typographic quality in the rejection of letterpress printing in the Muslim Middle East.⁸¹

Whereas scientific research into reading the Latin script dates back more than 100 years to the experiments of the Frenchman Louis Émile Javal (1839–1907), the typographic trades have only recently taken an active interest in its findings.⁸² Vice-versa, in comparison to general research using eye-tracking techniques to investigate reading, 'there are very few studies of eye movements designed to examine aspects of typography', and there remain many open questions about the reading process, and the influence of typographic parameters.⁸³ Today, however, the design community generally accepts psycholinguistic research as a means to inform and underpin craftsmanship with experimental evidence.⁸⁴ According to Slattery, 'the field now seems primed to explore reading from the viewpoint that it represents a complex interplay between language, typographic display, and reader ability'.⁸⁵

80 Larson and Picard 2005, 9.

81 Larson and Picard 2005, 11.

82 Walter Tracy was notoriously suspicious of academics: 'Not long ago it was taken for granted that the people most interested in type faces were those who used them, or actually created them [...] but in recent years another set of people, quite different from those with direct involvement, have developed an interest in printing types. They are the academics [...] who found it worth their time to theorise about the nature of letter forms as a human creation, one of the things that other animals do not have.' On the findings of legibility research in the 1950s Tracy commented: 'it cannot be said to have had much influence or practical effect'; arguing along similar lines as the present paper, Tracy also emphasised the acquired visual competence of professional typographic designers: 'their knowledge of types usually begins with technical or design school training. It develops with working experience, and it is the range of that experience that nurtures the perceptions about types which become almost innate in the typographer and type designer, but which are not present in the academic observer, because of the difference of vocation' (Tracy 1987, 26–27).

83 Slattery 2015, 63.

84 In the development of the typeface Sitka, Microsoft turned this into its most deliberate form yet. Here a team of designers and researchers tested the legibility of individual letterforms and features during the making of the type. In an iterative process, in which design variations were compared for their relative merits, experimental research thus directly influenced design decisions. Larson and Carter 2015.

85 Slattery 2015, 70–71.

In a recent publication the typographer Martin Tiefenthaler has argued that reading should be seen first as a bodily aptitude, and typography thus understood as an exercise in ergonomic design.⁸⁶ Although not based on experimental research, Tiefenthaler has made the case with reference to well established knowledge about the visual and cognitive processes involved in reading. Tiefenthaler argues that reading as a recent civilisational attainment requires our eyes to perform a highly unnatural activity.⁸⁷ Rather than scanning the field of vision in various directions without apparent aim, reading forces the eyes into a linear movement inside a narrowly defined area, scanning a text word for word and line for line. According to Tiefenthaler it therefore takes exceptional ‘persuasion’ to make our eyes adopt the necessary activity, and this persuasion is the central task of typographic design. For Tiefenthaler tacit craft knowledge and typographic rules and conventions therefore evolved to make the unnatural activity of reading as palatable as possible for human visual and cognitive processing.

In comparison to studies concerned with European languages, legibility research of Arabic looks back at a shorter history. Nonetheless, over the last two decades experimental research has begun to shed some light on reading Arabic. Importantly, there is a growing body of evidence showing that the specificities of Arabic language morphology and script orthography result in significant differences to those found in the reading of other languages. This should not be surprising given the visual distinctiveness of Arabic, and it corresponds to what is known from other scripts. For example, typical saccades in English are about 7–9 characters, whereas in Chinese most saccades are only 2–3 characters wide.⁸⁸ This corresponds to the average word length in Chinese and suggests that saccade length is bound by cognitive limits, rather than visual processing.⁸⁹

Numerous studies have investigated the effects of Arabic vocalisation on reading speed and comprehension amongst children. Whereas early work by

86 Tiefenthaler 2019.

87 Recent by evolutionary scale. Whereas the default gaze has evolved over millions of years, reading only dates back a few thousand years and is even much more recent when we consider general literacy.

88 Saccades are the jumps that the eyes perform whilst reading. Rather than advancing in a continuous motion, the eyes jump over multiple letters, stop during a so-called ‘fixation’, before jumping again. For a concise overview of legibility studies and a summary of the current theories of reading see Beier 2012.

89 Slattery 2015, 55. Furthermore, Slattery notes that the oculomotor system is highly capable to adapt to reading conditions, making wider saccades when reading expanded typefaces than when reading narrow typefaces.

Salim Abu-Rabia found positive effects of short vowels on reading speed and comprehension, more recent work largely contradicts these findings.⁹⁰ Contrary to expectations and a widely accepted hypothesis,⁹¹ a number of unrelated studies demonstrated that unvocalised text was processed faster by all Arabic readers but the very beginners.⁹² In a study by Raphiq Ibrahim, a word-superiority effect was identified, leading to the interpretation that experienced readers of Arabic employ a reading strategy that is ‘primarily visual-orthographic rather than phonological’, meaning that whole words are identified, rather than their constituent parts.⁹³ The additional information provided by vowels therefore becomes superfluous and acts as a distraction, rather than an aid to reading. Haitham Taha produced similar results and relates the findings to the higher visual density of vocalised text. He draws a parallel to studies of other scripts, namely Japanese Kanji and Kana, as well as vocalised Hebrew, which have shown that higher density leads to longer processing times. An investigation by Ibrahim Asadi reproduced comparable results as Ibrahim and Taha. In an experiment with 1516 pupils, unvocalised text performed better in terms of accuracy and fluency in all but the youngest age groups. Similar to Taha, Asadi suggests a connection between the ‘visual density and complexity of Arabic orthography’ in vocalised text, and inferior reading performance.⁹⁴

As demonstrated in the above examples, visual complexity and the orthography are central recurring themes in much of the Arabic legibility literature. Yet, experimental setups and discussion of results suggest that the scholarly community has yet to take note of the potential influence of typographic parameters on its works. Typographic choices are consistently poor, with uncritical reliance on Arabic fonts installed on mainstream software packages and a lack of sensitivity to various visual aspects.⁹⁵ Point size, for example, is frequently taken as a constant, leading to recommendations of ‘ideal point size’ for

90 Abu-Rabia 1998; Abu-Rabia 2001.

91 The orthographic depth hypothesis postulates that readers of orthographies with a direct correspondence of spelling and sound (shallow or transparent orthography) have a learning advantage over readers of orthographies in which the correspondence of spelling and sound is irregular or not directly apparent (deep or opaque orthography).

92 Ibrahim 2013; Taha 2016; Asadi 2017.

93 Ibrahim 2013, 251.

94 Asadi 2017, 143.

95 A 2012 PhD thesis tested five nominally different fonts for their comparative legibility in Arabic: Arial, Courier New, Simplified Arabic, and Times New Roman. Strikingly, the researcher and supervisor appear to have been unaware that the Arabic glyph complements of three of the five tested fonts are identical. Abubaker 2013.

Arabic.⁹⁶ This, however, is ill-informed, because the actual size of the type's image in a nominal point size is arbitrarily determined in type-making, leading to substantial differences of actual size between different fonts that are displayed in nominally identical point sizes (see Fig. 6).

PhD research by Nadine Chahine is a rare example of Arabic legibility research that takes typographic design aspects into account.⁹⁷ It tested three versions of a typeface designed by Chahine and compared the respective reading performance by means of eye-tracking equipment. Its conclusions added to interpretations also found in the literature, identifying visual complexity as a negative factor in reading speed.⁹⁸

7 Conclusion

The apparent indifference of the Muslim Middle East to the introduction of letterpress printing has elicited reactions of surprise and wonder from commentators from diverse backgrounds and over a few centuries. Although various explanations were advanced to explain this puzzle, all of them were rooted in an assumed supremacy of print over manuscript production, and the expectation that any society acquainted with print would adopt it as enthusiastically as those of fifteenth-century Europe. As Schwartz has argued, this perspective betrays a Eurocentric bias that predicates all interpretations on a specific historical experience that is not generally applicable, a stance that resonates strongly with current discourse. The present paper was inspired by Schwartz's critique, and largely embraces her call for a more fine-grained and localised analysis. Yet, it does not follow Schwartz's suggestion that scholars no longer ought to ask certain questions. This contradiction is on one hand based on principle – no meaningful questions should be excluded from scholarly enquiry – and on the other it is prompted by the specificities of the query.

As I argued in the introduction, it does not take the European experience to interrogate 400 years of Ottoman indifference to typography, when in the nineteenth century letterpress printing was adopted enthusiastically by the very

⁹⁶ See e.g. Alsumait and Al-Osaimi 2009, and Al-Dosary, Al-Salloom and Al-Rashid 2010.

⁹⁷ Chahine 2012.

⁹⁸ Whether an experimental setup in which the researcher creates the type that is tested provides ideal conditions is debatable. Further research that tests established and generally recognised typefaces of high quality, representing different genres, could shed light on this question.

societies that had shunned it before. Rather, more in-depth investigations of the conditions that first precluded, and then enabled Arabic typography in the Middle East are called for. Whereas we do not know of explicit evidence to prove why letterpress printing was not taken up by the Muslim world, the informed interpretation of existing evidence and established facts should enable contemporary scholarship to provide compelling explanations.

In that vein, this paper has argued that prior to the mid-nineteenth century Arabic typography was unfit for its purpose. Although there were some earlier presses and exponents of what eventually became a print culture, scholarship has assigned disproportionate relevance to them in what Schwartz described as a ‘search for isolated instances of printing irrespective of parameters of time, space, and culture’.⁹⁹ By contrast, when applying the concept of fitness for purpose to early Arabic typography in the Middle East, the question of the late *début* loses much of its enigma.

As a trade, letterpress printing in Arabic evidently did not offer a viable alternative to manuscript production. We know that European forays into commercial Arabic publishing failed despite prolonged and substantial efforts by some of the mightiest institutions of their time – an indication that culture weighs heavily, even in the face of economic clout. The pioneers of Arabic typography in the Middle East also operated outside of conditions of commercial viability. This allowed them to experiment with the technology and the medium free from economic pressures, but whether this made them trailblazers of print culture, as proposed by some scholars, is debatable. Although setting an example that Arabic typography could be practiced in the Middle East, the printing activities of Müteferrika, government print shops, and Christian missionaries before the mid-nineteenth century may equally have been a deterrent for the trade to evolve. None of these pioneers succeeded in emulating the quality of manuscripts, demonstrating that the technology was not suitable to supersede this central element of Muslim cultural production; they all produced publications for a minuscule minority; and not one of them is known to have been profitable.

As a medium, the fitness for purpose of typography relates to its ability to communicate. This hinges first on the ability to engage readers through visual appeal, and second on the fidelity to established conventions and reader expectations. A document that is considered ugly and typography that appears impenetrable do not invite the reader to read. In this case form and function are inseparably entwined as aesthetic appeal and communicative ability largely

⁹⁹ Schwartz 2017, 2.

depend on adherence to expectations. As in any sign system, fidelity to convention in the making of a mark is a prerequisite for the subsequent deciphering and processing of the message. The further a typographic sign is removed from its conventional appearance, the more difficult its processing by the reader becomes. Thus, Arabic type that was culturally alien because its formal qualities were removed from conventional, i.e. manuscript forms, was not only perceived to be ugly, it also constituted an obstacle to successful communication.

Incidentally, on this level the diffuse sphere of cultural preferences overlaps with physiologic aspects of the human visual and cognitive abilities. For although we do not have comprehensive experimental evidence about the influence of typographic parameters on reading, especially with regards to the Arabic script, there is strong evidence that divergence from a relatively narrow spectrum of 'ideal' characteristics has a negative influence on our capacity to read. Beyond the obvious effect of letter size, experimental evidence has demonstrated that aspects which are central to typographic design can have a significant bearing on our ability to read, on our processing of the information, on our capacity to retain it, and on our pleasure in the act of reading. Amongst them are the space between letters, divergence from typical stroke-weight (as found in very thin or bold type), divergence from canonical proportions (e.g. an increased risk of confusability when the ascender of h is not tall enough), and the distortion of letterforms.¹⁰⁰

Against this background, the correlation between the emergence of more competent Arabic typefaces, paired with higher quality typography, and the wide-spread breakthrough of letterpress printing in the mid-nineteenth century appears significant. This is particularly noticeable when considering the emergence of private print shops. Whilst barely extant before the 1850s, the second half of the century saw a rapid proliferation of private, for-profit printing enterprises across the Middle East. Critically, their success and livelihood depended on Arabic typography as a viable proposition, and from mid-century more aspiring printers than ever before felt that the circumstances were such that a newly founded print shop appeared like a promising business prospect. This was a fundamental break to the preceding 400 years, and whilst the quality of Arabic typography was only one aspect of this change, it is hard to fathom that its influence was anything but central to the success of letterpress printing in the Middle East.

100 See Beier 2012.

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Fig. 1: Double page spread of Avicenna’s *Canon medicinae*, printed by the *Typographia Medicea* in Rome in 1593. 350 × 240 mm, reduced, enlargement on the right. Courtesy of the Bayerische Staatsbibliothek, BV004226485, <<https://opacplus.bsb-muenchen.de/title/BV004226485>>.

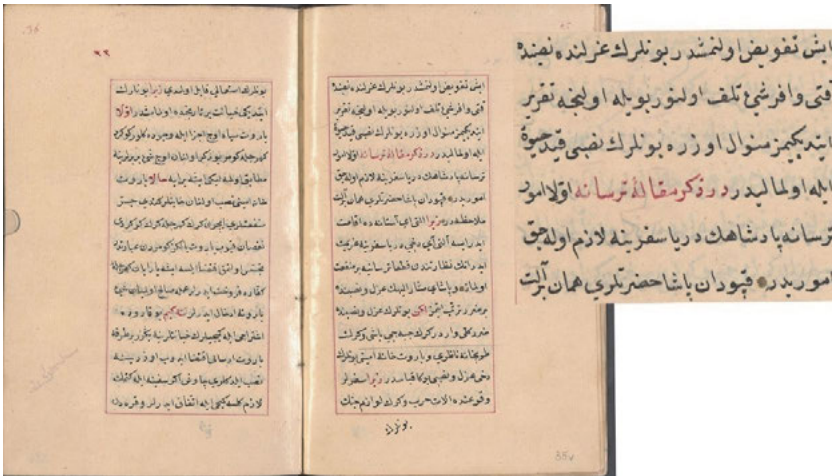


Fig. 2: Double page spread of *Tedbir-i Ğedid* by Hacı Ali Paşa Canikli, Istanbul, 1777–1810. 205 × 130 mm, reduced, enlargement superimposed on the right. This manuscript exemplifies Ottoman manuscript production. It features a competent, fast *naskh* hand that adheres to the rule-based morphology of the style. Note, however, that it is not calligraphic in the sense of an artistic visual expression in which the appearance takes precedence over the content. Rather, this manuscript is intended and used as a means of communication, in which the script is but the vehicle of the content. Courtesy of the Austrian National Library, <<https://data.onb.ac.at/rec/AC14004993>>.

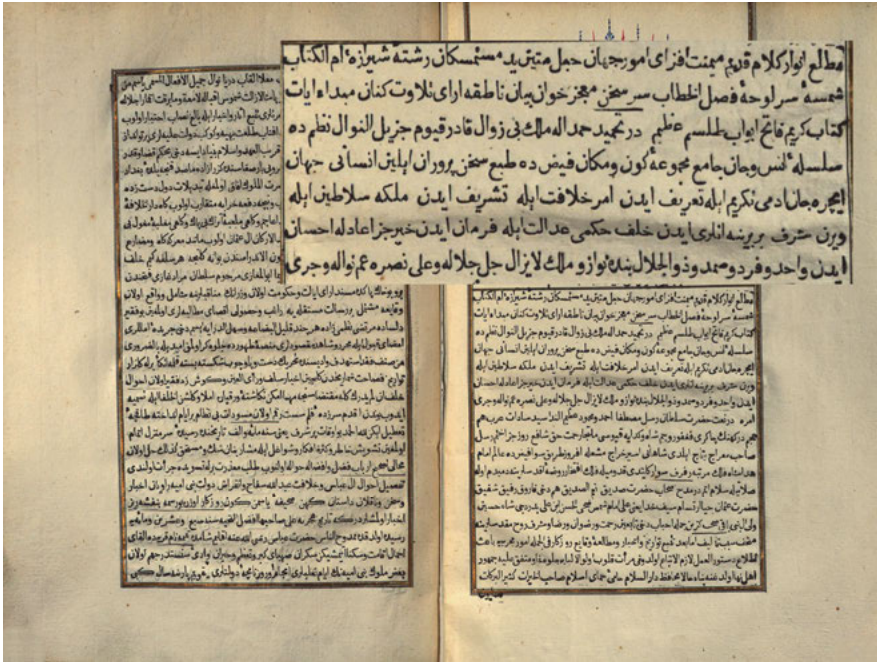


Fig. 3: Double page spread of *Gülşen-i hulefā* by Nazmizade Murtaza, printed by İbrahim Müteferrika, Istanbul, 1730. 384 × 290 mm, reduced, enlargement superimposed on the right. The gilded margin around the column suggests that this publication was produced with the intention to excel visually, yet the typography falls short of this ambition. The lines are poorly aligned and lack sufficient interlinear space, the typeforms are frequently smudged with ink, creating dark spots on the page and rendering individual letters illegible; in other instances individual letters are barely inked and difficult to see at all. The spaces between letters and words are inconsistent, and vertical strokes show a wide variety of angles, handing the text a haphazard appearance. Courtesy of the Austrian National Library, <<https://data.onb.ac.at/rec/AC10152763>>.



مارسته - ثبات ولا طبيا انما كانت المواقعات القديمة للعرب محفوظة عندهم فبذلك
 زعم بعض الناس منهم انهم بذلك اطبا واعمال الجراحة كان يتولاهامتهم
 الخلاقون الجهلة وبالجمله قبلاد العرب بالنظر للعلوم والمعارف كانت في غاية
 الاحته قارو الجهل الى ان ظهر فيها الانسان الكامل ذو الترجمة العالمية والخذق
 العظيم فاداه اجتهاده الى ان يهزم جيوش الجهل وسوء اتقمن من هذه البلاد ويحجي
 فيها العلوم والمعارف ويردهما الى تلك البلاد التي كانت معدا لها وهذا
 الانسان الفزيدهو ذو السعادة اقدى شا محمد على وحين توجه مقصده الحميد الى
 اصلاح الديار المصرية وتجديد ما هو ضروري لاصلاحها ادرك بحسن فطنته
 ان الطبيب راسا طبا كليا باول اليه معد البشر ونجما حه جليب من الاوربا طبيا
 مع من جليبه من ضباط العسكرية وازراب الحرف والصنائع اجتمع من رعيته طبيا
 وارباب صنائع وكان في هذا الشأن كالرجال العظام المحيين للقوانين والتراتب
 والانتظام لجعل اول ما لا تقتل اليه في رعيته حين اقتصدت ابايا تتعلق
 بالعسكرة فانشاء معسكر امره تسانم لاصلاحه لاه البوابا راجية وانشاء فيه
 مارستانا تشق وكثرت به لاه الاطبا المحضرين من الاوربا الى هذا الاقطر برتبة
 باش طبيب ورجال المعسكر الجهادى فرايت خدمة العصفه اليه اليوم وصول
 غير كلمة الترتيب فرتبها على قواعد قانون ناهم الفرسانى وكان المعسكر
 الجهادى اذذال تخيما قبايين الى زعل وانشاءه وكان عدده اذذال نحو خمسة
 وعشرين الف مقاتل وصيت الضرورة الى اقامة مارستان هنالك لتروى اليه المرضى
 الايمن من ذلك الجيش فسيه هذا المرستان بجارستان الى زعل لكونه قريبا
 منها وهو مارستان واسع والكفاية مع من القصر يرضى الى الصوما تين جمعيت
 فيها امهر اطبا الجيش المذكور وخفر سالى انشاء مدرسة طبية فيه يصير منها
 طبيا خاصة عسكرية فاعرض لسعادته ذلك الى فاستحسنه وقبله فاعرضت في
 هذا الشأن مائة ان عطفان اولهما معتد زعم علم صعب كالتب لتلاثة عربية
 معلوم تجهل اللغة العربية بالكيفية والتراجه للاستفادة لا تمنع في ذلك كونها
 لا تعرف الاصطلاحات الطبية فظفرت تقطع هذا المانع تشديد بعض العلماء تصحيح

Fig. 4: Double page spread of the manuscript *Mablaḡ al-rāḡ wa-ḡāyat al-ḡadd fī fann al-ḡarrāḡ* by Louis Bégin, printed at the Būlāq press, Cairo, 1836. 192 × 188 mm, reduced, enlargement below. Although Arabian’s type is considerably better aligned than Mūtefferrika, creating a much more orderly impression that contributes to greater clarity, it has none of the vigour, fluency, and dynamic that set contemporaneous manuscripts apart. Courtesy of the Austrian National Library, <https://data.onb.ac.at/rec/AC09692145>.

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ويعد مع عساكر الحرب. ويمارس طرائق اللعب. مع
الصفوف كأنها غيام وسحب. فانفق الأمر ان جردته
الشديدة. كني تسافر الى بلدة بعيدة. فخرجوا من
الايواب. واماطوا للجلباب. وسحبوا الاطراب. بعد ما
نضت النقاب. واكملوا الزهاب. وتودعوا الاحبا من
الاحباب. فباختصار الكلام. ساروا في النظام. بكن
وارحام. واتوا وحلوا في المهام. ونشروا العلم. ورتبوا
امكنة لكل غلام. فلما ملوا السري. ومالوا الي الكري.
دعوا بنين الذي نحن في صدده. ليقوم غفيرا ويعسس
بكل وجده. فاستقام مدة بسيرة. وبرهة قصيرة. ثم
اتت النوبة علي زميل من ربه. فقام عوضا عنه
عسا وهو لايس درعه. فكانت ليلة فتية الشباب.
غدافية الهاب. فمرعابر طريق عدو حريف.
وطالعه كانت كطلعة ناسك شريف. فخان به وضربه
ضربة الية. والقاد علي الارض لينة جسيمة. وجرعه
كاس الخراج. وهو ثابت لايجرح ولا يراخ. قال فلما شاهد
بنين الوقية. ترحس منها وحشة مريعة. فاستبشع
جدا لما شاهد القليل. واستبشع من خدمته وصار
مليل. فكتفت له حينئذ اسرار الغازه. وبدابع
اتجازة. وهذا اول ما يدي يجعله يرتد من معاصيه
الثقيلة. وتلفت الي طاب المعونة للجليلة. ثم بعد ذلك
ترج بامرأة رقيقة القد. شقيقة الحد. حسنهما لاجد

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والرزايا. فاله ما تركه وخذله. لكنه حرضه الي التوبة
وايقظه ليرحضه. وجعل ضميره يويحه ويقلقه. ويقلمه
سهما برشقه فيشفقه. فخطرت علي باله العنابات
للجهتية. والقصاصات للجميمة الاليمية. فبالاثناري حلما
مهولا. واضطر منه وصار منزهولا وموجولا. فهني في
يوم الحشر وعقابه. وما يقاسي من قلة اجرة وثوابه.
فهطل دمعا يضاهي الوبل حال مصابه. او تحكوم
وعجروم اذا حل انقضا به. فتعطف عليه رب الارباب
المرتب. ووهب له العون في الامور الصعب. فتقده
نقذة الطي من القناص. وفتح ذمته الهوت المنعاص.
وخلصه مرارا عديدة من الهام. وصار له ذلك شهرة
واعتصام. تارة سقط في نهر طيار في اخر النهار.
فبالكذ كان ينظر معرور من الاكثار والاهتمام. وتارة
وقع في البحر الرجح العجاج المتلطم في الامواج. فحدر
الي للضيض وقحف حفنة الساج. وظن انه يموت
موتة الكابة والشقاوة. ولا يحصل علي ادني نفاوة. فلهج
بكل جده ويتع. وقام وماج مع حدة طبعه. فندني من الهو
بالسلامة. بعد ان اتلته الودامة. وذهبت منه للجهامة
والشهامة. وصار في حالة العدامة والزدامة. ثم بعد
مدة من الزمان. وبرهة من الازمان. لما كمل من العمر
سبع عشرة سنة كاملة. وقابلته تعصرت الي الخيار قابلة
استصرب رابا باجتهار. ان يصير نفا من الانفاز.

والرزايا. فاله ما تركه وخذله. لكنه حرضه الي التوبة
وايقظه ليرحضه. وجعل ضميره يويحه ويقلقه. ويقلمه
سهما برشقه فيشفقه. فخطرت علي باله العنابات
للجهتية. والقصاصات للجميمة الاليمية. فبالاثناري حلما
مهولا. واضطر منه وصار منزهولا وموجولا. فهني في
يوم الحشر وعقابه. وما يقاسي من قلة اجرة وثوابه.
فهطل دمعا يضاهي الوبل حال مصابه. او تحكوم
وعجروم اذا حل انقضا به. فتعطف عليه رب الارباب

Fig. 5: Double page spread of *Kitāb Siyāhat al-Masīhī* by John Bunyan, printed by the Church Missionary Society, Malta, 1834. 240 × 200 mm, reduced, enlargement below. The font in use is a typical exponent of pre-twentieth century Arabic type made in Europe. It arbitrarily mixes stylistic elements of various Arabic manuscript hands, amongst them *naskh*, *thuluth*, and *maghribī*. Numerous proportions are compromised, e.g. the ascending strokes of letters like *alif* and *lām* are atypically short and have inconsistent angles, and *rā'* is too big. Curves are poorly executed, and the overall impression of the page is spotted, alternating between exceedingly dark and unnecessarily white areas. This publication demonstrates the kind of typography that was considered too ugly for reading by Arabic readers in the Middle East. Courtesy of the Austrian National Library, <<https://data.onb.ac.at/rec/AC11874944>>.



Fig. 6: Apparent size differences in nominally identical point sizes. In this illustration the two fonts Adobe Arabic Regular and LL Akkurat Arabic Regular are set in the exact same point sizes, but divergent technical configurations result in pronounced actual size differences. The large letters on the right demonstrate how various fonts may define the body, i.e. the area in which typeforms are displayed, very differently.