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Arabic type from a multicultural perspective:

Multi-script Latin-Arabic type design

by

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Multiculturalism constitutes a mixture of expressions where languages are fundamental, not only as the vehicular form of thought, but also as a powerful tool for social cohesion and relationships within a community. Languages are often the first barrier encountered when communicating or relating to other culture. Whereas, typography can provide valid solutions, not only in terms of text layout but also regarding the specific aspects of multilingualism: the design of glyphs for multilingual text composition.

Type design is at the core of how communication takes place in our multicultural society. As multilingual communication becomes more apparent, the need for multi-script fonts including more than a single script is unquestionable.

This practice-based research focuses on the designing of a multi-script Latin-Arabic typeface for literary reading text purposes based on an understanding of Arabic script in order for the result obtained to be respectful of the tradition of Arabic calligraphy.

The approach to Arabic has been carried out taking into account the Spanish Arabic tradition from a study on the Arabic types which were designed and in use in Spain during the Printing Press years.

The methodology proposed tries to complete every stage in the work process, from sketching to final font production, with the aim of harmonising both Latin and Arabic scripts in the same font file: *Pradell Al-Andalus.*

Pradell Al-Andalus, although not designed to be a revival of any specific Arabic Spanish typeface, establishes a link with Spanish type History in order to build a bridge between tradition and our contemporary multilingual needs.

This document has been set using Barna and Pradell Al-Andalus

To the memory of
JOSEP M. PUJOL

† 2012

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LIST OF ACCOMPANYING MATERIAL

CD Rom

Containing:
Pradell Al-Andalus typeface

DECLARATION OF AUTHORSHIP

I, Andreu Balius Planelles

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Arabic type from a multicultural perspective: Multi-script Latin-Arabic type design

and the work presented in the thesis are both my own, and have been generated by me as the result of my own original research. I confirm that:

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Andreu Balius
Barcelona, 20 April, 2013

ACKNOWLEDGEMENTS

LIST OF ACRONYMS AND ABBREVIATIONS

AECID	Agencia Española de Cooperación Internacional
ATYPI	ATypI – Association Typographique Internationale
DIN	Deutsches Institut für Normung
EU	European Union
EEA (CSIC)	Escuela de Estudios Árabes (School of Arabic Studies)
IUC	International Unicode Conference
OTF	OpenType font
TTF	TrueType font
UPM	Units per em
VOLT	Visual OpenType Layout Tool
WOFF	Web Open File Format

1
Introduction

My studies of Sociology, when I first started University, gave me a spirit of social awareness which have influenced the way I have approached many graphic design projects. After leaving the Sociology Faculty in my third year to start Graphic Design studies, I was certain about how professional attitudes can influence results and how these results can affect society in some way. All those sociology classes which I initially thought were not very useful when I made my switch to graphic design came back later to fulfil my visual communication knowledge and my professional career, so far.

Those early readings on the economy, society and history had helped me to follow a path that was quite uncertain at the time I decided to change my study subject; but now I am sure that without those sociology studies and those encouraging professors, I would have never had the chance to consider my profession and the things I love to do now.

I have been working as a typographer and type designer since the mid-nineties, working on both commissioned and personal projects. I have always been interested in type history and how it affects contemporary practice. This special interest, and curiosity at the same time, has led to some historical perspective always being present in my work as a type designer.

Approaching Spanish type history has been something I have done on my own. My interest arose from the fact that in the nineties there was very little information on Spanish type history.

Some results from this dive into history are *Pradell*, a text typeface designed as a result of some research on Spanish eighteenth century typefaces or the revival of Joan Trochut's *Super Veloz*, as a study on Spanish early Modernism. These approaches to type design from a historical perspective have familiarised me with the research activity on archives and libraries, when looking for original documents and information.

The experience acquired from these projects and other type projects which also required some investigation has helped me to tackle this PhD project.

1.1 Framework of study
The world as a myriad of cultures

Our increasingly global world becomes more accessible and domestic with the use of graphic interfaces that represent it as a walkable space. From the comfort of a sofa we can browse through satellite pictures and travel around the continents and

countries that make up our diverse planet. Nevertheless, the idea of globalism which is displayed visually through software like Google Earth, leave aside the social and cultural reality occurring in the real world: the diversity of languages, cultures, traditions and beliefs. That is to say, a reality that escapes any global vision as it is extremely complex and rich.

We live in a world both real and represented which is based on a simplified approximation of reality. Our vision of the world depends to a great extent on the instruments we have designed in order to measure, represent and master it. It is therefore a distorted notion, a standpoint made to our measure and expectations. Our Western view of the world has too often rejected other possible cultural realities and points of view. But the world does not end with a single and unified view. In recent decades, a myriad of views have met face to face, side by side, in the schoolyard, in the marketplace, in the unemployment queue or the waiting room of a hospital. They are simultaneous and complementary views of a diverse reality, much more complex than we have learned to look at, or have been taught to accept.

The Eurocentric view of the world has given way to a new awareness due to technological factors and following the logic of markets and economic flows. The so-called globalisation has not only led to greater interaction between countries and cultures, but also inevitably to a tendency to mix-up. Regardless of simplifying and unifying the world's vision, globalisation is a greater awareness of 'other' cultures. It is no longer a question of seeking equality by forcing others to be like us, but of treating them simply as equals. This is a major change to the way we approach the reality of the contemporary world. The non-centrist vision of Postmodernism has helped us to understand this principle in culture, philosophy and the arts.

In her book *On politics*, Chantal Mouffe[1] (cited in Pérez, 2006) argues that in the northern countries Postmodernism has fragmented and individualised society. Some authors, including Martin Albrow (cited in Pérez, 2006), consider Postmodernist ideas as a way forward which creates the conditions for building a new consensus able to transcend social classes, cultural identities and racial identities.

Postmodernism has encouraged the emergence of multiple identities with different interests. Thus, the 'global' vision becomes a new showcase for diverse social realities, which are not necessarily in conflict.

Language has been a topic in itself which has emerged several times in design debates in the last century. Given that a design problem such as written communication is in a diverse and more complex world, it is not fair to impose a single script model or a *lingua franca*, but rather to facilitate the possibility of multiple models, taking into account the variety of users.

Our culture is not uniform and never has been. Multiculturalism is a fact and constitutes a mixture of expressions where languages are fundamental, not only as

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1   Mouffe, Chantal (2005), *On the Political. Thinking in action*, Oxford: Routledge.

the vehicular form of thought, but as a powerful tool for social cohesion and relationships within a community. In the words of the director general of UNESCO, Koïchiro Matsuura, in 2003, "Languages constitute an irreducible expression of human creativity in all its diversity. Tools of communication, perception and reflection, they also shape the way we view the world and provide a link between past, present and future" (Ouane, 2006). No one can doubt the diversity of our world. Regardless of the large unitary picture that applications like Google Earth offer us, the world is a plural reality. Not even a *lingua franca*, such as English, is enough to meet the needs of communication within a huge geographic area where diversity is a value to protect. According to Etienne Davignon, "Without mutual understanding, we are unable to live and work together. In a Union where diversity is cherished, a lingua franca can never be enough to satisfy every communication need. Languages provide the keys to the cultures they represent" (European Commission, 2008a, p. 3). For Davignon, multilingualism is a key element to integration and intercultural dialogue.

1.2 Multilingualism
Towards multiculturalism, both social and technological

One of the challenges that our global society is currently facing is multiculturalism, more precisely in one of its manifestations closely linked to written communication: Multilingualism.[2] Languages are often the first barrier encountered when communicating or relating to other cultures. In our world, it is no longer enough to be able to speak just one language. The global economy forces us to treat markets equally. In this sense, if a product – whatever it is – wants to position itself in a local market, it has to respect local uniqueness. Any expression of a cultural nature that seeks to succeed beyond its local area – an editorial product, for instance – should consider multilingualism as a real need.

In Catalonia – where I live – as well as in other areas of Europe, the concepts of bilingualism and multiculturalism are fully accepted and practised in everyday life. There are a lot of either digital or paper publications that use two or more languages to convey textual information. The coexistence of cultures and social behaviours raises a number of problems where design plays a key role in facilitating human relations: from the need to signal a public space where people of diverse backgrounds live together, to the designing of a campaign for medical support which affects people from different communities. In a multicultural environment, we cannot think only in one single language to convey all the information we need to communicate as we are dealing with different users and situations. Therefore a design problem could

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2   I propose a definition for multilingualism following Rita Franceschini's article 'The genesis and development of research in multilingualism: perspectives for future research', in Aronin, Larissa & Hufeisen, Britta (2009), *The exploration of Multilingualism*, John Benjamins publishing, as the ability of societies, institutions, groups and individuals to use normally or be in contact with more than one language in their daily lives.

well be answered from a typographic perspective. Typography and type design can provide valid solutions, not only in terms of text layout but also regarding the specific aspects of multilingualism: the design of glyphs for multilingual text composition[3]. In computing, the writing systems (scripts) of some of the new emerging economies have been one of the barriers that have limited the population's access to technology, in contrast to those who usually speak in English or in any of the languages that use the Latin alphabet script. The large number of characters necessary in some scripts (such as Arabic or Chinese) has, until recently, been a major limitation to the expansion of digital technology (and Desktop publishing) to other areas of the globalised world.

Any text information entered in a computer is expressed in a language. Many computer engineers have considered the multilingualism issue as a problem of glyph map availability. Thus, we can solve this problem once we have all the characters that are needed for text composition in any of the required languages to be rasterised on screen or printed on paper. However, this was not possible with MS-DOS environments or Mac OS operating systems earlier than OS X, where the full range of available glyphs was reduced to a set of 256. This number of characters did not enable text composition in many languages since most of the writing systems require more than the 256 glyphs available in those formats (PostScript or TrueType) where digital font information used to be stored.

In the final years of the 20th century and especially in the first decade of the 21st century, software developers have strived to implement multilingualism in the computing environment. One of the first successes was the development of the standard for glyph encoding, called Unicode and established after the founding of the Unicode Consortium.

The Unicode Consortium is a non-profit organisation dedicated to promoting the development of a standard model (the Unicode standard) which specifies how to render text in any software or product. One of its main goals is to enable the exchange of multilingual documents among users.[4]

The Unicode Consortium worked hard to establish a universal character map which recognises all writing systems and existing glyphs included with the aim of establishing a standard encoding for all software manufacturers.[5]

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3   Type designers create glyphs. A *glyph* is a particular graphical representation of an element of written language, which could be a character (like the letter 'a'), part of it (like the diacritic 'acute' on the top of *á*), or sometimes several graphemes in combination (like the ligature *ffi*). Instead, a *character* is a unit of information that roughly corresponds to a grapheme, that is the smallest component of written language that has semantic value. In short, characters are what we type on the keyboard, glyphs are what we see.

4   For more information on Unicode Consortium, see: http://www.unicode.org/history/summary.html. [Last accessed July 2012].

5   Not all languages are supported by Unicode at the time of writing this research. Languages such as Guaraní (spoken by nearly six million people in South America) or other indigenous languages are still not supported by Unicode since some of its required glyphs do not have an encoding number.

A second important development was the *World script* system developed by Apple Systems, which made it possible to install different scripts in the operating system.

Another important turning point was the development and introduction of OpenType font format (.otf), intended to be a new standard for digital fonts. The new OpenType format, fully developed by the turn of this century, can contain up to 65,536 glyphs or signs within a single font file.[6] Thus, the coexistence of different writing systems with common stylistic features is now a reality. Another major advantage of this new format introduced at the turn of this millennium is its compatibility among operating systems (Macintosh and Windows PC), which was one of the main demands of users, especially within the publishing industry.

We could consider that OpenType emerges as a necessary solution in an increasingly global world where the use of languages and scripts represents a 'moral' condition for market expansion (although the language of technology is still English).

John Hudson, a designer and multilingual environment specialist, thinks that if type design faced an international revival at the end of the last millennium, it was partly due to the computer industry's desire to place their products in all societies that speak languages other than English (Hudson, 2002).

1.3 Multi-script typography in context
Strategies for multilingualism

The European Union has currently a population of five hundred million people who speak twenty-three official languages that cover different recognised writing systems: Latin, Greek and Cyrillic. As part of the Community's heritage, we should consider more than sixty languages still in use but not recognised as official languages. Furthermore, due to migration it is estimated that within the European Community there are currently about seventy-five nationalities (European Commission, 2008b, p. 4–5). All this makes the life of European citizens increasingly multicultural and certainly multilingual. This not only happens within the states of the European Union. Worldwide, to a greater or lesser extent, population flows are occurring and cultural exchange is part of it, either through the impact of tourism or migration moves caused by economic reasons. Therefore, these concerns that affect us as Europeans are part of a much broader context.

In a world of global communication, multilingual documents are becoming increasingly common. The use of different writing systems in the same document defines new challenges for professionals in graphic communication.

The European Commission promotes multilingualism in order to preserve European linguistic diversity and as a way to enhance intercultural dialogue and social

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6   For further information on OpenType font format: http://www.adobe.com/products/type/opentype.html
     [Last accessed July 2013].

cohesion. In 2005 the Commission submitted the communication *A new framework strategy for multilingualism*, where the value of linguistic diversity was reaffirmed and the need for a broader policy in order to promote multilingualism was revealed.

The European Union Government (EU) has provided a lot of literature on this topic. Its surveys and reports point out how important multilingualism is when contributing to enhancing integration among European citizens. They provide an overview of the social and political situation within the EU and suggest ways of dealing with the different cultures that live within its territory. The reports, abstracts and communications that can be downloaded from the various EU websites make good readings in order to understand and contextualise the multicultural phenomena in a broader sense. Nevertheless, not much is said about the importance of Design –or Typography– as a discipline that could offer real solutions to real problems such as the ones that underlie those surveys and reports. The texts also provide arguments on social issues that could be well transferred to the graphic designers' responsibility and also type designers. We should take into account how important typography is when visualising languages and therefore cultures.

Most world cultures express themselves using writing systems other than the Latin alphabet. In spite of this, the large majority of typefaces available for digital text composition are based on Latin. There are more fonts designed in the Latin alphabet (for both text and display purposes) than in other (non-Latin) writing systems. Moreover, font designs that include more than one writing system or script (multi-script) are even rarer. This is a real problem in terms of communication tools availability. Multi-script typefaces, which provide more than one writing system within their digital file, allow text composition, not only in different languages but also in different scripts. Let's say: English (Latin) – Farsi (Arabic) or Spanish (Latin) – Hindi (Devanaghari), for example. A multi-script font is a useful tool for multilingual communication. It is a real contribution to a multicultural society from a design point of view.

1.4 Designing global
Type design in a global world

Graphic designers –and type designers– can make a real contribution to society at engaging themselves in the shaping of communication through the written word.

Pierre Bernard, co-founder of Grapus and Atelier de Création Graphique, talking about the social role of the graphic designer made the point that,

> Permanent graphic design is achieved by integrating the message (form, content) with society. It confirms established values and asks that they be accepted. It transforms the idea, the judgement, and the aesthetic value into tangible 'natural' reality. Generally, graphic design is presented as functional, but the symbolic role it plays quickly becomes permanent and takes on a new functionality: ideological integration. (Bernard, 1997)

He also stated that,

> In opposition to the standardised profusion of advertising, we must work from particular social situations – from their specific dynamics and their manageable human dimensions. It is from these that small communications units will be able to build creative works that will regenerate and develop the visual riches already attained by society. (Bernard, 1997)

Raquel Pelta in her article 'El diseño como herramienta de un mundo más sostenible' (Design as a tool for a more sustainable world), states that the world has changed as has the role of designers:

> Where once [the designer] was responsible for creating objects, environments or beautiful and useful graphic elements, [the designers] now also has to interpret more fully the psychological, social and cultural relationships established between human beings and the environment, communications and products where these are developed and used. (Pelta, 2013)

Typeface design in a global world, as John Hudson argues in *Language Culture Type*, it implies one of these two ideas: "the design of type by people in many nations for their own scripts and languages, or the design of type by people in one nation for the scripts and languages of another" (Hudson, 2002, p. 24). Therefore, designing for the global world means taking into account the diversity of cultures and all the different scripts used for communication. For Hudson, type design is now closely related to the internationalisation of computing and, therefore, the cultural and economic development that this process entails. Type designers, as true participants in this process are directly responsible for being involved in the economic, social and cultural development within the globalisation process. For Hudson, the phenomenon of globalisation should be about more than 'trade deals' for software vendors (and this includes the design of digital fonts) since it also represents a commitment with "the meeting of cultures, dialogue among civilizations, and increased respect for the heritage, rights and aspirations of a global citizenship" (Hudson, 2002, p. 41).

I position my project within these lines of thought, which I strongly agree with, because, after all, type design throughout all of its history has been an activity at the service of culture, society and, ultimately, written communication.

There is a high degree of linguistic interaction that covers both oral and written communication, and it is increasing. The existence of different cultures that use different writing systems – scripts – calls for a quick response from the design profession. The use of type is present at any time in our daily lives. So, from my point of view, it is clear that an answer should be provided by this field of graphic design, i.e. *type design*.

There are some questions that come up at this point: What could I offer as a type designer in order to contribute to a better understanding of the world we live in? How could I improve the coexistence of different cultures living together through typography? What can I add to the field of multiculturalism design?

Given the lack of digital fonts for text composition in non-Latin writing systems within contemporary Europe, such as the case of Arabic script, it is a real personal and professional challenge to plan the design of an Arabic script that could be displayed on equal terms, both in colour and in texture, with a Latin alphabet. More specifically, the matchmaking and coexistence of different writing systems in the same media support.

A question would probably arise from this decision: Why an Arabic multi-script font design? Of all the writing systems present in the European Community, excluding the Latin alphabet, Arabic is spoken by the second largest number of people. Although it is not an officially recognised script within the EU for writing official documents, the Arabic alphabet has to be considered in order to achieve what the European Commission itself has set as a target achievement: the need "to raise awareness of the value and opportunities of the EU's linguistic diversity and encourage the removal of barriers to intercultural dialogue" (European Commission, 2008b, p. 5).

It is estimated that about thirteen million Muslims reside in the European Union. This corresponds to approximately 3.5% of the total population of the EU and by 2050, it is expected that 20% of Europe's population will be Muslim.

Muslims are the second largest religious group in the multi-religious society within the EU and have a very diverse mixture of ethnic origins, languages, religious rules, cultural traditions and political convictions. Many of these Muslims have become EU citizens, while others already have spent a long time in several host countries. According to a report in 2008, there are one million, one hundred and thirty thousand Muslims living in Spain, 70% of them concentrated in Catalonia, Madrid, Andalusia and Valencia, respectively (EUMC, 2006, p. 3). Also, as stated in a recent report (2006) by the European Union Fundamental Rights Agency - FRA, Spain is the country that has the most negative opinion of Muslims. It emphasises that 83% of Spaniards identify Muslim with fanaticism, while the population in favour of the Islamic community decreased from 46 to 29% in less than a year (Monjas, 2006).

There is, therefore, a growing need to build bridges of dialogue to facilitate the integration and coexistence of the different cultures that form our social landscape. We, as Spaniards, cannot forget that Islamic culture is part of our cultural legacy although we are liable to forget or hide it. Ties with Arab culture are still evident if we take into account some names of our Spanish geography or linguistic terms that shape the Spanish and Catalan languages with characteristic words, to discuss only a few features of this cultural heritage.

Together with the mentioned link with the Arabic legacy that can be seen from architectural monuments to any other cultural expression within the country, there is also a typographic connection that deserves further exploration. As I noticed in a previous study I did on Spanish eighteenth century typography, there are some

Arabic typefaces that were cut and produced in Spain and were intended for the printing press together with their Latin counterparts. They are beautifully displayed, together with Latin types, in several type specimens and books printed during the second half of the eighteenth century.

To sum up, considering the design of an Arabic multi-script font is not just a matter of design problem solving but, as mentioned above, it is also a move towards a greater understanding of a culture that, somehow, has been an important part of the history of the Iberian Peninsula. Therefore, among other cultures like the Chinese or Indian, which are also part of our multicultural Europe, surely Arabic, in the case of Spain, is a little closer and deserves special attention.

At the same time, I am personally interested in the possibilities of non-Latin typefaces and how they could inspire and challenge my professional type work.

This project might also open up to new business opportunities between both cultures since a multi-script typeface is intended to be useful for both communities when conveying messages.

1.5 Goals and challenges

The aim of this practice-based research is to achieve some general objectives that have been briefly outlined above and contribute to contextualising this type design project from a social concern. Since there are not many lines of thought that establish a link between type design and social issues, I believe that this background could be an appropriate starting point to justify my interest in designing a Latin-Arabic multi-script typography that could solve multilingual communication problems in a multicultural society.

In order to provide this project with a historical basis, some research on Arabic typography in Spain has been done as a way of contributing to a greater knowledge of our Spanish Arabic legacy. This is not intended as in-depth historical research, but rather as a search for local references that could help to frame my practice-based research. In my favour I have to say that no investigation on Arabic types in Spain has been done before, thus, this will open up a new field of study.

To list all the main goals, I distinguish between those which are more general and the most specific:

General goal: *Social framework of study*
　　• To contribute, from a design point of view, to a greater understanding between cultures – European and Arabic – that currently coexist within the same geographical territory, providing tools that could improve visual communication and cultural dialogue from a practical basis.

Specific goals: *Designing tools for communication from a historical background*
  • To introduce a historical analysis of Arabic types designed and in use in Spain during the printing press years.
  • To solve multi-script design problems through typography, working on a methodology for Latin-Arabic digital type matchmaking.
  Also try to answer those questions: What differences can be outlined between Latin and Arabic typography? While preserving the respective distinctiveness of both scripts, how can they both harmonise in a page layout?
  • To provide graphic designers (of whatever origin, European or Arabic) with a multi-script font for the composition of Arabic and Latin reading text.

1.6 Designing a non-Latin font from a foreign perspective

Designing a non-Latin typeface from a foreign culture is about putting oneself in a *tabula rasa*, starting from the very bottom: learning to write, learning a new script, getting to know unfamiliar shapes which respond to a different script grammar and, thus, another visual language structure. Designing a non-Latin typeface therefore requires looking at the basis of our Latin script language conventions from another perspective and assuming conventions that belong to another culture.

Centuries ago, European punchcutters engraved non-Latin script characters without a proper knowledge of those foreign scripts and languages, having poor references and not much advice and, as a consequence, unwillingly completely misunderstanding the essence of the original script in most cases. Eudald Pradell, one of the most significant punchcutters in Spain, was illiterate. Nevertheless he cut one of the most appreciated typefaces in the eighteenth century in Spain. How could someone like him be able to cut types without a proper knowledge of the language?

What are the main differences between designing a Latin and a non-Latin typeface? What makes the difference? What parts of the design process are the same and which are completely different?

Designing a non-Latin typeface puts the focus on the global and intercultural society in which we live. In fact, type design contributes to improve tools for our global communication. For me, type design is a way to approach professional life. Getting involved in the designing of a non-Latin typeface is about taking on a challenging adventure, having a new life experience.

One of the first questions that comes up when challenging oneself to design a non-Latin typeface is whether it is convenient or not to design a script from a foreign culture. Or, how do you design a non-Latin script from another cultural context.

I would first like to point out how unsatisfactory it is to name all the world scripts that are different from Latin with the term of 'non-Latin' scripts. This term,

although widely used, is quite a *Eurocentric* term that considers the Latin alphabet as the centre of regards any other writing script. This fact has influenced a misleading approach to other scripts other than Latin and it is partly responsible for the too often latinisation of non-Latin typefaces. As Graham Shaw states,

> Throughout their printing history therefore non-Latin writing systems have tended to be defined primarily in relation to the Latin script. The early history of many of their typographic traditions was dominated by Europeans, motivated principally by the needs of Christianity and colonialism, unconcerned with the inherent calligraphic norms which many non-Latin scripts displayed, and arriving at designs unduly influenced by their experience of the Latin script. (Ross & Shaw, 2012, p. 13)

Moreover,

> The term 'non-Latin script' itself points to their tribulations. There is no logic that brings them together. Chinese ideographs have nothing in common with the Arabic script with its medial, final and isolated letter-forms; Devanagari with its vowels represented by super-and sub-scripts differs completely in concept from Cyrillic. The clue therefore to the term's prevalence lies in that negative prefix. It would be interesting to know when it first came into general use, as typography continues to arrange all scripts under the fundamental division of Latin and non-Latin. (Ross & Shaw, 2012, pp. 12–13)

Anyhow, with Shaw's arguments in mind, I will use the term 'non-Latin' in a general sense when referring to all those scripts different to Latin, but being conscious that a better term should be used instead. It is important to note that in spite of this Latin-Eurocentric view, "non-Latin scripts maintain their global superiority in terms of numbers of daily users". (Ross & Shaw, 2012, p. 11)

When approaching a non-Latin type design from a foreign culture there are some obvious questions that come up. How could someone who is unfamiliar with a language or a script be able to design a typeface for that specific script.

I believe that a proper approach could be made with enough knowledge and respect for the script which is the object of study and design. There are enough arguments by relevant professors and professionals that certify this kind of 'external' approach.

"Best practice is built upon sound research", states Fiona Ross (Ross & Shaw, 2012, p. 151). She is very clear when she says that "Guidance regarding interpretation of the resources studied is additionally useful, particularly to those not fully versed in a script or language" (Ross & Shaw, 2012, p. 151). Although they are connected, written and spoken language have their own conventional rules. When designing a typeface — no matter which script — it is important to be concerned with the

script conventions. Tools used for shaping script forms have played an important role when establishing those conventions in history.

Being a Latin-based language, native speaker does not mean being able to design an efficient Latin typeface. For Pilar Cano (3 November 2012, interview), type designer at Dalton Maag, "we need to look at letters with new eyes, we need to understand how do we read and what is important in order to preserve legibility". That implies a deep awareness of our conventional habits of reading, which it is not easy given that reading is an automatic activity (Unger, 2009, p. 11).

According to Ross,

> Whether a native reader or not, however, close observation of how harmonisation and yet differentiation can be achieved within a new typeface design is effected by analysing all modes of textual communication, whether past or current, and whether by hand with a pen, stylus or brush, or by means of digital technology. In so doing, the designer can acquire a keen sense of the letterform proportions – and how far one can deviate from them; develop an eye to perceive which elements are key to letterform identification – and which treatments can lead to ambiguities; and become sufficiently informed to judge which letterform features are shared and thus can be treated in a similar manner to provide textual cohesion. (Ross & Shaw, 2012, p. 151)

She also adds, "an awareness of cultural sensibilities naturally forms an essential ingredient to the design process" (Ross & Shaw, 2012, p. 151).

It is quite surprising that most non-Latin scripts have been developed and produced by European Latin based designers throughout history. This means that this path has already been followed with more or less success by other type designers interested in non-Latin scripts. The Department of Typography & Graphic Communication at the University of Reading pushes their postgraduate students to design a non-Latin script together with a Latin typeface.

During my attendance of a non-Latin summer course programme in Reading (TDi), I was suggested to analyse different world scripts and try to find common features within each script. This is a very useful starting point when understanding some writing and drawing conventions in any type design process (and also to become familiar with different types of scripts). As Gerry Leonidas (2010) said, "there is a requirement to appreciate the link between typeface design and writing, and the tools used for writing". When answering the question "Can a non-speaker design a script well for a language they do not read?" Leonidas states that,

> Having established the typographical environment, we can examine the written forms of the language, and the tools that have determined the key shapes. In this matter most scripts other than the Latin (and to some degree Cyrillic) maintain a very close relationship between writing and typographic forms. Writing exercises and a structural analysis of examples can help the designer develop a feel for the

script, before reading the words. More importantly, in their non-Latin work, analysis of the script's structure and the relationship between mark-making tools and type forms can help the designer to develop criteria for evaluating quality. (Leonidas, 2010).

In an interview in *Novum* magazine (10/2012), Nadine Chahine says that "if the designer has engaged intensively with the culture and language, such extensions can work quite well. Tim Holloways's Arabic typefaces exemplify wonderfully the fact that you do not have to be an Arab. [...] I always encourage non-Arab designers to design Arabic typefaces as there are so many Latin ones available to us, and so few Arabic".[7]

Type designer, Titus Nemeth quotes Thomas Grace when he explains that "this question can be remedied to some extent by thorough study of the script, the language and the cultural background the foreigner is not familiar with. Nevertheless the designer often still depends on the judgements of native readers to make sound decisions suiting the eye of the intended audience" [8] (cited in Nemeth, 2006a, p. 6). And concludes, "Certainly one has to familiarize oneself beforehand to the foreign script to get an insight into the formation and construction of shapes" (Nemeth, 2006a, p. 8).

I would add that a letter, as a conventional sign, is a *subject* that conveys meaning. We do not necessary need to know the meaning, what we need to know is how to give the proper shape to the sign. In terms of legibility, what matters is drawing the sign in order to be legible, no matter which meaning it conveys. We need to comprehend what the legibility limits of the script are and its conventions.

1.7 Contribution and novelty of the project

Type design is at the core of how communication takes place in our multicultural society. As multilingual communication becomes more apparent, the need for multi-script fonts which include more than a single script is unquestionable.

There are not many fonts that enable multi-script text composition. The most frequent cases are those fonts that include Greek or Cyrillic alphabets together with Latin. As technology expands eastward, other scripts such as Arabic or Devanagari are included into the computer engineers' agenda, mainly because of the need for desktop publishing software support.

There is currently a shortage of Arabic digital fonts in comparison with the great diversity of fonts which include the basic Latin alphabet. But even greater is the

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7   'Arabic Typefaces and Latin Alphabets. An interview to Nadine Chahine', *Novum* 10/2012, Munich, Germany. p. 23.

8   Grace, Thomas (2003), 'Considerations for the design of foreign script typefaces', disertation, Reading: University of Reading.

lack of fonts that include characters for both writing systems (Arabic and Latin) and respond to the same design criteria. For Hudson, "the reason why there are so many more Latin fonts in the world than Arabic fonts has more to do with technology and the market than the characteristics of the scripts themselves" (Hiba Studio, 2007, p. 3). As Huda Smitshuijzen states in her book *Typographic matchmaking*, "the situation is lamentable." And she continues, "there is a shortage of readily available Arabic fonts that can meet the diverse design needs of contemporary communications media"(Huda, 2007, p. 13). Lebanese designer Lara Captan in her essay *Searching for the Origin and Development of the Magribi Script* says that,

> The streets of the Arab world are filled with Arabic script schizophrenia. Arabic either takes on the appearance of its calligraphic tradition through improvised signage [...] or it wears a costume now called typography that hides an extensive past of gradual loss of identity and profound incomprehension of the nature and beauty of the script. (Captan, 2011, p. 5)

Digital Arabic fonts currently available for usage have been created independently of any other existing handwriting model; consequently their compatibility with Latin counterparts is often very unfortunate. As Mamoun Sakkal states,

> The need for compatibility between Latin and Arabic has a positive impact on Arabic typography as long as we do not make our goal merely to imitate the aesthetics of Latin typography. That is, we should keep a balance between the authentic personality of Arabic and the need to modify it in some ways to make it more compatible with Latin. (Sakkal, 2004)

Contributions in this field are paramount if we want to provide a further step towards the evolution of type design as a more open discipline. My project is intended to contribute on this.

It might seem strange that most of the Arabic fonts designed so far have been created by designers from countries outside the sphere of Islamic influence. Although this is changing, there are some issues that could well open new fields of study: the strong religious link with the Arab script and its calligraphic influence have made Muslim societies reluctant to turn to typography – and thus, type design – since they consider it as an unnatural practice (I will come to this fact later in the literature review), also the lack of proper technology has not eased the creation of new Arabic digital fonts among practitioners (or even the facilities for desktop publishing). Fortunately the situation has improved and both software and font editors offer support to right-to-left scripts such as Arabic.

The designing of a Latin-Arabic multi-script typeface by non-Arabic type designers is a controversial task, since there are important issues about Arab (and Persian) culture that should be assumed. Subordinating the design of Arabic to the

nature of the Latin alphabet is not the right way to do it, because the peculiarities and fundamentals of Arabic script have nothing to do with the origins, structure and proportions used for Latin script. Therefore, the goal is to achieve a 'harmonisation' of characters based on other parameters that have nothing to do with what would be a structural or aesthetic submission of one writing system (whichever) to the other. This makes absolutely no sense in the case of Arabic, although it has been the normal procedure for the design of Latin-Arabic multi-script typefaces, so far.

So, my Latin-Arabic multi-script font project will also contribute at following the methodology which will be respectful of the nature of both scripts.

Establishing links with Arabic tradition is necessary when designing an Arabic typeface for reading purposes, even if we want to achieve major acceptance and functional scope. Not many typefaces are based on historical research and none have been designed from a Spanish-Arabic perspective or from the Spanish type legacy, so far. That is to say, no research has been done on Arabic typography designed and produced in Spain and considering the links between both cultures.

My contribution and new approach in this field includes not only the designing of a multi-script Latin-Arabic typeface but a historical approach to Arabic typefaces used, created and produced in Spain since the printing press was introduced. The appropriateness of this previous historical research in Spanish Arabic typefaces should be useful when establishing a framework from which I consider the convenience or otherwise of designing a multi-script Arabic font departing from a historical basis. This thesis will look through Arabic types in Spanish type specimens from a critical point of view and not for the sake of revivalism or digitising shapes. The research on Arabic types in Spain will fill the gap when looking at the Arabic type design in Europe in a broader context. Spanish typography is far too often missing from the history books. I am sure that my research will open new approaches to the study of Arabic types in Spain.

No serious work on Arabic typography has been carried out in Spain, so far, although there are good Arabists that have written on Arabic and Persian Calligraphy, and the calligraphic specificities of the Al-Andalus script.

Also, considering the growing number of Muslims who live in Spain today and the Arabic legacy that still exists and dates back to the Middle Ages, I believe that this practice-based research on Arabic type design is necessary in order to fill a gap.

1.8 Resources and methodology

To accomplish this practice-based research, I have taken into account all possible literature published – on paper and online – about the topic that is the focus of this thesis. This documentary research on what has been already written is discussed in Chapter Two as the 'review of the Literature'. It focuses mainly on the published material that has been relevant for both theoretical and practical parts. The biblio-

graphical part, at the end of this document, will provide more referential items that have been consulted.

Moreover, for the historical part, original books from the seventeenth, eighteenth and nineteenth centuries have been consulted, together with original type specimens from those periods. This study on original documents has been conducted at the National Library (Biblioteca Nacional) in Madrid, the Catalonia Library (Biblioteca de Catalunya) in Barcelona, the National Historical Archive (Arxivo Historico Nacional) in Madrid. Also the digital documents at the CSIC (Consejo Superior de Investigaciones Científicas), 'Biblioteca digital Cervantes' and the 'Biblioteca Valenciana digital' have been consulted among other sources of information. All this consulted material will be explained in more detail in the following chapters.

Apart from the documents consulted, some interviews – live and by email – and personal communications have been made in order to complete information with historical details or by offering different points of view on current topics relating to multi-script type design.

For the more practical part of this practice-based research, a proper type design methodology has been driven along the process. The manner in which this project has been developed is fully discussed in Chapters Five and Six. Chapter Five focuses on a more general methodology when designing a non-Latin Latin-Arabic typeface, while Chapter Six is more related to the applied method for the specific Latin-Arabic type design which is developed as the practical part of this thesis.

1.9 Purpose and structure

Following on from that argued in this introductory section regarding the need for multi-script fonts that could enhance multilingual communication, I decided to design a Latin-Arabic typeface intended to be used in a multicultural environment for continuous reading, mainly for literary text purposes.

According to the goals proposed, the Arabic typeface designed is based on Naskhī style and has a strong calligraphic approach. It has been achieved through an understanding of Arabic script in order that the result obtained could be respectful of the tradition of Arabic calligraphy. Moreover, a study on Arabic typefaces created and used in Spain has allowed a link to be established with Spanish typography, and demonstrate that the Arabic Spanish legacy, although broken during the first centuries of the Printing Press, was revived during the second half of the eighteenth century.

Looking for a Latin companion to harmonise with the Arabic design, 'Pradell Roman' was selected so as to integrate the Arabic within a fully extended Latin family. *Pradell Roman* is a serif typeface I designed some years ago and was inspired on eighteenth century Spanish type specimens; the same specimens where some Arabic typefaces were featured and form an important part of this study on Spanish Arabic

types. Therefore, having both Latin and Arabic typefaces within the same family makes more sense. The so-called 'Pradell Al-Andalus', is the resulting multi-script typeface of this practice-based research which combine both writing systems.

A methodology of work has been established and followed to accomplish the final result. The proposed methodology intends to provide general guidelines for type designers who want to approach a multi-script Latin-Arabic type design when looking for a harmonisation of both scripts.

This document is divided into eight chapters in order to discuss the work process and the research achievements.

Chapter One gives the introductory to this thesis and it states the aim and main objectives of the research study.

Chapter Two reviews the most relevant literary material that supports my study. This review will be divided in two different sort of literature: firstly, those readings that relate typography to a more multicultural view, and secondly those readings that are more related to the Arabic script and the type design practice. I will also mention the scarce literature available on Spanish type history.

Chapter Three focuses on the Arabic script, its origins and evolution up to the digital age. This chapter is intended as a general overview since the aim of this thesis is not a complete study of Arabic script, nor the study of Arabic typography. The overview is intended as an historical support necessary for any type design approach into Arabic type design.

Chapter Four records and examines the Arabic types that were cast and produced in Spain and were in use in books during the printing press years. The study will try to provide some new information on the Arabic types, since no study has been made so far on this subject. The purpose of this historical approach is the search for possible references for the practical part of this research.

Chapter Five discusses the general methodology when approaching a multi-script Latin-Arabic type design, providing general guidelines throughout the work process.

Chapter Six focuses on this practice-based research project, the designing of multi-script Pradell Al-Andalus. It explains the work process and the applied methodology while answering the question of how to design an Arabic font from scratch while taking into account a historical study, and also how to harmonise both Latin and Arabic scripts within the same font file.

Chapter Seven is the conclusion of the research. What has been achieved will be discussed and linked to the objectives for this study. Limitations of the study and themes for future research will also be considered.

Chapter Eight is a type specimen where the multi-script typeface Pradell Al-Andalus is visually displayed.

Several Appendices will follow with additional documentation in order to provide further information on some of the topics related in this study.

2
Review of the literature

This chapter attempts to review the different kinds of literary material that supports my study. However, there are not many published books or articles that focus on the topic of my practice-based research. Digital typography is a relatively new discipline and the development of digital multi-script fonts is a very recent practice which appeared when OpenType font format had enabled the inclusion of more glyphs within the font file. It has therefore become the new standard for font design.

The interest in multi-script typefaces has been challenged by technological possibilities, nevertheless the necessary knowledge and research that work such as this demands have made this practice extremely unique. The commitment to multiculturalism by type designers is quite new, if we take into account that discussions on multilingualism and multi-script fonts have occurred in the last decade, as I will demonstrate later, most concerns are basically focused in a few forums and universities.

There are two issues to address throughout this practice-based research work:
• A type design approach from a multicultural perspective.
• The design of a multi-script Latin-Arabic font taking into account historical and cultural references.
Each question demands a different sort of literature.

According to the empirical approach of this thesis, this review deals with two different kinds of content. First I review all literary material that connects multiculturalism to typography and type design. This would provide a contextual framework on which I will base my practical part. Secondly, I evaluate literature on Islamic Calligraphy and the history and evolution of Arabic script, books and articles on Arabic typography and what has been done and written on Arabic type design and multi-script type design according to the harmonisation of both Arabic and Latin scripts. This includes primary sources such as original type specimens, both new and old. I also mention other multi-script approaches only when the content is suitable for my focus of study, for example in cases where the methodological approach is relevant for my practice-based thesis.

2.1 Theoretical and conceptual framework:
Type design in a multicultural world

As I write this account, none of the books resulting from a deep search on the topic of multilingualism deal with type design or typography. The large majority of them approach multilingualism from an educational or a linguistic perspective. Design

and visual communication does not seem to be a field sufficiently considered when looking at multiculturalism — and multilingualism — from a cross-discipline point of view. Nevertheless, there are still essays and important works that will contribute to setting up the basis for this practice-based research project.

The importance of multilingualism in our society becomes more evident if we take into account the social movements between countries. The European Union has provided a lot of literature on this topic. Its surveys and reports point out how important multilingualism is when contributing to enhancing integration among European citizens. They provide an overview of the social and political situation within the EU and suggest ways of dealing with the different cultures that exist in its territory. The reports, abstracts and communications that can be downloaded from the different EU websites are good literature for contextualising multicultural phenomena. I would highlight the communication from the Commission of the European Communities submitted to the European Parliament called 'Multilingualism: an asset for Europe and a shared commitment' (Brussels, 18.9.2008)[1], in which they analyse the challenges that Europe should face and which includes an interesting chapter on Multilingualism as a way of improving intercultural dialogue and social cohesion (Brussels, 18.9.2008, pp. 7–10). The Council of the EU also reinforces this argument and makes some compromises with the 'European strategy for multilingualism' resolution.[2]

    There are also certain reports which provide recommendations for companies in terms of multilingualism, such as 'Languages means business. Companies work better with languages', available throughout EU website.[3] In the report they state that "The challenge is to integrate multilingualism firmly in all strategies aiming at developing human capital for the future" (European Commission, 2008a, p. 8). Furthermore, they observe that "Multilingualism is also a key element of integration and opens up intercultural dialogue. It can help to improve the situation for millions of immigrants in Europe and contribute to their involvement in the labour market" (European Commission, 2008a, p. 10). The report does not mention multi-script languages in any explicit way, but as we know, together with the Latin alphabet, Cyrillic and Greek are also official scripts within the European Community. So

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1 'Communication from the commission to the European Parliament, the Council, The European Economic and Social Committee and the Committee of the Regions. Multilingualism: an asset for Europe and a shared commitment', Brussels, 18.9.2008. COM(2008) 566 final. Act available from: http://europa.eu/legislation_summaries/education_training_youth/lifelong_learning/ef0003_en.htm The final document is available from: http://ec.europa.eu/languages/pdf/comm2008_en.pdf [Accessed April 2012].

2 'Council Resolution of 21 November 2008 on a European strategy for multilingualism' (2008/C 320/01), http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:32008G1216(01):EN:NOT [Accessed March 2013]. Council resolution available from: http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:C:2008:320:0001:0003:EN:PDF [Accessed March 2013].

3 'Languages means business. Companies work better with languages', http://ec.europa.eu/languages/pdf/davignon_en.pdf [Last accessed March 2012].

multilingualism covers the whole area of language, both written and spoken.

As has already been mentioned in the introduction, we should note that Arabic is not an official language within the EU. However, excluding Latin, it is the second language in terms of the number of citizens that use it. Although Arabic is not official, the European Commission has achieved one of its main objectives "of raising awareness of the value and opportunities of the EU's linguistic diversity and encouraging the removal of barriers to intercultural dialogue" (European Commission, 2008b, p. 5). In fact, multilingual people are a precious asset since they can act as the glue between different cultures (European Commission, 2008b, p. 6).

Although these reports and communications do not mention the design profession as a strategic point, they help to contextualise my project on a broader level and set the social context from which I should start. These texts provide enough arguments on social issues that it should be assumed by designers as part of their responsibility as social agents. We should take into account the importance of typography in visualising language and cultures. Since there are not many lines of thought that establish a link between type design and social issues, I believe that this background could be an appropriate starting point to justify the importance of multi-script typography in our global society.

The first time the concept of multiculturalism was openly introduced in the typography arena was during the ATypI (Association Typographique Internationale)[4] annual Conference held in Lyons in 1998. 'MultiTypo' was the theme for the ATypI Conference and featured some of the advances of the Unicode Consortium for the standardisation of Unicode (http://www.unicode.org) which provided a new framework for multi-script type design. Although the Lyons Conference introduced the topic, the first attempts at multi-script discussions were delivered a year later in Reading (UK), where ATypI held its event under the theme of 'Typography and Language'. During the Reading Conference, David Opstad lectured on 'Multilingual fonts beyond Unicode' and Fiona Ross discussed the translation of non-Latin scripts into type. They both examined on the new possibilities and requirements for non-Latin script font design.

The International Unicode Conference (IUC)[5] held in different cities starting in the early nineties, was also an important event to bring together industry-wide experts. These conferences were the core place to discuss on the implementa-

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4   ATypI (Association Typographique Internationale) is a non-profit international type association founded in 1957 by Charles Peignot. The objective and purpose of ATypI is the integration of all those who are involved in the field of typography through their profession or their interests [http://www.atypi.org].

5   According to the Unicode Consortium, the Unicode Conferences are the ideal place to interact and exchange ideas with others in the field of internationalization and language support, including experts, implementers, educators, clients and vendors. Further info on past and future conference programs: http://www.unicode.org/conference/about-conf.html [Last accessed July 2013]

tion of Unicode in operating systems and applications, fonts, text layout and multi-lingual computing. In 1997, during the 11th IUC San José, California, Thomas Milo presented the complexity of Arabic with "Towards Arabic Computer Typography" and "Rendering Multi-Level Arabic Script" where the basics for Arabic aesthetics and technical challenges were introduced. Later, in 2002 during the 20th IUC Washington DC, Milo lectured on "Authentic Arabic: a case study" and "Automating Design and Building of an Arabic Unicode Font".[6]

In the final years of the twentieth century there was a growing interest in multi-lingualism from a typographic perspective. It was first in ATypI Copenhagen 2001 and in ATypI Rome 2002 where the so-called non-Latin scripts and the possibilities of OpenType where clearly discussed. Under the theme 'The shape of Language' (La forma del linguaggio), the Rome Conference programme included a Multi-lingual Typography Symposium where different topics on non-Latin type design were discussed. Sherry Blankenship moderated the Symposium and lectured on Arabic and Latin combination problems. Other lectures focused on extended Latin typefaces, Hebrew, Kanji and multi-script Armeno-Latin design. This was very likely the first time that this kind of debate had been proposed to a wider audience such as the ATypI conference delegates. During the event, one of the most discussed topics was the role of modern font technologies which were supposed to handle the complexities of producing quality type output for complex script languages, such as Arabic, Devanagari or Chinese.[7]

Taking all this into account, I believe that ATypI has contributed to upgrading the vision of typography within the type design community. This wider vision was accompanied by the development of OpenType, a new font format which was intended to solve the problems of representing non-Latin scripts, among other things. A book was published as a result of all these concerns: *Language Culture Type. International type design in the age of Unicode*, edited by John D. Berry. It was presented during ATypI Rome 2002 and it was the first book published from a conscious global approach to type design. As ATypI president Mark Batty (Berry, 2002, p. VIII) stated in its foreword "We wanted to find a way to promote cultural pluralism, encourage diversity, and provide a co-operative environment for the development of truly international typographic communications".[8] The book also appeared as the ATypI contribution to the United Nations Year of Dialogue among Civilisations, which was commemorated in 2001.

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6   Milo's paper "Authentic Arabic: a case study" can be consulted online at: http://www.tradigital.de/stories/studies/case-study-introduction.pdf [Last accessed July 2013].

7   There are no published papers from ATypI lectures for those years. Since I attended all those ATypI Conferences, I have tried to summarise their content according to my focus of study.

8   The Islamic Republic of Iran, supported by a large number of countries, proposed a resolution to the United Nations in order to proclaim the year 2001 as the "Year of Dialogue among Civilisations". The ATypI type design competition (*Bukva:raz!*) was organised as a special contribution of AtypI to the United Nations Year of Dialogue among Civilisations.

Language Culture Type contains a diversity of essays written by type experts together with the 100 awarded best type designs from an international type design competition (*Bukva:raz!*) organised by ATypI. These essays have given a good insight into my general topic of study and have offered some clues for a more social concern to type design. From all of these articles, which deal with typography, technology issues, writing systems (scripts) and general writings on language such as Robert Bringhurst's essay on 'Voices, languages and scripts around the world', I should particularly mention the articles 'Unicode, from text to type' by John Hudson and 'Arabic script and typography' by Thomas Milo. These essays can well fit into my two questions addressed at the very beginning of this account.

John Hudson has a good reputation on non-Latin type design, including Arabic and Cyrillic. In his essay, Hudson (2002) focuses on social concerns and communication needs, and explains how technology is solving multi-script problems. He believes that "If type design is going through a truly international renaissance at the beginning of the 21st century, it is in large part enabled by the desire of the computer industry to sell hardware and software to people who speak languages other than English" (Hudson, 2002, p. 25), and continues that "by making every computer user in the world a customer for new typefaces, software developers have enormously expanded the demand for new and better digital fonts internationally" (Hudson, 2002, p. 25). He believes that "Type and typography are now intimately involved in the internationalisation of computing and so in the cultural and economic developments that this process supports" (Hudson, 2002, p. 25). So, in a certain way, desktop publishing has positioned typography and type design at the core of global written communication. Software development, and therefore digital font design, is certainly contributing to social communication, nevertheless the expansion of technology to a more global status is guided by market needs and business profits.

Concerning globalisation and the role of type design, Hudson states:

Type design is an art and a craft, but it is also a business. The internationalisation of software made possible by the Unicode standard is an opportunity for many type designers and font developers. [...] Globalisation must be about more than trade deals, international finance and the quest for profits: that globalisation of business must be informed and tempered by the meeting of cultures, dialogue among civilisations, and increased respect for the heritage, rights and aspirations of a global citizenship. Throughout its history, type design has been an activity taking place at the intersection of ideas. It exists to serve the written word, the record of ways of living that have meant something. If type design is implicated in globalisation, we can hope that it will be a humanising influence and a witness to older and enduring values. (Hudson, 2002, p. 41)

When approaching technology, Hudson reveals the problems of cross-platform incompatibility, textual ambiguity and inadequate support for many writing

systems, and how the Unicode standard addresses glyph encoding in order to solve these problems (Hudson, 2002). This has allowed desktop publishing to spread to non-Latin script cultures and increase software consumption to a greater extent. Hudson also explains OpenType font format specifications in detail and how it works with Latin and other different scripts such as Arabic and Devanagari, which are more complex.

John Hudson's essay provides one of the best approaches to the relationship between technology achievements and social communication needs in an increasingly multicultural global world. I have considered this essay primary guidance when establishing a framework for my practice-based thesis.

Furthermore, Thomas Milo's essay on Arabic script (2002a, pp. 112–127) provides a general overview for understanding Arabic. Although the content is quite general, it settles some of the difficulties when designing an Arabic alphabet and proposes some possible reasons for the historical European misunderstandings when producing Arabic types for book production. He says that,

> Typesetters have been wrestling with Arabic script for five centuries. Giving it a structure identical to that of Latin script would eliminate all of the problems, of course. The few known attempts to do this, however, were completely illegible and culturally alien, which may account for the lack of success of the designs of that nature. (Milo, 2002a, p. 119)

And he explains:

> In Europe, typesetting with Arabic characters has been undertaken since the early sixteenth century. The early Arabic types have a Western North-African appearance. Maybe European punch cutters had access to the Andalusian spoils of the Spanish Reconquista, and were consequently misled in their calligraphic styling; in any case, their designs were totally out of touch with Islamic taste and with Middle Eastern taste in particular. [...] the low quality of the designs was a factor in delaying the acceptance of typography in the Islamic world. (Milo, 2002a, p. 121)

Milo gives some of the important clues to understanding Arabic script, such as its connectivity: "In Arabic script the graphic unit of writing is the *syntagm*: a string of connected letters" (Milo, 2002a, p. 120). This is opposite to what happens with our Latin script where letters appear disconnected in typesetting.

I have used Milo's essay as my first approach to Arabic. I would like to remark on his awareness and respect for the script. This has inspired my way of proceeding.

In summary, *Language Culture Type* does not deal with type design processes nor does it propose a methodology for multi-script, but provides a global cultural view on how to approach type design from a broader perspective. It is a basic reading as

an introduction to multilingual typography.[9]

The need for new typefaces that could cover the range of scripts that are needed for cross-platform communications has engaged designers and type designers to look for solutions.

Designer and Professor Ruedi Baur is currently leading some research projects on multilingual typography, funded by the Swiss National Science Foundation (May 2010 – May 2012) and the Swiss Arts Council Pro Helvetia. The results obtained so far have been published in the Swiss design magazine *TM-Typografische Monatsbläten* (5|6, 2012). The article 'Die Koexistenz der Zeichen / Multilinguale Typografie', very visually displayed in the magazine layout shows the interaction of written languages from signboards to street signs. Nevertheless, the whole project is focused strictly on Latin-Chinese text matchmaking which is far from the problem that applies to a Latin-Arabic harmonisation. In spite of this, the multilingual visual approach followed by Baur's team is a useful sample of graphic design matchmaking between two different cultures.

David Březina is a type designer who has some experience with multi-script typefaces. He is co-founder of the Rosetta type foundry (http://www.rosettatype. com), founded in 2011 and specialises in multi-script digital fonts. In his essay on *General issues of multi-script typography*, he outlines the basics of the problem when representing multilingual documents. Multilingualism is approached from a typographical perspective and Březina introduces some features to address when designing a multi-script typeface. His essay, submitted for the MA in Typeface design at Reading University, deals with different writing systems and how to balance them. It is a general overview and does not go into depth on any of the writing systems included in his essay, but it provides an introductory approach to the harmonisation process at a very early stage. It is important to consider his observations on proportions, together with colour and texture, when dealing with different scripts in the same text composition.

In a very recent article published at *Codex*,[10] Březina points out some of the challenges when designing multilingual type families. He considers type designers working on a "crossroads of linguistics, typography and computer science". At the moment, type designers face challenges when adapting the scripts to a typographic system or to the limitations of certain kinds of media (Březina, 2012, p. 24). This article focuses on four case studies. As he states, "the point is to illustrate the current

9   It should be mentioned that during the III Congreso Internacional de Tipografía in Valencia (Spain) June 2008, under the theme 'Global-Local', there were several keynote speakers who also dealt with multilingualism such as Johannes Bergerhausen (www.decodeunicode.org) and Huda Smitshuijzen (Khatt Foundation).
    Also worth mentioning Dubai Kitabat Conference 2006 and the Khatt Kufi & Kaffiya Conference in Amsterdam 2007.

10   BŘEZINA, D. (2012), 'Challenges in Multilingual Type Design', in *Codex: The Journal of Letterforms*, 2, Fall, 2012.

challenges connected with typographic improvements in scripts. These improvements are generally of two kinds. They either adapt the script for a new situation caused by technology or they expand its linguistic and expressive repertoire" (Březina, 2012, p. 25).

The article demonstrates how increasingly relevant these topics are in the area of type design nowadays.

2.2 Readings on practical experience

Readings on Arabic Calligraphy are paramount to understanding the roots of Arabic script and in gaining awareness of the cultural background that underlies Arabic typography that would help to be accurate and respectful with Arabic when designing its characters.

Sheila S. Blair in her *Islamic Calligraphy* provides a deep understanding of the nature of Arabic. This is a historical book which provides specific information on this writing system, from its origins, development and evolution to the standardisation of Arabic and the different regional styles, among other topics. The book does not deal with typography or how to relate calligraphy to the type design process, but provides the perfect background for an awareness of Arabic calligraphy. The first chapter is particularly revealing, where Blair explores the role and principles of Arabic script and its link with religion. In Blair's words: "The sacredness of the scripture led to its transcription manually in a beautiful hand, and this sanctity explains why handwritten copies remain popular and why printed editions of the Koran were so slow to be accepted" (Blair, 2008, p. 29). Here Thomas Milo puts the emphasis on the poor quality of the Euro-Arabic type designs: "the low quality of the designs was a factor in delaying the acceptance of typography in the Islamic world" (Milo, 2002, p. 121). According to Milo, this fact could explain why the Arabic culture had been long in reaching the printing press. Only in the twentieth century was the *Qur'ān* printed on a large scale in the Muslim world (Blair, 2008).

There is a very close link between typography and calligraphy in Arabic written communication. I believe that no-one should design an Arabic typeface without an understanding of writing if he/she wants a comprehensible result.

Blair's book has a more historical interest, which is beyond my focus, but its reading provides a perfect awareness on the cultural background of Arabic script. Also, the images of manuscripts reproduced within I*slamic Calligraphy* appear as good samples to examine.

Smaller but more explicit on the different Arabic calligraphic styles, Y.H. Safadi in his *Islamic calligraphy*, focuses on early calligraphic developments, the different reforms of Arabic and the styles. The most relevant thing about the book is the large amount of different samples shown in each script style: *Mashq, Kufic, Eastern Kufic, Thuluth, Naskhī, Muḥaqqaq, Rayḥānī, Tawqī', Riqā', Maghribī,* and the Persian styles *Ta'līq, Nasta'līq, Shikasteh.* Although it is well known that not all authors agree when

considering the most relevant styles, Safadi includes a lot of examples, identifying each one and giving specific descriptions. Examining the calligraphic examples displayed in both the Safadi and Blair books gives greater understanding of how to draw letters without the risk of losing legibility or recognisability. Moreover, written manuscripts have been very useful for observations of different script particularities. In this sense, the catalogue from the exhibition *El perfum de l'amistat. Correspondència diplomàtica àrab als arxius espanyols (segles XIII-XVII)* ('The perfume of friendship. Arabic diplomacy correspondence in the Spanish archives, 13th to 17th century'), where a large quantity of original manuscripts are reproduced, was interesting to see. It is also curious to examine the exhibition book *Memoria de los Moriscos* (Morisco's reminders),[11] where *Aljamiado* scripts[12] are displayed throughout the book. The great Islamic influence within the Iberian peninsula during the Middle Ages, in what was known as Al-Andalus[13] is well known.

A recent MA study by Lebanese designer Lara Captan has focused on the origins and development of the Maghribī Script and their link with the Andalusian script (Andalusi), which was a particular style within the Iberian Peninsula. Captan's essay focuses on the origins of a calligraphic style developed in the Western Islamic territory, including Spain. Spanish historian and Arabist, José Miguel Puerta Vilchez, has written an overview on Arabic script from a historical perspective. *La aventura del Cálamo* (The adventure of the reed pen) is a book which also provides a lot of visual information on original manuscripts and beautiful calligraphic samples. It is the first book of this kind to be published in Spain. The author emphasises the contribution of Al-Andalus to the general history of Islamic calligraphy. However, like the rest of the books and works on calligraphic art, it focuses on the history of Arabic script and its calligraphic expression. There are no mentions of typography or the printing press, at least to be relevant enough to be taken into account.

So, it seems that there are more books on Arabic calligraphy than books on Arabic typography, since there is not much tradition on Arabic type design for the reasons explained above, and the large foundries that have dealt with commercialising Arabic movable type during the 20th century have not written much about it.

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11   A virtual exhibition of *Memoria de los Moriscos* (Morisco's reminders) can be viewed online at: http://www.bne. es/es/Micrositios/Exposiciones/MemoriaMoriscos/Info [Last accessed August 2012].

12   'Aljamiados' were the name for the Spanish texts that were written using the Arabic script as a way to represent the Spanish language (instead of using the Latin alphabet). This happened during the late years of Muslim domination and until the expulsion of the Moriscos from Spain in the early 17th century. For further information on Islamic Spanish literature, see:
CASASSAS Canals, X. (2009), 'La literatura islámica Castellana: siglos XIII-XVII', http://revistas.uca.es/index. php/aam/article/viewFile/551/474 [Last accessed September 2012].
WIEGERS, Gerard (1994), *Islamic literature in Spanish and Aljamiado. Yça of Segovia (fl. 1450), His Antecedents and Successors*, Leiden-New York-Köln.

13   Al-Andalus was the Arab name given to a nation in the parts of the Iberian Peninsula and Septimania governed by Muslims at various times in the period between 711 and 1492 AD.

With the advent of digital technology and desktop publishing, type design software has enabled young designers to go into type design and digital font production. Some software related manuals have allowed designers to learn 'how to' produce fonts. At the end of the nineties some books and articles were published on font design as more professionals gained expertise in the field. The first book on Arabic typography appeared in 2001. *Arabic typography, a comprehensive sourcebook* by Huda Smitshuijzen AbiFarès, is an "attempt to establish the foundations for Arabic type design by drawing lessons from past practices and aesthetic conventions, in order to retain the enduring traits that are of relevance for improvement and innovation in future type design creations" (Smitshuijzen, 2001), as the author comments. The book is intended to be a valid reference on Arabic typography and also an educational guide for design students and professionals. In fact, an important part of this *Arabic typography* source book provides information that could well be useful for type designers in general, since there are methodologies and technological principles that apply to both Arabic or Latin type design approaches. The book contains a historical timeline for Arabic script and a brief history of Arabic typography, including the proposals to reform the Arabic system several times throughout the twentieth century. The development of the Arabic printing types is explained in a historical timeline and it is detailed by countries, nevertheless there is no notice about Spain or the Arabic specimens or the Arabic books published. So, it evidences a gap in the history of Arabic typography and printing press in Europe.

According to my practice-based research, the most interesting part in Smitshuijzen's *Arabic typography* book is the 'Aspects of Arabic type' chapter where the basis and structure of the alphabet is explained in detail. When practising Arabic calligraphy, the distinction between Latin and Arabic letterforms has been revealing. "Though they stem from the same origin (the Phoenician alphabet), they differ considerably, visually as well as typographically" (Smitshuijzen, 2001, p. 94). The letters in Arabic consist of thin vertical strokes and thick horizontal strokes, completely the opposite to Latin script.

John Hudson, in an interview by Hiba Studio, clearly explains the important difference between Latin and Arabic. He thinks that

> The biggest difference is the *ductus*, the angle at which the pen is held and the effect this has on the pattern of thick and thin strokes. In Arabic writing, the ductus is very steep, creating strong horizontal strokes. In Latin writing, the ductus is much shallower, so the vertical strokes are stronger. (Hiba Studio, 2007, p. 1)

Another big difference between both writing systems comes when composing text: "the most basic unit of the written text in the Latin script is the letter, whereas in Arabic, the basic unit is the word" (Smitshuijzen, 2001, p. 95). She also explains the use of diacritical and vocalisation marks, and the use of non-alphabetic symbols

(some of them are identical to the ones we use for Latin text composition).[14]

Pascal Zoghbi has also written on Arabic typography in a brief article titled 'History of Arabic Type Evolution from the 1930's till present' where he briefly introduces the origin of Arabic script and different approaches to Arabic typography, from the proposals of Arabic script reforms in the mid-20th century to more contemporary type design proposals such as DecoType's *Tasmeem* or the simplified Arabic type by Mourad Boutros.

When dealing with type design concepts, Smitshuijzen points out the role of technology throughout history, the influence of production tools on the visual aspects of type, which apply to every type script system (Smitshuijzen, 2001, p. 122). Most technical aspects of font development and methodology processes argued in the book work fine for Latin type design but at a certain point technology does not fit with the Arabic technical needs.

Throughout the book, Latin and Arabic are both used as elements of analysis when comparing concepts such as the visual perception of type. Since these scripts are written in different directions, Latin from right to left and Arabic from left to right, then visual perceptions do not match. "Latin emphasises verticality whereas Arabic is horizontally orientated" (Smitshuijzen, 2001, p. 175). Smitshuijzen analyses and makes comparisons, but she gives little advice on how to harmonise both writing systems.

The last chapter of her book focuses on giving a list of type designers and type foundries that work with Arabic type today. Edo Smitshuijzen expands the list in his *Arabic font specimen book*.

Arabic typography is quite useful as a source book. It attempts to provide the basics of Arabic typography. Other written articles help to complement and expand the content explored in Smitshuijzen's book. For example, one part that is not deeply developed is the font production section. For its part, Pascal Zoghbi's article on 'Generating Arabic fonts' published in his *29 letters* blog could well provide that missing chapter. Zoghbi deals with glyph encoding, glyph and font naming, OpenType features and other topics concerning Arabic font generation. He provides very useful technical tips for font production.

The Khatt foundation Centre for Arabic Typography co-founded by Huda Smitshuijzen has recently published two online tutorials on Arabic Font Production

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14   Understanding diacritics for Arabic vocalization is fundamental for the design process. Arabic uses diacritical marks as Latin does. When designing a multi-script typeface diacritical marks should be considered on a similar criterion. There are some articles that give specific details about diacritical marks: David Březina's 'On diacritics' is an introduction to the topic. More extended and complete is the essay *Problems of diacritic design for Latin script text faces* by Victor Gaultney, which focuses on Latin diacritical marks, only. The diacritics project [http://www.diacritics.typo.cz/index.php?id=1] (last consulted in August 2012) is also a good website where we could find useful information on how to design a font with proper accents. The web gives information on Latin diacritical marks, Greek and Sanskrit, but does not give support for Arabic yet. In fact, there is no specific essay on Arabic diacritics apart from the information compiled in different essays and sourcebooks such as Smitshuijzen's.

written by Stéphane Boeuf which are supposed to complement and upgrade the last part of Smitshuijzen's sourcebook. Boeuf provides information on more technical aspects of the type design process, such as a tutorial for VOLT stage process. A third tutorial is due to be published in the near future.

Following these general aspects on Islamic calligraphy, the evolution of Arabic script and the literature available on Arabic typography, a preliminary basic reading of the sort of different manuals on Arabic calligraphy that is required in order to practise and gain some Arabic handwriting skills. These hands-on practise books are essential to understand the proportions and structure of letters. Without this practical understanding of Arabic, it is very difficult to begin designing typefaces in a consistent way. I therefore looked for the most reputable calligraphers and manuals available. I used the *Arabic Calligraphy (Naskh script for beginners)* from the calligrapher Mustafa Ja'far (2002), published by the British Museum. This manual was highly recommended to me by Fiona Ross during a short stay at Reading University for the TDi short course. It is based on Naskhī script, which according to Ja'far is "one of the six major cursive Arabic scripts established during the tenth century AD" (Ja'far, 2002, p. 5). Naskhī is the most widely used Arabic script style used today for reading matters. It is therefore a good choice when thinking of a legible and literary text.

Ja'far clearly explains how to write each letter (with its variations: initial, medial, final) following a specific stroke order. Each letter is shown decomposed from its basic strokes and in the right proportions. In his manual, he also explains how to create your own reed pen (calamus) for Arabic calligraphy.

I have consulted other manuals, such as Nicolás Weber's *La escritura Árabe es fácil*, published in Spanish, but it was not very useful: it appears too basic as a calligraphy manual. The most useful information in Weber's manual concerns different script solutions for each letter according to the variety of styles of Arabic. It is interesting to see how a letter can change from one script to another.

It was also advisable to consult some samples of Arabic school writing exercise books published in Muslim countries and intended for children's instruction. These samples displayed for writing learning purposes have been used as references for calligraphic practice.

It is not easy to deal with a non-Latin script such as Arabic. Its calligraphic nature makes it difficult to domesticate its shapes behind the frozen industrial structure of type. For centuries, designing Arabic typefaces for printing purposes has led to nonsensical results. Unwillingly, these approaches to Arabic type design have very often been based on Latin script without considering the basis of Arabic and, therefore, underestimating its cultural legacy.

One of the real problems with contemporary Arabic typography is the lack of knowledge or the misunderstanding of this link with calligraphy. There is still a tendency to 'Latinise' Arabic typography and convert Arabic into what Thomas Milo calls as 'Eurabic'.

A clear example of this idea can be observed in the recently published book *Cultural connectivities* by Rana Abou Rjeily. It is a study case book where the author proposes the designing of an Arabic typeface — *Mirsaal Arabic* — with unconnected characters so as to "better match Latin script and allow text justification more easily" (Abou, 2011). This is complete nonsense in terms of Arabic calligraphic tradition, where connectivity between letters is the essence of the Islamic word-image concept in written communication. The author and designer of *Mirsaal Arabic* defines it as "a simplified typeface that carries the characteristics of a sans-serif humanist Latin alphabet typeface" (Abou, 2011, p. 87). This idea of detached characters follows the idea of Mourad Boutros explored in 1993, when he proposed two phases in order to get used to a completely detached Arabic. Boutros wanted to make the Arabic "more simple and easier to handle by the computer and the software which was initially built for Latin script" (Zoghbi, 2007b). With our current technology it makes no sense to work on a design based on a simplified version of the Arabic script. Abou's book is well published, but it lacks in rigour and its content appears too naive.

This case study warns me to be careful when trying to apply my Latin-based type skills and knowledge to another script.

Among the literature written on both academic and professional type practical experiences (case studies), I should mention all the readings on personal work processes that have been achieved at Reading University as academic assignments. They are called 'Reflections on practice' and show the work process for the final project submitted to the MA type design in the Typography Department. There are several essays which offer practical experiences on non-Latin and multi-script type design. They are all available through the Typography Department website at Reading University (http://www.typefacedesign.org). These brief 'Reflections on practice' essays tend to be more focused on a particular formal design solution and do not consider a broader historical or social perspective. However, some are interesting literature as they describe processes and criteria when approaching non-Latin type design. They are, therefore, useful in terms of methodological processes.

Among the essays consulted, one of the most interesting for my research is a multi-script work on Latin-Arabic written by Titus Nemeth. In his 'Reflections on practical experience', he argues his own design process of *Nassim* (2006), a Latin-Arabic typeface, from rough to digital. The text gives a lot of details on the overall type design process and it also includes Nemeth's personal notes during his MA typography course in chronological order, as a diary. As an Appendix, he attaches a report on the Kitabat Conference in Dubai 2006, which he attended, and provides very useful information according to different transliteration criteria (Nemeth, 2006). The different transliteration norms and criteria have been considered when designing the transliteration characters for my Arabic multi-script typeface. I have

also consulted some information provided by Lara Captan and Thomas Milo.[15]

On the other hand, David Březina in 2007, designed a Gujarati typeface which had been stylistically and proportionally balanced to work with a Latin counterpart. In his 'Reflection on practise', he briefly explains how to balance two scripts stylistically. He also focuses on different stages of the design process and describes the most relevant parts of it. Although Březina did not work on Arabic script, his arguments when harmonising both scripts are well considered. In fact, for both Nemeth and Březina, harmonisation is one of the biggest issues when designing a multi-script typeface. Compatibility is by far the most difficult thing to achieve when using both Latin and Arabic scripts in the same layout (Březina, 2007b). Titus Nemeth has also written specifically on this in his essay *Harmonization of Arabic and Latin script. Possibilities and obstacles*. From his personal design experience when designing the *Nassim* typeface, he established some valid criteria for harmonising both scripts: size, colour, contrast, modulation and stylistic elements are all what he considers the foremost elements to take into account (Nemeth, 2006b). Along these criteria, he analyses some benchmark Arabic fonts such as *Microsoft Times New Roman* (Arabic version), *Linotype Nazanin*, *Adobe Arabic*, *Microsoft Tahoma*, *Microsoft Arabic Typesetting* and Nadine Chahine's *Koufiya* typeface. Nemeth also focuses on the importance of maintaining the essence of the scripts in the harmonisation process: "The goal of harmonization on the level of typeface design is to solve as many of these obstacles as possible, without distorting one of the scripts involved, or harming its cultural authenticity" (Nemeth, 2006a, p. 6).

> Other type specimen and 'reflections on practice' works consulted are:
> *Koufiya*, Reflection on practise by Nadine Chahine (2003).
> *Cassius*, 'reflections on practice' and Cassius Type specimen by Mathieu Réguer (2008).
> *Nabil*, 'reflections on practice' and Nabil Type specimen by Emanuela Conidi (2008).
> *Creon*, 'reflections on practice' and Creon Type specimen by Julia Kaestle (2009).
> *Sora*, Type specimen by Karolina Lach (2010).
> *Germain*, Type specimen by Gunnar Vilhjalmsson (2010).
> *Timeline*, Type specimen by Marian Misiak (2010).
> *Bubblegum*, 'reflections on practice' and Bubblegum Type specimen by Ferran Milan (2011).
> *Emrys*, 'reflections on practice' and Emrys Type specimen by Ben Jones (2011).

These type design projects combine both Latin and Arabic scripts and follow different approaches depending on their goals. The convenience of consulting these 'reflections on practice' brief essays is mainly because some decisions during the design process are explained and discussed, showing sketches and notes. Although

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15   Personal communication, February 2013.

these approaches each respond to specific goals, we can observe similarities in their different design processes.

Apart from the 'reflections on practice' and the type specimens that accompany it and show the final result, it is also useful, although not so revealing, to look at other existing Arabic typefaces produced by both established foundries (Linotype, Monotype, Adobe, FontShop, etc.) and other independent ones (Rosetta, Typoteque, Typographies.fr, etc.). For this purpose, I have also looked through the *Arabic font specimen book* by Edo Smitshuijzen, which compiles many of the typefaces that exist so far and gives some general ideas on Arabic typography.[16] The book is a huge catalogue of Arabic fonts. Although the edition lacks printing quality, there is no other compilation like it for seeing and analysing what has been done.

Typographic matchmaking by Huda Smitshuijzen AbiFarès is a book that clearly focuses on harmonisation when designing Latin-Arabic typefaces. It is a unique book in its genre and reveals details through different processes of multi-script type design work. In *Typographic matchmaking* a series of five type design projects are discussed, both aesthetically and technically, when creating Arabic fonts as companions to Latin. The book is intended to serve as a guide for modern Arabic type design. It was published in 2007 by Bis publishers (Amsterdam) and the Khatt Foundation, Centre for Arabic Typography.

The book is a documentary of five type design processes (study cases) where two designers collaborate in designing an Arabic font: a Dutch type designer selects one of his typefaces, and then in collaboration with an Arab partner they design a matching Arabic version for that font. There is a design brief as a departure point and the book records the work process in all five cases.

There are renowned Dutch type designers involved in these work teams, such as Peter Bil'ak, Martin Majoor, Fred Smeijers, Gerard Unger and Lucas de Groot. They had all chosen one of their respective typefaces and designed an Arabic companion, together with an Arab designer. The book describes every single experience very visually, showing some parts of the process. The chapter structure is very similar for all five study cases. I found the 'Designers' final remarks on the project' section especially useful, where the Dutch type designer explains the pros and cons of the process and his personal conclusions. Designer Peter Bil'ak emphasises how different optical rules apply to Arabic when spacing letters and their link with music (Smitshuijzen, 2007, p. 42). Fred Smeijers, while designing his *Fresco Arabic*, noticed that "you have to discover how you can apply your knowledge and sometimes you have to put aside certain parts of your experience because they have no value here, they might even be counterproductive" (Smitshuijzen, 2007, p. 100). Smeijers points out something that I consider relevant when approaching a non-Latin (a non-familiar

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16   A critical review of this book can be read at LUECKE, Karsten's article (2009) 'Funny games', http://www. kltf.de/kltf_notes_arabicfontspecimen.htm. Also, NEMETH, Titus (2009), 'Complex Dutch Arab Complex', *Typo magazine*, 36, pp. 86–93.

script), I believe it is necessary to be open minded and remove any prejudice formed from acquired experience.

It is relevant to note the similarities when each of these working teams has to decide which Arabic style fits best with the Latin typeface in order to take it as a reference base. Most have worked on the basis of a Naskhī-Kufic style (Neo-Naskhī) which fits well with sans serif typefaces. Therefore, the Unger-Chahine team decided to take Kufic style when designing *BigVesta Arabic* because they believed that the monumental proportions of the Latin typeface "could be translated quite naturally into the Arabic Kufic style, especially since Kufic is often traditionally used for architectural lettering" (Smitshuijzen, 2007, p. 116). In order to achieve a more balanced colour they did not force the shapes of Arabic to match the Latin x-height proportions as the rest of the teams did.

Of interest too are the correction notes that Syrian calligrapher Mouneer Al-Shaarani did to Lucas de Groot's typeface *TheMix Arabic* which are displayed on pages 148–149 of the book. Looking at these corrections, one can understand some important details for examination when designing an Arabic typeface.

I consider all these type design projects presented in *Typographic matchmaking* really interesting and new since they introduce a sort of collaborative type project between people from different cultural backgrounds. This is quite new in the type design profession where processes tend to be very individualistic.[17] However, the whole experience is introduced by Huda Smitshuijzen as a "typographic matchmaking: Arabic type with a Dutch flavour". When introducing the project the author states, "The project began with the idea of creating Arabic type with a Dutch flavour in order to bring the high quality of Dutch type design to the rather under-developed Arabic design tradition" (Smitshuijzen, 2007, p. 17). Again, this statement is precisely what some Arabic designers and type designers would criticise.

John Hudson censures this attitude from Arabic designers:

Arab type designers, whether they acknowledge it or not, are the inheritors of one of the world's great calligraphic traditions, also of great literary and philosophical traditions that are intimately linked to that calligraphic tradition. It seems to me perverse to ignore that tradition and go and try to squeeze your writing system into the alien dress of another culture. (Hiba Studio, 2007, p 7)

He thinks that making Arab versions of Dutch faces is similar to make Arab types based on the characteristics of Latin types. Hudson believes that "graphic design culture in the Arab world is very much attuned to western design education and practice, and does not take seriously the challenges of typographic representation of the Arabic script" (Hiba Studio, 2007, p. 6). Hudson remarks how influential

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17   In this aspect, it is also remarkable the multilingual type family *Colvert* (2012), designed by the team Natalia Chauvatin, Jonathan Perez, Kristyan Sarkis and Irene Vlachou (www.typographies.fr) that includes Latin, Greek, Arabic and Cyrillic. It is a good sample of a multi-script family designed by a collective of designers.

Western culture is on many Arabic designers. This fact shows one of the paths that some Arabic type designers currently follow. Hudson's reflections have made me think about which path I should take.

My approach to Arabic tries to respect cultural values and convey a historical analysis from a deep understanding of Arabic calligraphy and tradition. Moreover, the link with the research on Spanish Arabic type specimens from the eighteenth century provides something more unique. However, the result might happen to appear as something "made in Europe" for many Arabic designers.

Following the difficulties of multi-script design, Arabic type designer and typographer Pascal Zoghbi (who had collaborated with Dutch designer Martin Majoor in the *Typographic matchmaking* experience) provides a general overview of Arabic type design in his article 'Arabic glyphs: Proportions and guidelines' where he focuses on his type design experience related to the three writing systems created by Ibn Muqlah, on which the main traditional Arabic calligraphy schools based their teachings. He states that "the choice of a calligraphic style is directly dependent on the purpose and use of the typeface" which is supposed to be designed (Zoghbi, 2007).

Again, we are confronted with the need to understand calligraphic styles and, therefore, specific proportions and structures in designing an Arabic font.

In *Talking about Arabic*, a book published by Mourad Boutros which includes different texts from other authors, I would highlight Boutros's article 'Five decades of influencing Arabic typography' where he deals with the impact of technology on Arabic typography, from Letraset to the Compugraphic photo composer, and the contribution of different companies such as URW, Apple and Microsoft, and products such as *Monotype Tanseek* typeface or DecoType *Tasmeem*. This is a good article to understand the evolution of Arabic typography in the last few decades of the twentieth century.

Thomas Milo's article on 'Authentic Arabic: a case study. Right-to-left font structure, font design, and typography' published on *Manuscripta Orientalia* (Vol. 8 #1, March 2002), deals with understanding the structure of Arabic script in relation to font technology. Milo discusses some technical problems when trying to represent the Arabic script through type.

The historical technological problems that the use of movable type have encountered when reproducing an acceptable Arabic text could explain the reason why different attempted reforms of Arabic script were proposed throughout the 20th century in order to simplify the written language and better adapt it to the requirements of modern type composition. A good article on this is presented in the Swiss magazine *TM Typografische Monatsblätter* under the name 'Aspects of Arabic script reform', by Hans Jürg Hunziker. Although this topic goes beyond the scope of my work, it is interesting to get an idea about the discussions on the technical problems that Arabic typography had to face in order to adapt to

more contemporary needs. In fact, the technological problems in producing good quality Arabic fonts still persist today in our digital realm. The characteristics of Arabic script make it difficult to adapt to any software that has been designed with a Western way of thinking. Luckily, because of the increasing interest in multi-script font development and the expected global demand, software packages are being upgraded to support complex non-Latin scripts, such as Arabic. John Hudson thinks that "there is a lot of interest in Arabic type design these days. Part is due to a general increase in internationalisation, globalised business, and multilingual communications" (Hiba Studio, 2007, p. 5).

A more recent book on non-Latin scripts, fully illustrated with samples of different scripts, including Arabic, is *Non-Latin scripts. From metal to digital type* by Fiona Ross and Graham Shaw. It provides a very clear insight into non-Latin design, from a historical and practical perspective. As Paul Luna (Ross & Shaw, 2012) states in the introduction, "An informed design profession is required more than ever: in a globally connected society, type can no longer afford to be Latin-centric" (p. 7). This statement fully reflects the essence of this practice-based research.

Other useful readings for complementary information have included article interviews with professional designers and type designers. Sometimes this sort of information has provided some clues about how designers think or how they apply their ideas within the work process. The afore-mentioned Khatt foundation has an online archive of articles and interviews with Arabic type designers who provide information on professional experiences. However, not all are relevant for my practice-based research. I would like to mention the ones Huda Smitshui-jzen performs with type designer Kristyan Sarkis on his typeface *Thuraya*, and the interview with Pascal Zoghbi, talking about his professional work. Other interviews consulted online are the interview with Nadine Chahine by Catherine Dixon and the interview with John Hudson by Hiba Studio. Some of the opinions and points of view on Arabic design and how to approach Arabic design were helpful when making decisions. I have already cited some Hudson's opinions which were relevant for my approach.

2.3 Spanish Arabic printing types

One of the aims for this practice-based research has been to look for original Arabic type specimens published in Spain as reference samples for my Arabic type design. This visual material was intended to be a departure point that could establish a link with those Arabic types that were designed and used in Spain during the eighteenth and nineteenth centuries.

This approach to history was not intended as the focus for this study but as a starting point for my work. I am not a historian and this is not supposed to be a thesis on type history. Nevertheless, since this practice-based work was based on elements

that come from tradition, I found the need to approach original historical documents as a reference point.

I therefore have read different history books in order to locate original documents and writings as reference sources. The result of this research is fully discussed in Chapter Four in this document.

Following on from the literary readings of Arabic books, there are some articles about the first Arabic books and, therefore, the first collections of Arabic movable type. 'The enigma of the first Arabic book printed from movable type' by Miroslav Krek, published at the *Journal of near eastern studies*, focuses on Gregorio de Gregorii's *Kitāb salāt al-sawā'ī* , printed in Fano (Italy) in 1514, and considered the first book printed in Arabic (Krek, 1979). Before this book, the only known sample of Arabic letters appeared as engraved illustrations but not as movable type. The first sample of this genre was *Peregrinatio in Terram Sanctam* by Bernhard von Breydenbach, printed in Mainz (Germany) in 1486. The Arabic letters shown are cut in a wood block and were intended as a sample of illustrations of the Arabic alphabet. Some years later, in 1505, another sample of the Arabic alphabet was shown in the book *Arte para ligeramente saber la lengua arauiga* by Pedro de Alcala, printed in Granada by Juan Varela from Salamanca. The shapes of letters are quite close to the Arabic Maghribī style that was used in the western part of the Muslim Empire. The book is a grammar of the Arabic language that was spoken in Granada at that time and contains a manual for Catholic practice.

Geoffrey Roper in his article 'The travails of Euro-Arabic: Calligraphy, logography and typography in the early modern period' focuses on this early samples of Arabic letters.

One of the most important reference books on typography written in the last century was Daniel B. Updike's *Printing Types*. This vast 'compendium' which was written in the early twentieth century consisted of two volumes of the history of Western type. Updike presented himself as a lover of Spanish types and dedicated a long chapter to the history of Spanish typography.[18] Nevertheless, Updike does not provide many details on the existence of Arabic collections in Spain.

The rest of the historical bibliography on type design and book printing published in Europe and America pays little attention to the history of Spanish type design. So, there is still a lot to be done in the field of type research. This study does not claim to fill the gap, but it may contribute to providing some details and suggest new research areas.

Until recently, type design history in Spain has been an absolute void. Albert Corbeto is one of the few Spanish historians who have conducted some research on Spanish book design and typography. His recently published work *Tipos de imprenta en España* (Spanish printing types) provides a complete overview of Spanish

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18   Albert Corbeto has curated a Spanish translation of Updike's famous *Printing Types* Spanish chapter, published by Campgrafic (Valencia, 2011).

typography from *incunabula* until the nineteenth century. This book also provides new themes for research. Regarding Arabic types, Corbeto provides some useful information concerning the publishing of the *Bibliotheca Arabico-Hispana Escurialensis*. For this edition (two volumes were printed) it was necessary to purchase a set of Arabic fonts abroad. Updike considered the layout of *Bibliotheca Arabico-Hispana* to be a good example of harmonisation between Arabic and Latin scripts (Updike, 1922).

A complete *specimen* of Gil's typefaces, including an Arabic one, was printed in Madrid in 1774 (*Muestra de letras fundidas en las matrices hechas de orden del Rey nuestro señor, para la Imprenta Real*). These types were intended for the Royal Printing House and were presented to King Carlos III to secure a grant from the Government. In the type specimen booklet titled *Muestras de los nuevos punzones y matrices para la letra de imprenta ejecutados por orden de S.M. y de su caudal destinado a la dotación de su Real Biblioteca*, published in Madrid in 1787, there is an Arabic font, including its vocalisation marks (the *Arabe* and *Arabe con las mociones*). According to Corbeto, two more collections of Arabic were purchased after the specimen book had been printed (Corbeto, 2001, p. 199). By the end of the eighteenth century, the Royal Printing House had published three very complete type specimen books which included all the type collections they owned (1788, 1793 and 1799). As Corbeto states, these catalogues were a perfect sample of the kind of typefaces available in Spain during the second half of eighteenth century.

In his book *Tipos de imprenta en España*, Corbeto does not provide many details about the Arabic specimens, probably because this is beyond his focus. Nevertheless the book provides useful contextual information on the specimen books where the Arabic collections are shown. All the original Arabic type specimens have already been consulted in the Catalonian Library, Barcelona (Biblioteca de Catalunya) and the National Library, Madrid (Biblioteca Nacional). Photo reproductions and copies were requested from both National libraries for later analysis.

Nevertheless, as previously mentioned, the aim of this study is not to delve deeply into historical research but rather to get enough information for a practice-based work on Arabic typography. Having said that, I admit that comparing and analysing all the Arabic types published and used during the eighteenth and nineteenth centuries in Spain have provided a reference base worth considering. In fact, a proper understanding of Spanish type history was necessary for the purpose of this practice-based research and, at the same time, I believe, it has added more sense to the formal results.
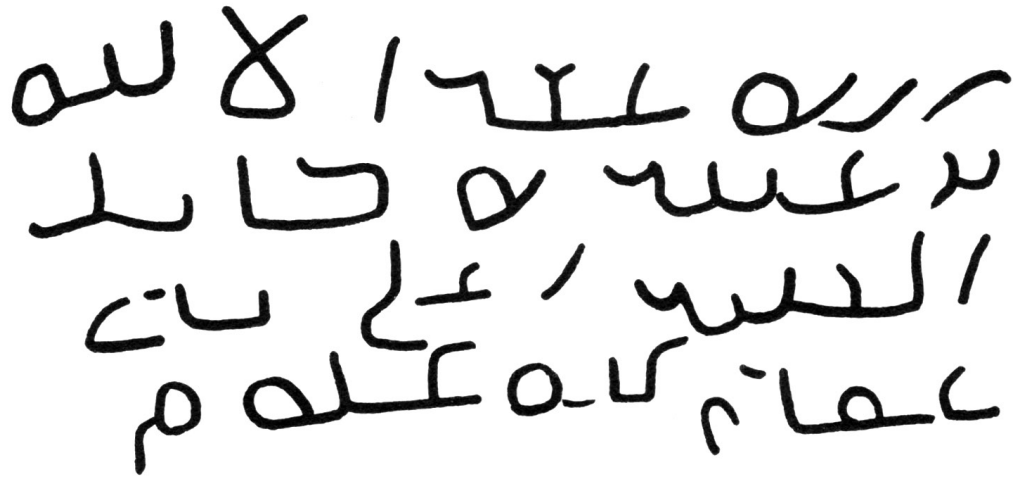
This chapter has discussed the relevant literature which has helped throughout the work process and also contributed to supporting my study and contextualising it in relation with other similar works. There are not many books that approach type design from a multicultural point of view. Moreover, the lack of literature on Arabic type design and multi-script Latin-Arabic design, in particular, makes this study and methodology proposed an interesting starting point for type practitioners who want to approach multi-script Latin-Arabic type design. Also, the literature consulted

was helpful when understanding Arabic script from a broader perspective, from the origins of Arabic script to type design practices. Understanding the link with tradition was necessary for the proper development of this practice work.

The result of most of the readings on the historical background and technological developments provided the basis for the writing of Chapter Three, which proposes a general overview of Arabic.
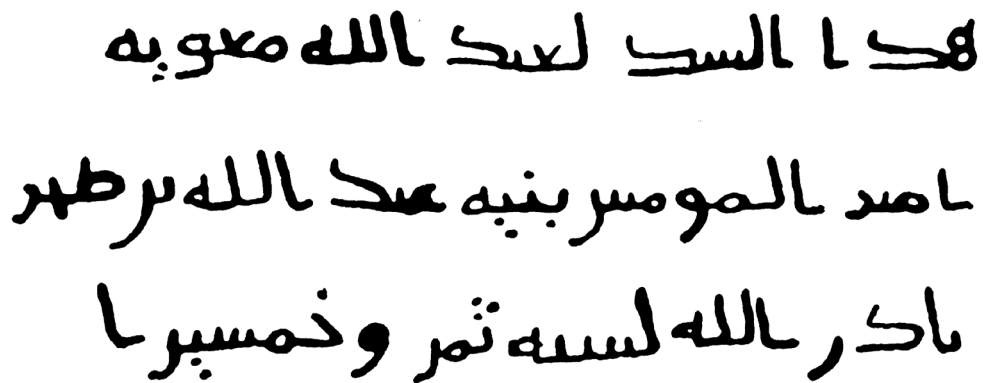
Chapter Four, which is more focused on Arabic Spanish types, is more based on readings and the consulting of original references from the eighteenth and nineteenth centuries, research based on archives and looking at type specimens from the same period. Also, there are some practical readings on work processes and reflections on practice which were taken into account when proposing a methodology for multi-script Latin-Arabic type design.

Although there were more references consulted than those mentioned in this literary review, they have been added in the bibliography section since they were not so relevant or related directly to this practice-based project.

FIG. 1. Nabataean inscription from Umm al-Jimāl, of the 6th century (Safadi, 1979, p. 6).

FIG. 2. Inscription dated 677 by Caliph Muʿāwiyah (661-680), who founded the Umayyad dynasty (Safadi, 1979, p. 15).

3
Introduction to Arabic script & typography

This chapter tries to provide an introductory overview of Arabic, from the origins of script to printing press and typography, trying to relate the calligraphic tradition with its late typography start-up. Digital technology and the need for multi-script fonts has positioned Arabic type design at a crossroad, where different views meet and are opposed.

In this part I have included all the basic knowledge I believe is necessary for a better understanding of Arabic script. It is not an exhaustive approach but a helpful reading for framing the cultural and technological context in which this practice-based research is situated.

3.1 Origins of Arabic script

In contrast to other writing systems which have their origins thousands of years ago, Arabic, as it is known today, is a system developed at a much later date. According to Hamid Safadi (1978), the reason for this late development was that "the Arabs were mainly a nomadic people and mistrustful of the written word" (p. 7), as they relied on the oral tradition as a way of keeping records of information and as a form of communication. Oral literature, especially poetry, was very rich in the period before the introduction of Islam, especially in the sixth century, since the Arabs relied on orality in order to perpetuate the memory of their literary tradition.

The Arabic writing system developed in the Arabian Peninsula, belongs to the group of Semitic alphabetical scripts and has its origins in the Phoenician alphabet, like our Latin alphabet or Hebrew. In her book, *Islamic Calligraphy*, Blair (2008) exposes two main hypothesis on the origins of Arabic script: the first and more widely cited one argues that the script used for writing Arabic developed from the type of Aramaic script used by the Nabateans, and another second more recent hypothesis suggests that the origin of Arabic script could be traced back to the Syriac alphabet (pp. 77–79). According to Safadi (1978), inscriptions dated from the sixth century confirm the derivation of the Arabic script from the Nabatean script (p. 7), which was itself derived from the Aramaic alphabet, which descended from the Phoenician alphabet [Fig. 1]. In Blair's opinion (2008) discussion about the origins of Arabic script is not closed and, whatever the source, Aramaic script had to be adapted for writing Arabic (p. 79). According to Safadi, from the Nabatean script not only preserves the shapes of the letters but also some of the rules connecting them each other.

The Nabataeans were semi-nomadic tribes which inhabited an area extending from Sinai and North Africa to southern Syria. His writing came to the north of the

Arabian Peninsula from the commercial trade and cultural contacts with other tribes in the area. In the late sixth century it reached Mecca and was adopted by the same tribe that the Prophet Muhammad belonged to.

As Safadi (1978) states, it should be emphasised that the *Qur'ān* has always played a central role in the development of Arabic script. According to Islamic teachings, the *Qur'ān* was transmitted to the Prophet Muhammad in the Arabic tongue (p. 9). Upon his death in 632, a series of religious wars followed and many of the 'guardians' of the oral tradition of the *Qur'ān* were killed. The fear of losing the message of the Prophet led the first Caliph Abū Bakr to make a written record. Zayd ibn Thābit, who had been the Prophet's secretary, compiled the revelation into a book. The canonical version of the text was set in the year 651 (Jürg, 1985).

3.2 Islam and Faith

The spread of Arabic script was fulfilled with the spread of Islam. At first, oral tradition was the usual way of communication between Bedouin tribes. The *Qur'ān* (al-Qur'ān means 'reading aloud' and 'recitation') was the first book written in Arabic and it set the language and fixed the writing system. The book became the 'sacred' voice to spread the word of God. Thus, the Arabic language was constituted as a means of conveying the Islamic religion. This way, other cultures would use the Arabic script not only as an expression of a particular religious affiliation but as a system to represent their own language. That is to say, they kept their own language but they used the new writing system to represent it.

Thus, as it happens with other writing systems, the religious aspect is closely linked to the role of writing the precepts of the faith as a record. This has contributed to the classical Arabic used in the *Qur'ān* being preserved unchanged for more than fourteen centuries. As Sheila S. Blair (2008) points out, "The centrality of the sacred book led to the promotion of the Arabic language from a regional idiom to the *lingua franca* of an empire" (p. 5). For orthodox Muslims, the *Qur'ān* is God's literal word and therefore can be read only in the majestic and glorious Arabic language in which it was revealed. The need to read the *Qur'ān* in Arabic means that all believers have to learn Arabic in order to do so (Blair, 2008, p. 23).

The extensive use of writing was one of the hallmarks of Islamic civilisation. Calligraphy, the art of writing beautifully, became one of the main methods of artistic expression. It was, moreover, the only one of the visual arts produced in the Islamic lands that was widely appreciated within its own culture (Blair, 2008, p. 4). The sacredness of the scripture led to its manual transcription in a beautiful hand, and this sanctity explains why handwritten copies remain popular and why printed editions of the *Qur'ān* were so slow to be accepted (Blair, 2008, p. 29). This 'sacredness', as Blair expresses it, will have a great influence on the development of the script and, at the same time, would have an impact on the acceptance of changes.

As Islamic culture encompasses other territories, its alphabet, which was initially

made up of eighteen basic signs, had to adapt to new sounds. In order to adapt Arabic script for writing other languages, notably Persian and Turkish, some modifications had to be made, as these two languages have a few sounds that do not exist in Arabic. In this way the eighteen letter shapes used for writing the twenty-eight phonemes of the Arabic *abjad* were expanded to cover the thirty-two phonemes used in Persian and Turkish, the first two languages to adopt Arabic script (Blair, 2008, p. 10). Diacritical dots accompanying certain letters were introduced in order to represent those sounds.

The fixing of the Arabic alphabet was made on the basis of religious interest. According to Mamoun Sakkal,

> With the increasing number of non-Arab Muslims, there was a greater need for facilitating reading and learning of Arabic. Since several letters of the Arabic alphabet share the same shapes, and since vowels are not clearly indicated, some reform was needed to avoid confusion, and a system of *Naqt* or *I'jam* (letter-pointing), and *Tashkeel* (diacritics) was developed. (Smithshuijzen, 2009, p. 16)

Throughout its history, different languages have been written in Arabic script, as was the case for the Romance language spoken by the inhabitants of Muslim Spain with their so-called *Aljamiado* script. According to Soler Cervantes, this kind of writing which used Arabic letters with Romance phonetics and meaning (vulgar spoken Latin) was the most used language in Al-Andalus until the end of the Reconquest (1492). In fact, the opinion of some specialists the 'Aljamía' could well be considered another Romance language within the Iberian Peninsula (as it happened with the languages that were formed in Galicia, León, Asturias and Castile, from the eighth to the eleventh centuries), with the particularity that they used the Arabic language instead (Soler, 2012). A sort of mix between Arabic and the spoken Romance languages (derived from Latin).

Currently, Arabic script, apart from being used for the Arabic language, is also used for other non-Arabic such as Farsi (Persian), Pashto, Dari (Afghanistan), Urdu (Pakistan and India), Jawi (Indonesia), Kurdish (Iraq), Uyghur (China), Baluchi, Dargwa, old Hausa, Ingush, Kazakh, Kashmiri (India/Pakistan), Kirghiz, Lahnda, old Malay, Punjabi, Sindhi, old Turkic, and others.

Arabic script was also used to write the Turkish language until the ruling of Kemal Pasha Atatürk in 1923, when the Latin alphabet was introduced as the new writing system throughout Turkey.

3.3 The Arabic alphabet: characteristics

The *abjad*, or consonantal script used to write Arabic has twenty-eight letters with the Hamza sign and the Lam-Alif ligature (thus, thirty letters) [Figs. 3-4]. All these letters represent consonant sounds. No vowels are represented as letters, but they

Alif	ا	Dāl	د	Ḍād	ض	Kāf	ك	Hamzah	ء
Bā'	ب	Ḏāl	ذ	Ṭā'	ط	Lām	ل	Lām-Alif	لا
Tā'	ت	Rā'	ر	Ẓā'	ظ	Mīm	م		
Thā'	ث	Zāy	ز	'Ayn	ع	Nūn	ن		
Jīm	ج	Sīn	س	Ghayn	غ	Hā'	ه		
Ḥā'	ح	Shīn	ش	Fā'	ف	Wāw	و		
Khā'	خ	Ṣād	ص	Qāf	ق	Yā'	ي		

FIG. 3. The Arabic alphabet (including Hamza sign and the Lam-Alif ligature)

Alif	ا	Ṭā'	ط	Nūn	ن
Bā	ب	'Ayn	ع	Hā'	ه
Ḥā'	ح	Fā'	ف	Wāw	و
Dāl	د	Qāf	ق	Yā'	ي
Rā'	ر	Kāf	ك		
Sīn	س	Lām	ل		
Ṣād	ص	Mīm	م		

ث ت ← ب
ج ← خ ح
د ← ذ
ر ← ز
ش ← س
ض ← ص
ظ ← ط
غ ← ع
ه ← ة

FIG. 4. Base characters.

are as signs: vocalisation marks that are located above or below the consonants. There are no majuscules, so it makes no sense to speak of upper case or lower case, neither for small caps nor italics. The Arabic script is cursive by nature. However, letters do not always connect the same way. In fact, their form varies depending on their position within the word. Thus, its design is different depending on whether they are at the beginning, middle, end of a word or isolated. Each letter can have from two (isolated and final) to four variants (isolated, initial, medial and final). Despite being an alphabet consisting of twenty-eight letters, about one hundred and thirty signs are needed in order to compose a text in Arabic.

Arabic script, as mentioned before, is cursive by nature, because their forms are the result of the movement of the pen and the gesture of the hand. Unlike our Latin alphabet, it is written from right to left. In Arabic script, the image of the written word takes priority over the individual drawing of letters, which does not occur in the case of the Latin alphabet, where the design of each character is considered individually. Arabic calligraphy, while putting the emphasis on the shape of the word, enables to modify the appearance of letters in order to accommodate them to the whole image. This has led to the development of different forms for each letter and a variety of ligatures based on letter combinations. So we could find up to four different forms for each letter according to its position within the word. In some cases, the difference is huge. In addition, some letters may even have alternative forms regardless of their position. These form variations are due to different methods of joining letters and the logics of the calligraphic writing itself. For Abulhab (2008), "most likely, the drive for universal text connectivity in Arabic was the direct reason behind its adaptation of multiple shapes per letter, including ligatures formed by connecting two or more shapes" (p. 184).

Another major feature of Arabic script is its fluidity. The stroke 'flows' on the surface making forms in a natural way, avoiding interruptions. In fact, a writing system that connects letters, one after the other, is much more efficient in terms of speed. Its right-to-left writing direction, just the opposite of Latin tradition, makes its forms have a different logic than if they had been made according to the left-right 'logic'. The baseline is usually tilted to the right so that words tend to slip to the left, thus reinforcing the reading direction. In some calligraphic styles, such as in Ruqā' or Nasta'līq, words are not written on the baseline but following a sloped baseline. This is very difficult to achieve in type composition for technical reasons.

In text composition, the space between words is not increased when justifying a paragraph on both sides. In fact, it would make no sense justifying the text while opening white space, if we consider that Arabic gives more importance to the overall image of word — and the line of text — than the arrangement of the letters one by one. In Arabic, text is usually composed ragged left. Nevertheless, to get a proper justification of Arabic, a 'Kashida' is used. That is an extension or enlargement of the connections of letters to get control of space justification. Preferably, these expanding connections should be slightly curved, which enhances the flow of the

line and provides a more natural pen stroke. Kashida[1] (also known as *taṭwīl*) can also refer to a single glyph that represents the elongation that connects the characters within a word [Fig. 5].

Justification in Arabic type composition is not easy to solve, since Arabic does not allow the division of words (hyphenation). Thomas Milo, in his lecture 'The role of Dutch Arabic typography in Middle Eastern Printing' at ATypI Reykjavik 2011, attributes text justification in Arabic to Thomas Erpenius when applying the stretching criteria from Hebraism to Arabic.[2]

Diacritics have an essential role in Arabic script. In the very beginning they were an important part in the fixing of the script. We find different kinds of diacritic marks:
    • Diacritic dots, which appear above or below certain letters and convert them into a new one.
    • Miniature letters, such as Hamza, which are also used to create other characters.
Other languages that use the Arabic script use miniature letters together with existent ones in order to create new characters.
    • Vocalisation marks used as phonetic guides to support Arabic pronunciation. Technically, 'tashkeel' is the general name for the marks used as phonetic guides, while 'ḥarakāt' is the name for the vowel marks. Despite the existence of vowel signs in Arabic, these are reserved for certain literary works, religious texts, like the *Qur'ān*, and language educational purposes.
    • Apart from diacritical dots, vocalisation marks and miniature letters, in calligraphy practice other sort of marks are added that have no other use than to make the whole more beautiful and aesthetic image, these are embellishment or decorative marks.

Thus, we could find up to five layers of elements: first the basic characters, a second layer where diacritical dots are located over all those characters that need them, a third layer with miniature letters, a fourth layer where vowel marks are added to ensure correct pronunciation, and, finally, the possibility of an ornamental layer with decorative marks [Fig. 8]. Usually, only diacritical dots are used along with the characters. Vowel marks are used in very specific cases, and decorative elements are reserved for titling composition, word-image (brands, logos, etc.) and religious quotations (in *Basmalah* compositions,[3] for instance).

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1   The Unicode standard assigns codepoint U+0640 as 'Arabic Tatweel'.

2   Thomas Milo's lecture is available on line: http://www.academia.edu/1817385/Arabic_vs._Eurabic_-_Part_1_ The_role_of_Dutch_Arabic_Typography_in_Middle_Eastern_Printing [Last accessed March 2013].

3   The *Basmala* (in Arabic بسملة) is an Islamic ritual formula that start with the suras or chapters of the *Qur'ān* which Muslims also used to initiate different types of documents or actions, and decoration.

3.4 The calligraphy tradition

Calligraphy is understood as the art of writing beautifully, a way of writing where aesthetics plays an important part. It conveys information through its semantic content and its formal appearance. Calligraphy occupies a very special role in Islamic culture. Due to the prohibition of iconographic representation — pictorial and sculptural — on behalf of religion, calligraphy was considered one of the most important art forms. As Blair (2008) explains, "writing became one of the main vehicles to signify power, belief, legitimacy, and many other ideas and ideologies for which images are used elsewhere. Islamic culture is, in the words of Erica Dodd, 'the image of the word'" (p. 7). Creativity in the use of calligraphic writings has been in graphic design, and still is, one of the biggest attractions of Arabic and Persian Graphic Art. From the earliest copies of the *Qur'ān* which were madeand distributed throughout the main Muslim areas to be used as references for later copies, different calligraphic styles were gradually developed from those early writing models.

Since the mid-seventh century calligraphic forms were derived from the first early forms of Arabic, known as *Jazm*, and they were gradually refined and defined [Fig. 9]. From Jazm — or archaic Arabic — a whole group of variants or styles was developed that took the name of the city where they originated: Anbārī (in Anbār) Hīrī (in Hīrah), Makkī (in Mecca) and Madanī (in Medina). Not to mention the city of Kūfah where Kufic style was developed, being one of the most commonly used in Arabic architecture as a decorative element. As Abulhab concludes in a typophile thread,

> I have concluded that Early Kufi or Quranic Kufi is nothing more than a heavily bolded version of the Jazm style used in Hijaz, which was specifically utilized to distinguish the glorious Quraan passages from normal texts, a practice used by all other religious books of the area then. That includes the so-called Ma'il style, which I believe was used much earlier than it is claimed now. (Abulhab, 2008)

The different calligraphic styles that emerged from all of those sources could be classified into two main groups, according to Safadi (1978): One group (Masbūt wa-Mustaqīm) formed with writing styles like the Mā'il, the Mashq and Kufic, characterised by the extension of its forms and the use of angles. A second group (Muqawwar wa-Mudawwar) consisting of writing styles where curved and rounded strokes are prominent. This numerous group includes Thuluth, Naskhī, Muḥaqqaq, Rayhānī, Tawqī and Ruqāʿ, also known as the 'six pens', or calligraphic styles.

3.4.1 *The Kufic*
This style takes its name from the city of Kūfah (Iraq), where it was developed. It reached a high level of perfection during the eighth century and was the dominant style for the transcription of the *Qur'ān* for nearly three hundred years. Its appearance is characterised by a combination of the circle and the line, together

with the use of straight angular forms. The earliest samples of this style were simple and austere. But, as the Muslim Empire began to spread and become more and more prosperous, the Kufic letter became splendorous and elegant in its ornamental forms.

The Kufic style developed in two directions, a softer cursive style and another dominated by rigid and angular shapes (Smitshuijzen, 2001, p. 31). From the eleventh century, this style began to be used as an ornamental style. This tendency to use the epigraphic Kufic as a decorative style continued until the twelfth century, when it lost its main function as a tool for communicating thought and becomes a primarily decorative resource; then expressed in a variety of floral element (floriated Kufic), knotted, interlaced, intertwined and other combinations where, sometimes, letters take the form of human figures or animals. In an opposite direction to the richness and exuberance of forms, there is a more 'purist' Kufic style where the angular shapes of the letters are combined in the construction of geometric textures that we can see applied in Arabic monumental architecture.

The ornamental Kufic was applied to all kinds of media and materials: brick, stone, stucco, metal, wood, marble, ivory, textiles and parchment. Some of the most shining examples of this ornamental style can be found in the Alhambra, in Granada (Spain) [Fig. 10]. Arabist and archaeologist Martínez Enamorado (2003), expresses that "The Nasrid palaces [in Alhambra] are the epitome of Arabic script most spectacular in the world. It brings together a highly elegant Kufic, an Almohad inheritance in which ornamental complexity is almost endless".

At the end of the tenth century, the Persians developed a new variant of Kufic (Eastern Kufic) which differs from its original Kufic because of its extended upright strokes, often ending in a short vertical arrow and leaning to the left [Fig. 11].

3.5 Arabic styles and the first reforms of Arabic script

As a result of the conquest of Syria, Egypt, Iraq and Persia, a large number of the non-Arab population was converted to Islam. In order to ensure correct pronunciation and interpretation of the *Qur'ān*, a series of reforms were necessary. Abū Aswad al-Du'ali († 688), considered the founder of Arabic grammar, created a system of diacritical red dots to indicate those parts of speech that were not represented by letters. This mark system, known as 'Tashkīl' was used to represent the vowel sounds (Safadi, 1978, p. 13). But, it was also necessary to differentiate those consonant sounds that were represented by a single letter. Following a method similar to that used by Abu Aswad, it was decided to use small black dots placed above or below the letter to highlight and differentiate sounds. In some cases, these dots are isolated or in groups of two or three. This might have caused confusion with the vocalisation marks when they appeared together, therefore grammarian and philologist Al-Khalīl ibn Aḥmad al-Fārahīdī († 786) devised a system to replace Abū al Aswad's. These dots used to represent vowels were replaced by a series of eight new diacritical marks (Safadi, 1978, pp. 13–14). Al-Fārahīdī introduced

vowel signs inspired by the initial shape or parts of certain letters. His system was universally used from the early eleventh century, and included: *Fathah* [a], *Dammah* [u], *Kasrah* [i], *Sukun* [vowelless], *Shaddah* [double consonant], and *Maddah* [vowel prolongation], cutting *Hamzah* and joining *Hamzah* which are applied to the Alif [Fig. 12].

All over the Islamic territory, following this grammar reform, Arabic was developed as a cursive script. The cursive styles, also known as the 'six styles' or 'six feathers' (al-Aqlām al-Sittah) have their origins in the pre-Islamic era and they were closer to a writing use than having an aesthetic calligraphy purpose. Their use was closely linked to personal correspondence and unofficial documents. Influenced by the Kufic style, they evolved as independent calligraphic styles.

In the late ninth century, more than twenty styles were in use, many of which had neither the grace nor the elegance of Kufic. It was therefore necessary to apply some order to avoid the inevitable degeneration caused by this proliferation of styles.

The calligrapher Abū ʿAlī ibn Muqlah († 940) in Baghdad, was the great reformer and transformer of calligraphy thanks to his knowledge of geometry. His rules are still borne in mind when designing typefaces today; representing a turning point in the history of Arabic calligraphy. He proposed an elegant cursive style with fine proportions, so that it could compete in beauty with the calligraphic Kufic style. Ibn Muqlah rethought Arabic letters anew and determined the rules of geometric proportion based on three basic elements: the rhombic dot, the Alif and the circle. Of these three, the dot corresponds to the thickness of the pen you write with (the tool), and at the same time, it sets the measure unit.[4] The Alif is the first letter of the alphabet and sets the line height, ranging from five to seven dots according to different calligraphic styles. And, finally, the circle which has a diameter equal to the Alif.

The nature of Ibn Muqlah's contribution to Arabic was the 'proportioned writing' (Abbott, 1939). For Abbot (1939), It is clear that "this was not a specific script — one of many such — but a mathematical control of the basic forms of the letters of the Arabic alphabet" (p. 70).

Ibn Muqlah's models of calligraphic construction are known as *Nizam Al-Nuqat* and *Nizam Al-Dairah*. A third model, the *Nizam Al-Tashabuh*, aims to unify the forms of all those letters that have a similar form [Fig. 13]. The last, in fact, is a relevant model to take into account in type design.

The changes proposed by Abu Ali Ibn Muqlah provided some order to the variety of styles used at the time. Muqlah disciples refined and evolved the rules of their master and contributed to the elegance and beauty of the forms. One of his

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4   The dotted system used as a measurement system is quite similar to that used to determine the height and width proportions for the Latin tradition in calligraphy. It is interesting to notice how close in time the first calligraphic reform of the Arabic script and that from the Carolingian period are (ca. 800 AD). I have not found any work relating those calligraphic reforms. It could be an interesting point to look at.

disciples, Ibn al-Bawwāb († 1022), was the one who improved the six traditional calligraphic styles and favoured especially the *Naskhī* and *Muḥaqqaq* styles. The six styles, established by Ibn Muqlah and improved by his disciple Ibn al-Bawwāb are considered classical styles of Arabic calligraphy: *Thuluth, Naskhī, Muḥaqqaq, Rayḥānī, Tawqī* and *Ruqāʿ* [Fig. 14]. From the eleventh century onwards, its use has become widespread and ended up taking the spot of Kufic, which was relegated to an ornamental function.

3.5.1 *Naskhī*

This is one of the oldest cursive styles. It has its origins in the archaic style and it was not until the tenth century that consolidated its forms thanks to the final Ibn Muqlah's calligraphic reform and the later work of his disciple Ibn al-Bawwāb, when the style became a more refined and appropriate one to write the *Qur'ān*.

Naskhī, which means 'copy' or the result of the scribe's hand, is a fast curvilinear cursive writing style with high legibility. It is characterised by short horizontal strokes and deep curves. The vertical lines are straight and extend upward and downward in a balanced way over the baseline. The space between words is open and well proportioned. Its high level of readability has made Naskhī very popular among the other styles, so most of the typefaces designed for Arabic printing press have been based on this calligraphic style [Fig. 16].

3.5.2 *Thuluth*

According to Sakkal, Thuluth is a more impressive, stately calligraphic style which was often used for titles or epigrams rather than lengthy texts (Sakkal, 1993). This style originated in the seventh century during the rule of the Umayyads caliphate, but did not fully develop until the late ninth century (Safadi, 1978, p. 52).

Thuluth is characterised by its delicate and elegant fluidity of the strokes, sometimes quite thin. It became popular as an ornamental handwriting for calligraphic inscriptions, titling, and headings. It is considered the most important of all cursive decorative styles [Fig. 16].

3.5.3 *Muḥaqqaq*

As its name implies, Muḥaqqaq means 'meticulously produced' (Safadi, 1978, p. 68). It was defined as a style by Ibn Muqlah and reached perfection thanks to Ibn al-Bawwāb. As happened with Naskhī, this style became very popular for copying the Qur'ān. Its shallow sublinear curves and horizontally extended mid-line curvatures, combined with its compact word-structure, give it a leftward-sweeping impetus (Safadi, 1978, p. 68). Its elegance favoured its use for writing the *Qur'ān* at large sizes, especially in places like Egypt, Iraq and Persia, between the 13th and 14th centuries [Fig. 16].

3.5.4 *Rayhānī*

The Rayhānī style is named after its creator, the calligrapher Ali Ibn Ubaydah Al-Rayhani. It was developed in the ninth century and has considerable similarities with the Naskhī, the Thuluth and Muḥaqqaq. The endings of letters and the decorated shapes are closer to the Thuluth style, though they are a bit more delicate. The descendants are open and deep, as in Naskhī. Its curves, like those of Muḥaqqaq are a little angular, pointing almost horizontally leftwards (Safadi, 1978, p. 72). The diacritical marks and other orthographic signs are always written using a finer pen than the rest of the letters. It was largely used in Persia during the thirteenth and fourteenth centuries for the transcription of the *Qur'ān* into large formats [Fig. 16].

3.5.5 *Tawqī*

The style was developed in the ninth century and fully developed in the eleventh century. It was the official style of the Abbasid caliphs. It has a greater horizontality in relation to other styles and maintains a fluent stroke like Ruqā' style. Its curves are very steep and smooth, like Thuluth.

The words tend to be connected, which increases the feeling of fluidity and continuity of the stroke along the lines. To mark the end of one word, the final letter ends with a 'gesture' which connects it to the first letter of the next word [Fig. 15].

3.5.6 *Ruqā'*

Ruqā' and Tawqī could be considered as sister script styles, with a strong connection with Thuluth. The Ruqā' was developed during the ninth century as a simplified style of writing.

Developed from Ottoman calligraphies which aimed to achieve maximum simplicity, this script is small, compressed and free of ornamentation (Schami, 2010). Its main features are its rounded and smooth curves and the short horizontal strokes. Its sloped baseline is also an important feature. Ruqā' is an informal, simple and fast way of producing handwritten text. It is by far the easiest calligraphic style to produce and has in that respect the closest relation to everyday writing (Sakkal, 1993). The style became very popular in the fourteenth century among Ottoman Empire calligraphers and it is one of the most used handwriting styles within the Arab world [Fig. 16].

3.6 The North African style

In the western part of the Muslim empire, the evolution of the Kufic style took a different direction. According to Safadi, at first there was a rounding of the angles and an increasing depth of the sub linear curves, below the line of writing. After the tenth century, this style spread to North-West Africa and Muslim Spain, heralding the so-called Maghribī (Western) script [Fig. 18], which was to acquire an elegance equal to the cursive scripts of the East (Safadi, 1978, p. 78). But unlike

other script styles, the evolution of the Maghribī took place independently from the reform initiated by Abū ʿAlī ibn Muqlah. The Muslim Empire of the West was run independently and did not follow such strict artistic parameters as those established in the Eastern part of the Empire. The Maghribī style was used for nearly nine hundred years almost without variation. Thus, until the advent of lithography, calligraphers in the region produced manuscripts very close to those produced hundreds of years before.

The characteristics of Maghribī are its free flow and open curves, and its flourishes extending deeply into the sublinear area (Safadi, 1978, p. 78).

These features, along with a slight tilt to the left of the vertical strokes, give this style a special grace. Other styles derived from the Maghribī, such as the Andalusian style which was developed in Cordoba and disseminated to the rest of the peninsula during the thirteenth century, shared the same characteristics. However, Andalusian style is considered to be a much more refined and elegant variant [Fig. 19].

3.7 Other styles of calligraphic Arabic backgrounds

Besides those calligraphic styles considered as 'classic' Arabic script styles, some were developed in those areas where the Arabic alphabet was adopted as a vehicle to spread the sacred texts and, in turn, to the transcribe non-Arabic languages. Some of these languages developed their own stylistic variations, incorporating different letters. These styles include the *Dīvānī* and the *Dīvānī Al-Jalī*, developed in Turkey; *Taʿlīq, Nastaʿlīq* [Fig. 17] and *Shikasteh*, developed in Persia; the *Behārī* style developed in India and *Sīnī* style, used in China by Chinese Muslims.

It is not the focus of this project to explore Arabic styles any further, since they are more related to calligraphic areas of study. Only an introductory overview on all these styles is necessary for the development of this project. The reasons for this will be exposed later in the methodological part, in Chapter Five.

3.8 The introduction of the printing press in the Arab world

Classical Arabic used in the *Qurʾān* has remained unchanged for more than fourteen centuries, untouched by the influences of other languages and cultures throughout the Islamic world. The printing press in the Arab world arrived very late. The first texts composed in Arabic using the combination of movable type were printed at the beginning of the sixteenth century in Europe. The first book was printed in 1514 by Gregorio de Gregori, a Venetian printer. The first books printed with Arabic types were aimed at expanding the Christian faith. There is no need to imagine the lack of success that this idea had if we consider that the role of the Arabic script was to preserve the words of the prophet Muhammad and precisely not the faith of another

religion. Moreover, the poor aesthetics of printed books could not compete with the exuberant beauty of the manuscripts made by skilled Arabic calligraphers. The close link between religion and writing (calligraphy script) is a major reason for understanding the delay in the introduction of the printing press in Islamic countries.

The political, cultural and religious clash between East and West caused by the Crusades is an important reason for the rejection of any invention that could come from the Christian West. Also, the existence of different cultural views within the Ottoman Empire between *Ulemas* (doctors of Islamic law experts in legal and theological affairs) and progressive intellectuals did not help the introduction of such an invention much. The latter considered the printing press a possible way of modernising society by spreading knowledge and the former considered it a threat to their political and social position (Smitshuijzen, 2001, p. 43).

Geoffrey Roper situates the first printed Arabic script documents in Egypt, as early as the tenth century AC. As he explains,

> It seems that they were not really designed to be read, nor were they generally to be artistic: some pieces have rather crude decoration calligraphy was beyond the capability of those who produced them. In fact, they were intended as amulets, to be rolled up and worn in a locket, to ward off evil, and it seems likely that they were printed from wooden or metal blocks, so that they could be produced cheaply, for sale to the illiterate poor. (Roper, 2009)

In fact, knowledge of the xylographic technique had spread to Central Asia from China by the ninth century, but there is no clear evidence of any link between the Egyptian use of xylography and that of Central Asia or China (Ross & Shaw, 2012).

These first printing experiences are not far from other attempts that occurred before the printing press was introduced in Europe by Gutenberg. According to Shaw, the xylography technique was first used in Southern Germany and Flanders by 1418. It seems plausible that this knowledge could have a Middle Eastern origin.

The first printing press in the Middle East was established in St. Antoine Monastery in Quzhayya (Lebanon) in 1585. They only printed in Syriac, not in Arabic, since Lebanon was under Turkish rule at that time and Arabic script was considered sacred and, therefore, it could only be handwritten and not reproduced typographically (Zoghbi, 2010). Printing with Arabic metal types was formerly prohibited in the Ottoman Empire, until 1726. Anyway this rule did not prevent the setting up of printing presses that would print with non-Arabic types.

The first Arabic script printing presses and, therefore, with Arabic movable type, were introduced in the early eighteenth century by Orthodox Christians in Aleppo during the period of 1706-1711, at St. John the Baptist in Shuwair (Mount Lebanon) in 1734, and St. Georges printing press in Beirut, in 1751 (Smitshuijzen, 2001 p. 66–67).

In 1727 the first Muslim printing office was established in Istanbul, and during the nineteenth century, other offices were established within the Muslim territory, playing an important role in the dissemination of knowledge. For Shaw, "the nineteenth century was the most important for non-Latin typography with the spread of printing technology throughout Asia and the Middle East" (Ross & Shaw, 2012).

3.9 Arabic Typography versus Europe-Arabic

Resistance to the development of typography within Muslim countries can be explained not only by the link between religion and calligraphy writing, but also the delay in the introduction of the printing press in the Arab world. Most Arabic typography has been designed and produced in Europe and the printed material produced hardly affects the vast majority of the Arab population if we consider that there are still many who cannot read or write. This situation does not favour the development of a major printing industry, or the design of new fonts. Nevertheless, from the mid twentieth century the situation has changed and now with the new media, it seems that expectations are becoming better. Today, there is evidence of a separation between art and religion. The representation of the image is a contemporary phenomenon largely favoured by television and other media like the Internet.

The first Arabic alphabet drawn for printing was carved on wood and appeared in the book *Peregrinatio in Terram Sanctam* by Bernhard von Breydenbach, printed in Mainz in 1486. The table with the Arabic letters shown in that book were drawn without much care and all references to calligraphy are reduced to a simple formal schematisation. The work is attributed to Erhard Reuwich, who accompanied Breydenback on his travels. Roper thinks that the written source of these Arabic letters could have been made by a local scribe, perhaps an Arab Christian, who wrote out the alphabet on request, and recited the name of letters (Roper, 2009). He also suggests that Reuwich saw the letters through a kind of mediaeval European gothic distorting lens. The Alif (ا), for instance, is rendered rather in the manner of a gothic capital I, and most of the other letters have angularities, serifs and appendages characteristic of contemporary German and other European manuscript hands and early typefaces (Roper, 2009). This book was reprinted and translated in different languages. A Spanish edition was printed in Zaragoza, in 1498 [Fig. 20].

A few years later, a second sample of Arabic letters, also carved in wood, appeared in *Arte para ligeramente saber la lengua arauiga* by Pedro de Alcala, printed in 1505 in Granada by the printer Juan Varela de Salamanca [Fig. 21]. According to Roper (2009), this was clearly superior of that of Reuwich, and done by someone with knowledge of the language. The same use of wooden blocks for Arabic text illustration appeared in Robert Wakefield's *Oratio de laudibus & utilitate trium linguarum Arabicae Chaldaicae & Hebraicae*, in London in 1528. Also in Vienna, in 1548, a calli-

graphic Basmala on wood is printed in Bartul Đurđević's tract *Haec Nova, Fert Affrica, Mysterium sanctissimae Trinitatis Arabice*. This printing resource was quite frequent since Arabic types were not available at that time, or because a larger size of lettering was required, usually for a display title (Roper, 2009). Also cooper engraving was used when Arabic had to be integrated with illustrations or small sizes were needed. Roper show quite successful samples in *A general grammer for the Hbrew, Samaritan, Calde, Syriac, Arabic and Ethiopic tongue* (London, 1649), by Christian Ravis; and *Kitāb al-Tafsīr al-Zabur al-Ilahi al-Sharif* (Wien, 1792), by Joseph Kurzbock. In all these cases mentioned above, we cannot talk about type design since all those Arabic letters were carved on wood for printing. In most cases they appear as lettering illustrations with a quite exotic component.

The first book with type cast in Arabic, the *Kitāb salāt al-sawā'ī*, was printed by Gregorio de Gregori, in Fano (Italy), in the year 1514. It was a book of hours distributed among the Christians of the Eastern Melkite Catholic Church, with the intention of unifying the churches of the East and West. It is believed to be the same Francesco Griffo, the punchcutter who cut the first italics for the printer Aldo Manuzio, the author of the Arabic typeface that appears in this book (Smitshuijzen, 2001, p. 45). Although other authors do not go so far when crediting authorship for this first Arabic type, Roper (2009) points out that its design model could well be a Lebanese or Syrian manuscript, but do not credit any author for the type design.

The first *Qur'ān* made with movable type was printed in Venice by Alessandro Paganini between 1537-1538. The book that was intended for export but it did not have any kind of success among the Muslim population, or as Maurice Borrmans suggested, the serious deficiencies "would have made it quite unacceptable to Muslims, if copies were sent to the Muslim world, which seems unlikely" (Borrmans, cited in Roper, 2009). He speculates that in fact multiple copies were never printed, and that the sole surviving example is in effect an uncorrected proof for an abortive edition (Roper, 2009).

Among the Arabic types engraved from the sixteenth century in Europe we should highlight those cut by Robert Granjon [Fig. 22], which were referential to many later Arabic type designs. Granjon cut four sizes of Arabic types that were used by the Typographia Medicea, the oriental press in Rome which issued Arabic books starting in 1590-91. According to Roper (2009), "these were clearly based on calligraphic models, probably provided by the scholar Gianbattista Raimondi, the director of the press, who had assembled a collection of Arabic manuscripts brought from the Arab world". These types were by far one of the best samples ever cut in Europe. Granjon incorporated a large number of ligatures in order to approach calligraphic standards. This is what Thomas Milo (2011) points out as the origin of 'Eurabic', when he says that European scholar-typographers had no concept of Arabic script grammar, and when imitating calligraphy by introducing more ligatures, they misunderstood script grammar for calligraphy. Thomas Milo (2011) criticises the Dutch role in Arabic type design through history, starting with Franciscus Raphelengius' *Specimen Characterum*

Arabicorum (1595) [Fig. 23] where Raphelengius had copied Robert Granjon's Arabic from the Typographia Medicea.

The types of Granjon inspired the designs of Arabic fonts in the seventeenth and eighteenth centuries. In France, those of Guillaume Le Bé. Also in England, the collections designed by William Caslon for the Oxford and Cambridge University Press. In the Netherlands, those of Thomas Erpenius, Franciscus Raphelengius, who was commissioned by Christopher Plantino, and the Arabic types from Enschedé foundry (although these are far away from Granjon's results).

Nevertheless, the scholar's books printed in Europe with Arabic types were reduced to meet Europe's own market: books produced for teaching Arabic and reproducing Arab manuscripts with either literary or scientific value. The limitations of the knowledge of Arabic, together with copies from other punchcutters' work instead of trying to understand the subtleties of Arabic calligraphy, made all of these books difficult to be accepted within Muslim countries, or even compete with the beautiful Arabic calligraphy manuscripts. On account of this, Hellmut Ritter explains:

> Since the 16th century, Western Orientalists have dismissed the functional structure of the Arabic script, viewing it rather as an irrelevant aberration, calligraphy. They therefore have neglected the study and analysis of this characteristic aspect of the Islamic civilization. Nonetheless, unsuspecting letter foundries and typographers have always sought expertise from precisely such scholars educated with this attitude. As a result, within the family of Semitic scripts, a new sub-variant for the notation of Arabic written languages was inadvertently created, namely Eurabic. In the Islamic world — where this kind of script was initially cast aside as illegible — the use of Eurabic typography was traditionally limited to newspapers and magazines. However, with the rapid rise of superficially Arabized computer technology and the spread of the Internet, the Eurabic phenomenon has begun to take firm root in the Islamic world. (cited in Giménez, 2012c)

In order to defend the position of skilled punchcutters such as Granjon, Fleischmann and others, I would like to cite Walter Tracy when he argues that,

> It cannot be said that the artistic quality of these European-made Arabic types was of a high order. This was not because of lack of skill. Granjon, one of the greatest of sixteenth century punchcutters, was renowned for the beauty of his roman type forms, and he had produced an exquisite *civilité* type, in imitation of a formal handwriting popular in France, before he cut his first Arabic type. The probability is that European scholars declined to lend their valuable Arabic manuscripts to the type-founders, and supplied them merely with their own handwritten version of the Arabic characters. The punchcutters could do no more than follow these imperfect models. (Tracy, 1975)

Tracy (1975) considers that Arabic type design did not become respectable until the nineteenth century, with the use of photography in providing the type founder with good models.

From 1820s onwards, the lithography technique raised the quality standards required and became the premier printing technology. Lithography made possible "the reproduction of 'mass-produced manuscripts' which met the criteria of cultural authority which the typeset text could not" (Ross & Shaw, 2012).

During the nineteenth century, the Arab world experienced a cultural renaissance. The needs of colonialism challenged the designing of non-Latin script fonts. The introduction of the printing press led to the democratisation of knowledge and thus the modernisation of society. The establishment of type foundries in Muslim countries helped to improve Arabic type design. Although the first attempts to design an Arabic type failed to follow 'Eurabic' standards (Giménez, 2012c).

Throughout the twentieth century manual text composition was slowly being replaced by mechanical composition, the Linotype (1896) and Monotype (1897). Arabic typefaces designed for this new technology did not occur until 1911. By 1936 the Linotype machine was widely used in the Arab world, while the Monotype machine was not equipped with Arabic matrices until 1939 (Tracy, 1975). Throughout the twentieth century, Linotype and Monotype companies competed for the market; designing and producing some of the most widely used referential fonts for the Arabic language edition. A simplified version of Arabic script had to be developed in order to fit in with the machinery's limitations. As Tracy states, "Because of the urgent need for rapid production, newspapers have often been the stimulus for innovations in printing technology, and it was a newspaper proprietor who stimulated Linotype into the next advance in Arabic typography. This was what came to be called 'Simplified' Arabic" (Tracy, 1975). In fact, it was a reduced set of Arabic character variants which facilitated the use of Arabic in typesetting machines. It was in 1956, considering the technology limitations when facing a writing system as extensive as Arabic, when Linotype developed a system to simplify the script by reducing the number of characters from 104 to 56. Its type, *Yakout* (1956), was designed following this simplified character system. This typeface which reduced the four possible glyphs for each character to two became very popular in newspapers and Arabic commercial press [Fig. 24]. Thus, the simplification of Arabic had a great influence over reading habits (Stones, 2011, p. 46).

The firsts Arabic fonts for Monotype composing machines were released in 1938, named 'Arabic' and 'Urdu', depending on the character set variation. Monotype *Naskh* was developed in 1945 and became, after its publication in 1947, one of the most popular for publishing [Fig. 25].

In the seventies, with the advent of Letraset dry transfer sheets, new typographic designs appeared, especially for decorative purposes (display). Designers, Mourad

and Arlette Boutros, created the first range of Arabic typefaces in the mid-seventies, which would be developed later to work with the Mac OS system 7.

At the end of this decade and during the eighties, the original hot metal fonts began being digitised for computerised film-setting and photo-typesetting composition. In the nineties, as new technologies became more widespread, digitised fonts were converted into Postscript as the new standard font format for desktop publishing.

3.10 Attempts at reform projects in the Arabic script

As exposed before, the first reform of the Arabic script took place in the tenth century by the calligrapher Abū ʿAlī ibn Muqlah. He believed that the establishment of a script model would help unify and improve the quality of cursive calligraphic styles.

In the twentieth century, newspaper design demanded a simplified form of the script to fit technical limitations. Linotype, as seen above, took the initiative to solve the situation. Simplified Arabic solutions for Linotype machines were also adapted to the phototypesetting systems. Although this solution implies a new grammar of the script, it was a provisional solution regarding technology facilities. Anyway, it raised a problem that would later gave rise to different attempts of reform the Arabic script.

With the independence of all Arab states that were under the rule of the Ottoman Empire and the consequent modernisation of many of them, there was a need to seek solutions to represent some of the sounds not represented in its writing system. The need for a reform was based, in part, on the difficulty of representing foreign words. The Academy of the Arabic Language in Cairo was commissioned to study the issue. In 1936, according to the first reform, it decided to use new diacritics above or below certain letters to represent non-Arabic sounds: three dots on the letter Fāh to represent the sound V, or two dots under the letter Gīm to represent the sound G, in *Geneva*, for example (Jürg Hunziker, 1985).

Two years later, in 1938, the Academy decided to carry out a more far-reaching reforms intended to alphabetise the Arab world by providing easier access to reading and writing. After rejecting several proposals, in 1945 they organised a call for ideas which got two hundred submissions. All proposals were studied, but in 1952 the committee decided to declare the competition void for having nothing satisfactory. In 1955 the committee decided to limit the simplification of the Arabic script to its use on typewriters and printing. They agreed on the use of vocalisation marks in the primary books to facilitate the learning of reading. In 1959 thirty five projects were presented and rejected again (Jürg Hunziker, 1985).

The government of Morocco decided to initiate its own reform taking into account the reforms of Professor Lakhdar Ghazal (1917-2008). The system developed by Professor Lakhdar was named *ASV – Codar* (Arabe Standard Voyelleé – Codage Arabe). Although it had been rejected by the Cairo Academy in 1959, the Moroccan government supported the development of the project and encouraged

the establishment of the Institut d'Etudes et de Recherches pour l'Arabisation at the Mohamed V University in 1960, with the main task of adapting the Arabic language to modern uses, both in the area of linguistics and in its script (Jürg Hunziker, 1985). The aim of the typeface was to make the Arabic type useful and easy in all modern media (Zoghbi, 2007). As Zoghbi states, the reason why *ASV-Codar* was developed was that "unlike the previously proposals, it solved the technical problem of simplifying the script and at the same time respected the spirit of the Arabic script. Consequently, this project was a social and technological achievement" (Zoghbi, 2007). In 1978, Monotype released *Monotype Ghazal* (Regular and Bold), a renamed version of Linotype *ASV-Codar* and designed by Ahmed Lakhdar Ghazal [Fig. 26]. According to Wolfgang Hartmann, the manager of Bauer Types, they used to fund *ASV-Codar* since they owned the rights for the metal version. Hartmann points out that the particularity of *ASV-Codar* was that it had an inferior number of letters compared with the normal Arabic set. So, less matrices and types were needed.[5] *ASV-Codar* was produced into digital in 1999 at the Linotype Font foundry in two weights, light and bold, and included Palatino as its Latin companion. Both Linotype and Monotype distribute digital versions of the same typeface under different names. It seems that this typeface has a strong presence in Lakhdar's country, since *ASV-Codar* (or *Monotype Ghazal*) has been used in traffic signals all over Morocco.

It is interesting to notice how close the idea and design of Lakhdar's *ASV-Codar* is from an early Spanish type design experiment published in the *Cultura Española* magazine in an article named 'New Arabic typography' (*Nueva tipografía Árabe*)[6] written by the arabist Julián Ribera and the engineer Antonio Prieto y Vives, in 1909. They registered a patent for a 'new Arabic type system' consisting of a set of twenty-four punches and a simplified case, which saved half the time when composing, correcting and distributing type, moreover the system allowed double the number of lines of text to be set in a page than traditional typefaces (Giménez Reíllo, 2012b). These typefaces were used in Roque Chabás' second edition of the 1566 *Doctrina cristiana en lengua arábiga y castellana para la intrucción de los moriscos del Ilustrísimo Sr. D. Martín de Ayala* (Valencia, 1911). The typefaces were founded at the Richard Gans foundry (Giménez Reíllo, 2012b) and were mainly used in the *Cultura Española* magazine. In September 1945 a fire destroyed the printing office where the magazine used to be printed together with the types. Ten years later, Lakhdar Ghazal registered a patent, both in Morocco and Spain, under the name 'Improvements of Arabic printing types' [Fig. 41]. According to Giménez Reíllo's article there are lots of coincidences with the proposal of Arabic reform presented by Ribera and

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5 Interview with Wolfgang Hartmann, the manager of Bauer Types and Neufville foundry (March, 2013) and personal communication from December 2012 to January 2013.

6 RIBERA, Julián & PRIETO, Antonio (1909), 'Nueva tipografía Árabe', in *Cultura Española*, 15, pp. 759–764 (cited in Giménez Reíllo, 2012b).

Prieto in 1909.[7] Although this is far from the focus of this practice-based research, the possible copy or influences of Ribera and Prieto's improvements on Lakhdar 'invention' could well be an interesting topic for a future investigation.

In spite of the tragic final of Ribera and Prieto's Arabic font, they deserve the right to be considered among the first pioneers at looking for a simplified solution for Arabic text composition with movable typefaces.

All those efforts made in order to reform Arabic script have not led to a definitive conclusion. In fact, progress on the technological issues has changed the situation. With the new digital formats, data storage is no longer a problem when it comes to maintaining the Arabic script in its traditional form. Since font formats can also include all diacritics and vocalisation marks together with a huge quantity of glyphs, simplified Arabic is not necessary any more. It has been proven as a technological issue that now has been overcome.

3.11 Digital Arabic collections

With the introduction of the printing press by the mid-fourteenth century in Europe, Western culture had begun to establish a distinction between calligraphy and typography. It seems that the Arabic script is now at the same crossroad. This separation begins to be considered, especially with the design of decorative alphabets (display) where there is more room for interpretation and self-expression. The demand for new display typefaces goes together with the development of the graphic design profession in Muslim countries.

The role of typography in graphic design is fundamental to the development of commercial brands and products, and to everything that has to do with the transmission of messages in a world dominated by the media. Technology currently available can be more faithful to the natural forms of Arabic script, regardless of religious issues. This might be the reason why Arabic script reform issues have stopped in the anticipation of an imminent revival of Arabic typography in all senses.

With the arrival of digital technology, many of the existing type collections for phototypesetting have been digitised. The Linotype company made an effort to design a collection of typefaces that could encompass the full range of graphics solutions that designers could make with the advent of computers and the growing demand for design. This collection includes typefaces such as *Ahmed* (ca.1980), *Al-Harf Al Jadid* (1980), *Amer* (ca. 1990), *ASV Codar* (1977), *Badr* (ca. 1970), *Firas* (2005), *Hakim Ghazali* (2005), *Hassan* (1993), *Hisham* (1993), *Insan* (2005), *Isra* (2005), *Jalal* (1977), *Karim* (1994), *Kufi* (1987), *Lotus* (1920's/1978), *Maged* (1956/1986), *Mariam* (1992), *Midan* (2005), *Mitra* (1975), *Mofid Mahdi* (1976), *Nazanin* (1978), *Qadi* (1985), *Sultan free* (2005), *Sultan Nahia* (2005) and *Yakout* (1964/2002).

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7   *Ibidem.*

More recently, with the need of multilingual texts, Linotype has developed an Arabic type design program based on successful examples of Latin fonts such as *Helvetica Arabic*, *Palatino Arabic* or *Frutiger Arabic*. Nadine Chahine has done excellent work at heading the development of the Arabic collection of Linotype since 2005. She has designed new Arabic fonts such as *Badiya* (2007), *Berytus* (2007), Janna (2004-2007) and designed the Arabic companions to famous typefaces such as *Palatino Arabic* (2007) and *Palatino sans Arabic* (2010) [Figs. 27-28], *Frutiger Arabic* (2007) [Fig. 29], *Univers next Arabic* (2011), *Neue Helvetica Arabic* (2008) and *Din next Arabic* (2011). She has also designed *Koufiya* (2008), as one of the few multi-script fonts currently in the Linotype catalogue. In fact, *Koufiya* was designed in 2003 as part of her MA project at the University of Reading (UK) and later released within the Linotype font library.[8]

In 2005 Linotype organised an Arabic type design competition as a way of getting some fresh new fonts. *Sultan free*, *Midan*, *Isra*, *Sultan Nahia*, *Hakim Ghazali* and *Firas* were the winning designs that form part of the current Linotype collection [Figs. 30-35].

Most of the earlier Linotype Arabic fonts still combine its Arabic characters with other different Latin fonts, for example, *LT Nazanin* includes Latin font *Palatino*; *LT Badr* includes Latin font *Cochin*; *LT Yakout* includes Latin font *Times Europa*; *LT Jalal* includes Latin font *Optima*, and so on. As has been exposed above, only in a very few cases have the Latin and the Arabic font been designed hand-in-hand as a real multi-script font. In many cases some basic Latin characters have been included within the Arabic font set without taking much care over the harmonisation of both scripts. Moreover, having a quick look at some of these collections, we can see that not all of them do meet the needs of multilingualism and they only include a very basic character set in both scripts, Latin and Arabic. Nevertheless, some typefaces have been re-evaluated and improved. As Ross (2012) exposes, *Yakout*, as a simplified Arabic font and a real 'landmark' for Linotype, "was expanded to 256 glyphs for early digital type in the 1980's and ultimately to over 700 glyphs for OpenType in 2002, with some design revisions".

On the other hand, the Monotype Arabic type collection was converted to Postscript during the mid-1990s. The collection includes: *Akhbar* (ca. 1978), *Ghazal* (1978), *Jawhar* (1938), *Koufi* (1972), *Madrassa* (1997), *Mudir* (ca. 1975), *Noori Nastaliq* (1981), *Naskh* (1947), *Sabara* (1997), *Shayyal* (1997) and *Thuluth* (ca. 1975). It also includes *Monotype Andale Arabic* (1999), *Arial Arabic* (1990/2009), *Times New Roman Arabic* (1990/2009) and *Courier New Arabic* (1990/2009). Monotype did not include any Latin set, only the Monotype Imaging *Tanseek Pro* and *Tanseek Modern Pro*, designed by Mourad Boutros, Dave Farey and Richard Dawson (2008) [Fig. 36], were included as multi-script families. On Mourad Boutros' webpage, *Tanseek* is announced as "the first and only harmonious range of Arabic-Latin (serif and sans

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8   For more information on Chahine's *Koufiya*: http://www.arabictype.com/blog/arabic-fonts/new-koufiya/ [Last accessed January 2013].

serif) typefaces".[9] Since Monotype took over Linotype in 2006, Linotype collections are also distributed as part of the Monotype OEM font catalogue.[10]

Some of these fonts are too stuck on old technologies and, although they have been digitised they do not fit well into contemporary text usage. Most of these typefaces were designed according to specific technical limitations. Only those that appear to be more popular, such as *Times New Roman Arabic* or *Arial Arabic* have been adapted to OpenType for supporting Arabic on new operating systems, but they lack excellence since they are intended to 'fill the gap' more than provide a more quality aesthetic usage.[11] Linotype (now part of the Monotype Empire) seems to be more committed to providing a better quality collection of contemporary typefaces. Its 'landmark' *Yakout* typeface was revised, and current policy on new Arabic designs is really improving their catalogue.

It is clear that the type market is growing towards supporting other writing systems and this seems to be the trend for the beginning of this century.

Adobe Systems, a company founded at the core of the new technology and a pioneer in the development of systems and software, created an extensive type collection (Adobe Font Folio) in the eighties and nineties. Using its own developed Postscript technology, they included fonts that were based on digitised classics from metal type and belonging to companies that had neither the technology, nor the expertise to continue doing business in the new digital world. Apart from these traditionally well-known 'classic' movable type families, Adobe created its own design collection – 'Adobe originals' – by commissioning original type designs or the revivalism of old classics (*Adobe Garamond*, *Adobe Caslon*, for instance). Adobe, as a multilingual system developer (provided support to different language solutions within their desktop publishing software), they were also involved in the design of non-Latin typefaces. In the case of Arabic, Tim Holloway, together with Fiona Ross and John Hudson (TiroTypeworks) developed *Adobe Arabic* in 2007 [Fig. 37], a successful and extensive Arabic typeface based on Naskhī style which includes a basic set of Latin characters from Robert Slimbach's *Minion Pro* typeface. The *Adobe Arabic* family has an italic version for both regular and bold, which is something very unusual.

Adobe Arabic has been a reference for my Arabic type design project. This typeface together with other Arabic ones will be analysed and compared with my Arabic type later in Chapter Six.

The introduction of the Macintosh personal computer in 1984 assumed the spread of the digital revolution to all areas of visual communication. Software development helped to expand the emerging desktop publishing market.

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9   http://www.boutrosfonts.com/spip.php?article22 [Last accessed march 2013].

10   http://catalog.monotypeimaging.com/language/arabic [Last accessed march 2013].

11   Titus Nemeth has analysed *Times New Roman* and reports poor harmonisation between Latin and Arabic (Nemeth, 2006a).

In 1988, Apple featured Mac OS 4.1. the first Arabic system for the Macintosh, and in 1991 it introduced System 7 and The Arabic Language Kit as part of a suite of Apple language solutions, which offer an affordable way to 'internationalize' the Macintosh system, by adding Arabic and Persian text to documents. "The kit included a selection of Apple TrueType fonts to ensure high-quality on-screen and printed characters at any size. These fonts incorporated exciting new typographic features based on Apple's QuickDraw GX technology. Most of the kit's fonts were provided in PostScript versions".[12] The Arabic fonts included with the kit were:

• Arabic Fonts: *AlBayan* (TrueType and Postscript), *Baghdad* (TrueType and Postscript), *Cairo* (bitmap), *Geeza* (TrueType and Postscript), *Kufi* (TrueType and Postscript), *Nadeem* (TrueType and Postscript), *Thuluth* (Postscript).

• Persian fonts: *Amir* (TrueType and Postscript), *Ashfahan* (TrueType and Postscript). *Kamran* (TrueType and Postscript), *Mashad* (TrueType and Postscript), *NadeemFarsi* (TrueType and Postscript), *Tehran* (bitmap).

Some of them are still included in current Mac OS: *Baghdad* (Diwan software, 1992) [Fig. 38], *AlBayan* (Al Bayan company, 1992), Decotype *Naskh* (Thomas Milo, 1992), *Geezah* (Diwan software, 1992) and *Geezah Pro* (Diwan software, 2003) [Fig. 39], *Nadeem* (Diwan software, 1992) all based on Naskhi style; *Apple Kufic* standard (Diwan software, 1992) based on Kufic style, and Apple Boutros *Thuluth* (Mourad Boutros, 1992) based on Thuluth style.

Most Apple typefaces were designed exclusively for the Apple OS and were developed by Diwan software[13] in the early 1990's. *Geezah Pro* is the current system font for Mac OS X. *Geeza Pro* is the system font (If you try to write Arabic characters in a non-Arabic font such as *Times* or *Lucida*, they will generally be displayed in *Geeza Pro*).

This Arabic collection is criticised by Edo Smitshuijzen in his huge Arabic type specimen, arguing that "the Arabic font collection of Apple has little to do with its sophisticated design image" (Smitshuijzen, 2009, p. 508), encouraging for more enhanced type designs. I believe that Apple has been more interested in filling the technological gap than providing a 'sophisticated' design for text reading purposes.

Microsoft commissioned type designs for its own Windows operating system: *Tahoma* (1996/2009),[14] designed by Matthew Carter it is one of the most popular sans serif typefaces, which includes a set of characters for different writing systems such as Latin, Greek, Cyrillic and Arabic. Other typefaces include: *Aldhabi*, designed by Tim Holloway, Fiona Ross & John Hudson (ornaments, Titus Nemeth; consultant, Mamoun Sakkal), *Andalus* (Glyph Systems, 1993), *Arabic transparent* (1990), *Simplified Arabic* (1994), *Simplified Arabic fixed* (1994), *Arabic typesetting* (Mamoun Sakkal, 2002),

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12   http://support.apple.com/kb/TA25704?viewlocale=en_US [Last accessed January 2013].

13   http://www.diwan.com/Default.htm [Last accessed February 2013].

14   Slash separates years as creation date / modification date in all cases.

Traditional Arabic (1990), *Microsoft Sans Serif* (1997), *Microsoft Uighur* (Mamoun Sakkal, 2011) and *Nina Arabic* (Matthew Carter, 1999/2008) [Fig. 40].

By the end of the eighties several companies focussed on the developing applications for personal computers. Most of them ignored the non-Western market while others looked at non-Latin languages as an opportunity for doing business. Glyph Systems, a company founded in 1988 is the one behind some of the typefaces developed for the Microsoft Corporation in the early nineties. In 1990, Glyph adapted Ventura publisher to support Arabic, being the first company that provided Arabic desktop publishing for the PC market. It included several fonts from Compugraphic.

WinSoft, a French company, provided a word-processing support program for Arabic. In 1987, WinSoft developed WinText, a platform that allowed right-to-left text composition and became the standard for Arabic Macintosh users. All Apple computers distributed in Arabic-speaking markets were loaded with WinText as standard software, using the same four Arabic fonts that Apple had already licensed: *Nadeem, Baghdad, Kufi* and *Geeza* (Boutros, 2009). According to Boutros (2009), "WinText can be considered the base foundation for Arabic typography usage on computers, and for more than a decade, it was the best option available for people who wanted to use computers and Arabic" (p. 54). WinSoft developed Aldus PageMaker ME (Middle Eastern) and have adapted other Adobe programs for the Arabic market, such as Adobe InDesign ME. On the other hand, Diwan, a London-based company founded in 1982, introduced 'Al-Nashir Al-Maktabi', an Arabic version of Esselte Letraset's 'Ready-Set-Go' program, a desktop publishing product for the Apple Macintosh. 'Design Studio', the latest program from Esselte Letraset was adapted to Arabic with the name 'Al-Nashir Al-Sahafi'. These programs are representative of the growing sophistication of desktop design and reproduction (Daines, 1992). Diwan had worked with the Apple developers who created the original Arabic system for the Mac, and also developed the first fonts that were included with that system (Boutros, 2009). Both Diwan and WinSoft have competed for years over the Arabic desktop-publishing market.

DecoType is a Dutch company which defines itselfs as "linguistic experts & designers of computer-aided typography". Thomas Milo, founder of DecoType, is a pioneer of digital Arabic type design and responsible for 'Tasmeem', a set of Arabic enhancements for Adobe InDesign ME, developed together with WinSoft International. Tasmeem operates inside WinSoft's Middle Eastern version of Adobe InDesign in order to create typographically advanced text in Arabic. The idea behind Tasmeem, as is exposed in its brochure, dates back to the early 1990's when it was difficult to express, with the technologies of the day, the refinement of Arabic script by means of a computer.[15]

Development of software and support for the use writing systems other than Latin has evolved slowly. But it seems that things are changing and the multicultural

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15 DecoType & WinSoft. 'Tasmeem 4 Typefaces 2009', brochure PDF. Available at: http://www.decotype.com/pdfs/tasmeem48p%20brochure.pdf [Accessed February, 2013]

reality begins to be seen as a major business opportunity, especially now that the Western countries are experiencing difficulties in their national economies.

In cultural terms, the Khatt Foundation is undertaking an interesting initiative, using new technologies as a way of establishing social networks with common interests regarding Arabic typography and calligraphy. The Khatt Foundation Center for Arabic Typography is an on-line foundation created in 2004 and dedicated to typography and design research. Its aim was to create a network where designers and visual artists in the Arab world and elsewhere could share information, common projects, news and topics related to visual communication.[16] The network has more than a thousand users in different countries.

In 2006, the Khatt Foundation organised 'Kitabat', the first conference on Arabic Typography in Dubai (with the collaboration of Linotype and the American University of Dubai), and between 2005 and 2007, with the financial support of the Dutch government, it undertook the *Typographic matchmaking* project to create fonts with an Arabic 'Dutch flavour'. With this project, the Khatt Foundation aimed to build bridges of dialogue between the Arab and European cultures through type design. In order to generate a collection of high quality Arabic fonts for text composition and to respond to the demand for multi-script typefaces by the Arab community, they organised five teams of designers working together on Arabic type design projects. Thus, Arabic designers worked in collaboration with renowned Dutch typeface designers to create Arabic fonts that would match a Latin counterpart.

This project was the first one of its genre, and according to Smitshuijzen (2007),

The main thrust of the project is to address the modernization of Arabic text faces and to develop quality Arabic fonts that will on one hand set the benchmark for future developments in this field, and on the other create good matchmaking fonts for existing Latin font families. (p. 19)

The project was supported by the Fonds BKVB (Fonds voor Beeldende Kunsten Vormgeving en Bouwkunst) and a book (bilingual Arabic & English) was published to record the matchmaking experience processes by Bis publishers and the Khatt Foundation, in 2007.

Without detracting from the quality of the results, I miss a typeface that could connect with a more traditional Arabic calligraphy and that could also provide the elegance of classic cursive styles. Anyhow, the *Typographic matchmaking* project has established a starting point for a different path for Arabic type design to take.

Digital technology has prompted some sort of 'Arabic spring' in type design. The influence of Western culture closely related to the technology and its possibilities have resulted in different approaches to Arabic type design.

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16   For further information, consult www.khatt.net [Last accessed March 2013].

As has been explained in this chapter, the close relationship between script and religion made Islamic countries reluctant to introduce the printing press. Calligraphy flourished as one of the main fine arts and it was very influential on how type forms evolved after the printing press had been introduced in the Middle East. Arabic typography has been strongly linked with tradition for a long time, but new trends are appearing as a result of other ways to look at Arabic type.

As mentioned, the need for multilingual typefaces and the current technology facilities formed the basis of the increasing number of multi-script font designs. As explained, in recent years major type foundries have incorporated multi-script fonts in their catalogues. The design of these kind of fonts demands skilled type designers with an awareness of more than one script. Students on the MA in Type Design course from the Typography Department of the University of Reading are encouraged to work on Latin and non-Latin scripts. As final projects, pretty good results are coming out which contribute to establishing a path into the field of multi-script typography. Some of these projects have been awarded by the type design community (such as the recent Latin-Arabic multi-script *Baldufa* from Ferran Milán, 2011-2012), and have found their place in the market. This is another step to another direction when considering non-Latin typeface design in Europe. Since commissioned work on multi-script typefaces is only affordable for big companies and usually only big type design studios do the job, the work at Reading University is worthy for spreading non-Latin knowledge to a greater extent.
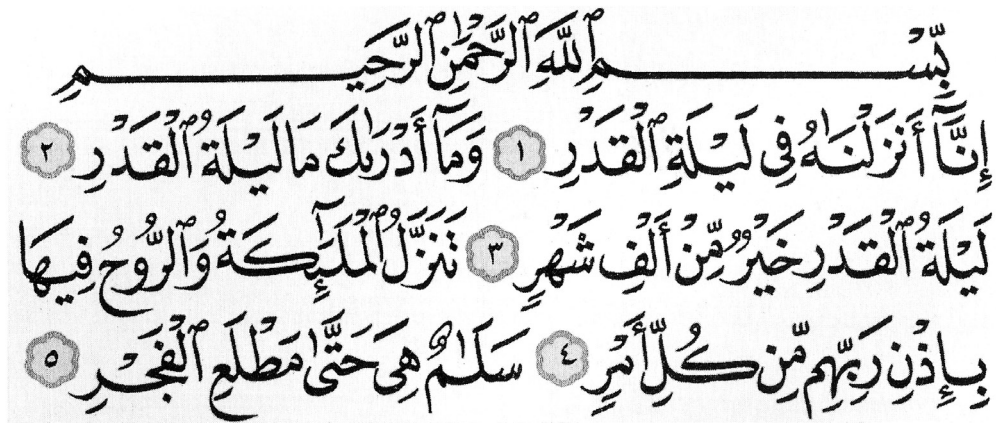
FIG. 5. The use of 'Kashida' as an extension of the image of the word. Surah XCVII written in Naskhī (image published in Ja'far, 2002, p. 31).

FIG. 6. The use of 'Kashida' as a way to justify text. *Bibliotheca Arabico-hispana escurialensis*, p. 191.

FIG. 7. The use of 'Kashida' in *Pradell Al-Andalus* as a way to expand connections between characters.

FIG. 8. Ornamental layer with decorative marks. An Arabic sentence showing the different layers of sound representation and additional decorative signs (Smitshui-jzen, 2001, p. 84). From top to bottom: the basic letter shapes, the diacritic dots that distinguish those letters that share the same basic letter shapes, vocalisation marks and decorative signs.
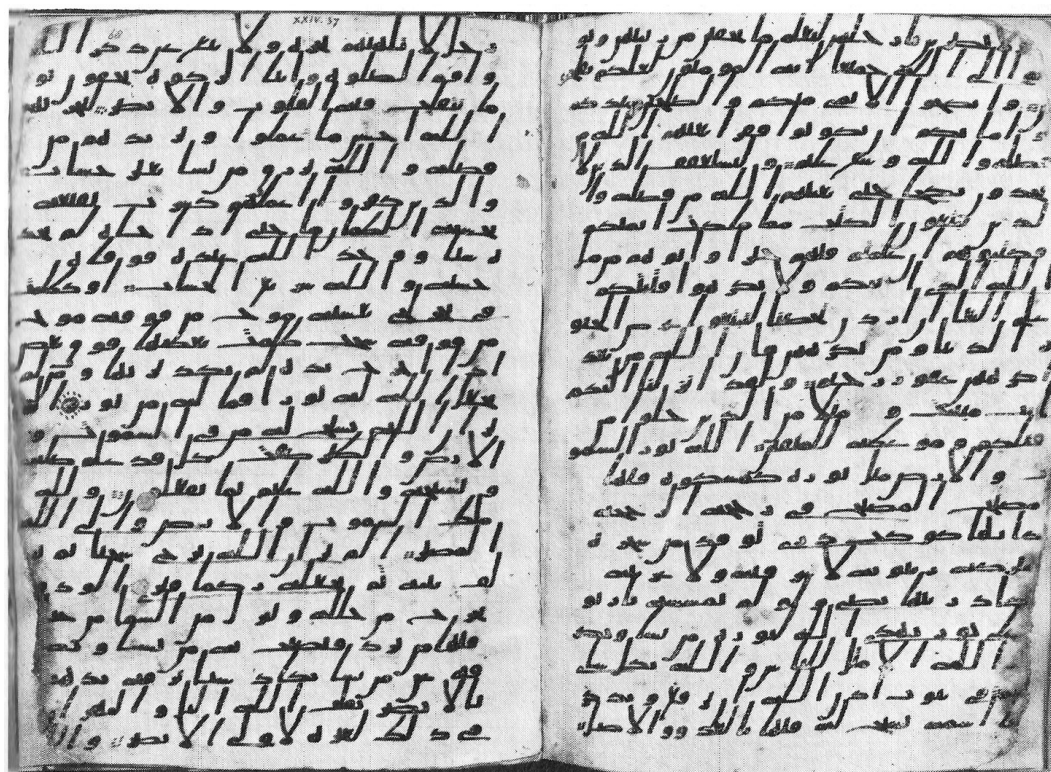
FIG. 9. The first early forms of Arabic, known as *Jazm*, in its slantic 'Mā'il' script used in one of the oldest extant *Qur'āns*, copied at Medina in the 8th century (Safadi, 1978, p. 8).

FIG. 10. Basmalah in an Ornamental Kufic, in Alhambra, Spain (Mandel, 2000, p. 114)

FIG. 11. Sample of Eastern Kufic (Safadi, 1978, p. 50).

بَّ بُ بِ بْ بَ

بَّ بِ بُ أَ آ آُ

FIG. 12. 'Tashkīl' (top to bottom, right to left): Faṭḥah [a], Kasrah [i], Ḍammah [u], Sukūn [vowelless], Shaddah [double consonant], Double Faṭḥah [an], double Kasrah [in], double Ḍammah [un], Maddah [vowel prolongation], cutting Hamzah and joining Hamzah. Samples composed in *Pradell Al-Andalus*.
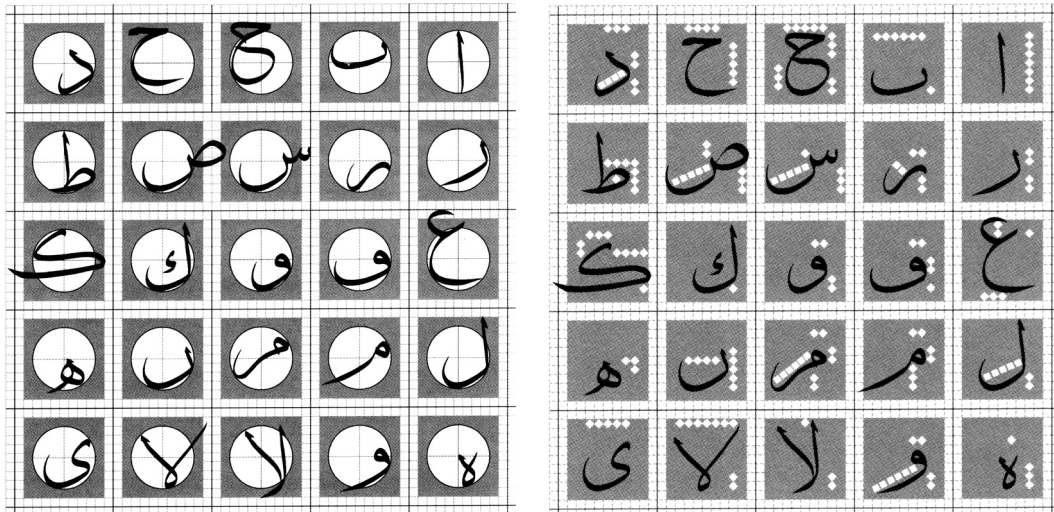
FIG. 13. Ibn Muqlah's models of calligraphic construction: *Nizam Al-Dairah*, *Nizam Al-Nuqat* and *Nizam Al-Tashabuh* (Smitshuijzen, 2001, pp. 96–98).

بسم الله الرحمن الرحيم

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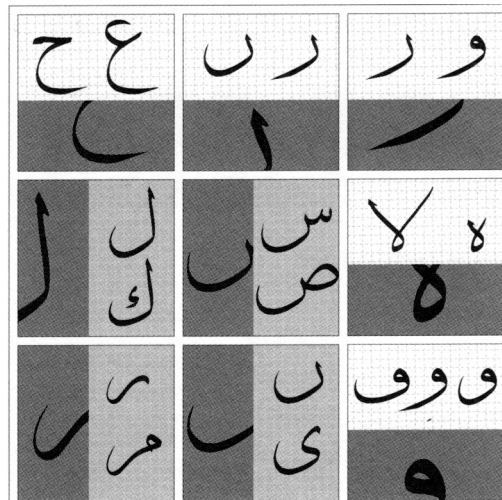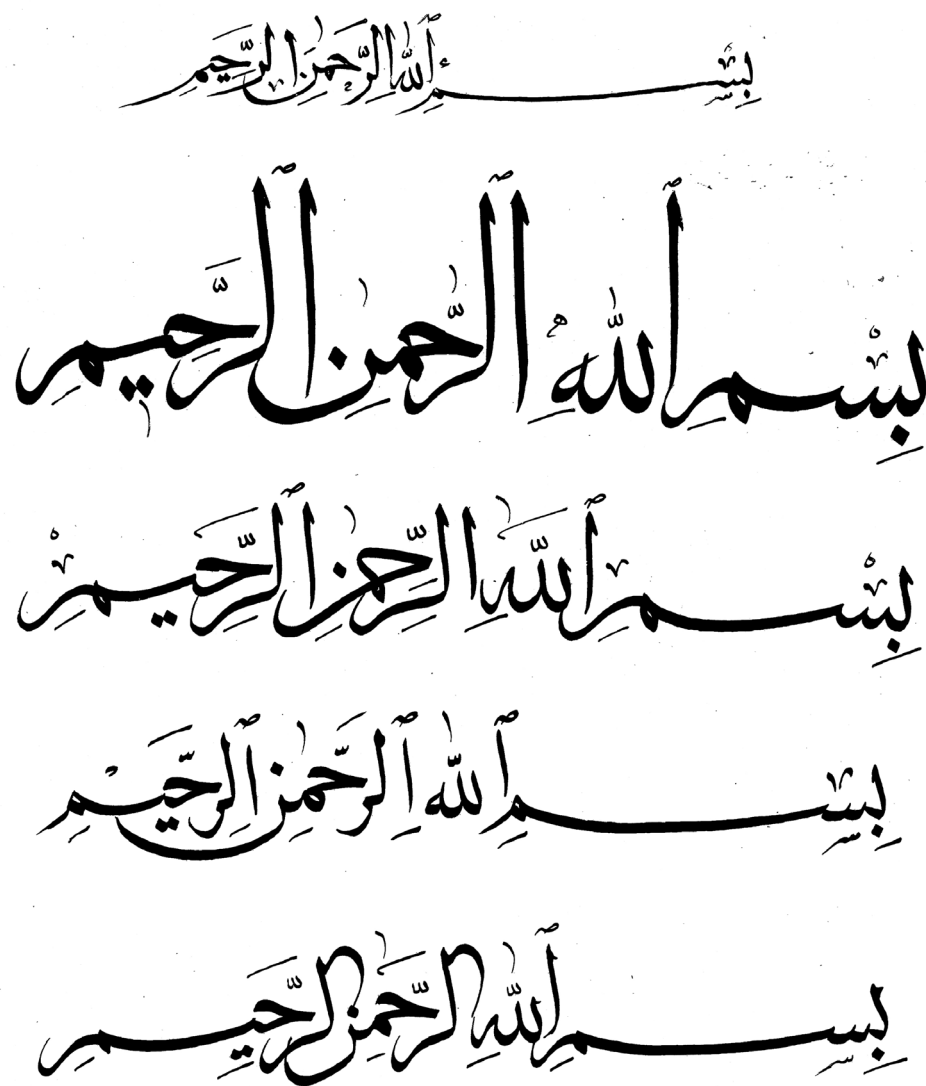
FIG. 14. Basmalah 'In the name of God, the Compassionate, the Merciful', written in (from top to bottom) Rayhānī, Muḥaqqaq, Thuluth, Naskhī, and Ruqā' calligraphic styles (Alani, 2008, p. 32).

نبيّ الرحمة وشفيع الأمة

FIG. 15. Sample of Tawqī' verging on Thuluth (Safadi, 1979, p. 76).
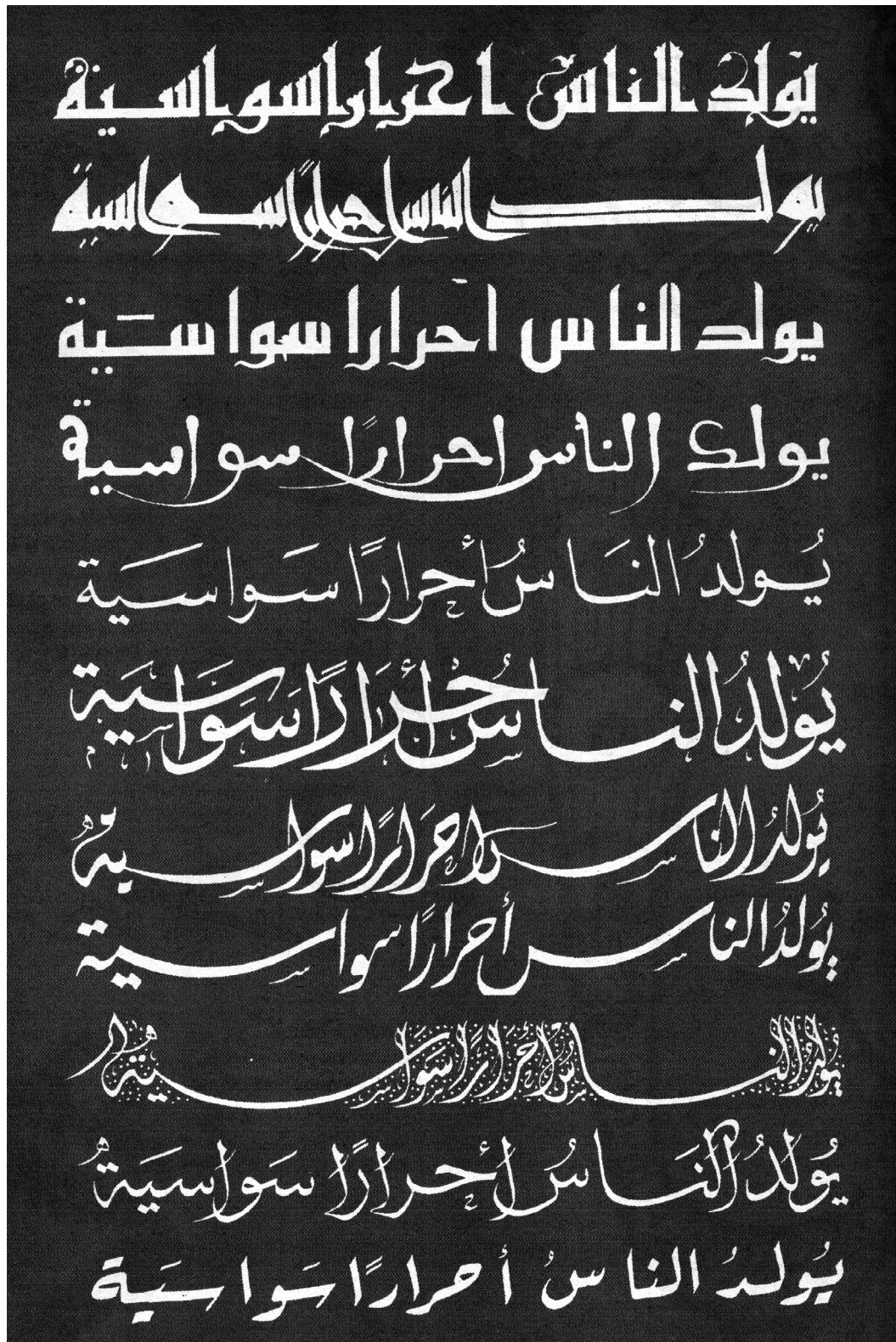
FIG. 16. First statement from the Universal Declaration of Human Rights ('All human beings are born free and equal') written by calligrapher Hassan Massoudi in eleven calligraphic styles, from top to bottom: classical Kufic, Qarmatian Eastern Kufic, modern Kufic, Maghribī, Thuluth, Naskhī, Dīvānī, Farsi, Dīvānī Jalī, Ijāza and Ruqā' (Mandel, 2000, p. 108).

FIG. 17. Sample of Nasta'līq calligraphic style, written by Muḥammad Darwīsh al-Samarqandī in Kashmir in 1624 (Safadi, 1979, p. 99).

FIG. 18. Sample of Maghribī calligraphic style (Alani, 2001, p. 31).
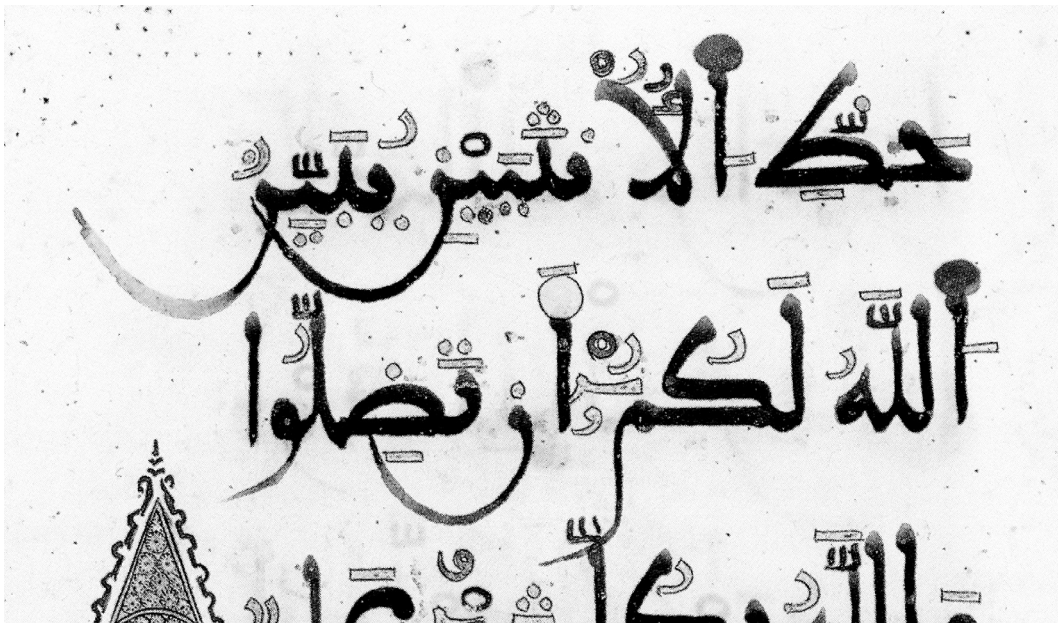
FIG. 19. Al-Andalus *Qur'ān* from the 13th century. Sample of Andalusian style (Puerta, 2007, p. 163).

¶La forma siquier manera delos vestidos/y habitos:que vsan y costum-
bran leuar y vestir los sarracenos/o moros/assi hōbres como mujeres/ en
jerusalē y tierra sancta:es como se demuestra por la figura siguiente.

¶Los sarracenos siquier moros vsan la lengua arabica cō su letra: la ql
contiene .xxxj. letras: segun enel siguiente alphabeto estan figuradas.

Dal	Dal	Fch	Hcidz	Gzȳm	Tech	Te	Be	Aleph
Ayn	Dach	Ta	dadzuq	Sad	Schȳm	Gzȳn	Zaym	Fe
helze	Nūn	Mȳm	lam	lam	caph	fchb	ffea	Gayn
vodfula m.pou	ye	lamalyph	waū					
ehuk								

FIG. 20. First Arabic alphabet. *Peregrinatio in Terram Sanctam* (Spanish edition) by
Bernhard von Breydenbach, printed in Zaragoza (Spain) in 1498.

96

FIG. 21. Sample of *Arabic alphabet in Arte para ligeramente saber la lengua arauiga* by Pedro de Alcala, printed in 1505 in Granada by the printer Juan Varela de Salamanca.

GREGORII XIII. PONT. OPT. MAX.
IVSSV.

nunc primum Romæ incisi.

بسم الله الرحمن الرحيم

الر كتاب أحكمت آياته ثم فصلت من لدن حكيم خبير الا تعبدوا الا الله

اني لكم منه نذير وبشير وان استغفروا ربكم ثم توبوا اليه يمتعكم

متاعا حسنا الى اجل مسمى ويؤت كل ذي فضل فضله وان تولوا فاني اخاف

عليكم عذاب يوم كبير الى الله مرجعكم وهو على كل شى قدير

الا انهم يثنون صدورهم ليستخفوا منه الا حين يستغشون ثيابهم يعلم

ما يسرون وما يعلنون انه عليم بذات الصدور وما من دابة في الارض الا على

الله رزقها ويعلم مستقرها ومستودعها كل في كتاب مبين وهو الذي

خلق السموات والارض في ستة ايام وكان عرشه على الما ليبلوكم

ايكم احسن عملا ولئن قلت انكم مبعوثون من بعد الموت ليقولن الذين

كفروا ان هذا الا سحر مبين ولئن اخرنا عنهم العذاب الى امة معدودة

ليقولن ما يحبسه الا يوم يأتيهم ليس مصروفا عنهم وحاق بهم ما كانوا

به يستهزئون ولئن اذقنا الانسان منا رحمة ثم نزعناها منه انه ليئوس كفور

ولئن اذقناه نعما بعد ضرا مسته ليقولن ذهب السيئات عنى انه لفرح

فخور الا الذين صبروا وعملوا الصالحات اولئك لهم مغفرة واجر كبير

فلعلك تارك بعض ما يوحى اليك وضائق به صدرك ان يقولوا

Rob. GranIon Parisien. Typographus

Incidebat Romæ. 1580.

FIG. 22. Arabic types cut by Robert Granjon, 1580.

Alphabetum Arabicum.

ɛ	ﻄ ﻂ Ta		a	اا ﻼ اا Aliph	
thd	ﻅ ﻆ Thda		b	ﺑﺪﺑ ﺑ ﺏ Be	
y	ﻊﺨﻊ Ain		t	ﺖﺒﻤﺖ Te	
gh	ﻐﻎﻊ Ghain		th	ﺛﺚﺸ ﺙ The	
ph	ﻑﻒ Phe		g	ﺟ ﺤ ﺟ Gim	
qc	ﻕﻖ Caph		hh	ﺣ ﺤ ﺡ Hha	
k	ﻚﻜﮎ Kaph		ch	ﺧ ﺨ ﺥ Cha	
l	ﻠ ﻟ ﻞ Lam		d	ﺪ ﺩ Dal	
m	ﻢ ﻣ Mim		dh	ﺬ ﺫ Dhal	
n	ﻦ ﻧ Nun		r	ﺭ Re	
h	ﻪ Hе		z	ﺯ Zain	
v	ﻮﻭ Vau		f	ﺲﺳ Sin	
j	ﻲﻳ Ie		fc	ﺶﺷ Scin	
la	ﻼ Lam Aliph		f	ﺺﺻ Sad	
			dh	ﺾﺿ Dhad	

FIG. 23. Franciscus Raphelengius' *Specimen Characterum Arabicorum* (1595).

كل ابداع، بطبيعته، فعل تجاوز. وكل كتابة مغامرة غير مضمونة النتائج. فهل تتسع الثقافة العربية اليوم للتجاوز والمغامرة؟ ... الشباب نفهمه رفضاً للقوالب الجاهزة في شتّى مجالات التعبير والتفكير، وسعياً إلى توسيع هامش الحريّة. نفهمه خروجاً على الإرث التقليدي، وإنتماء إليه في الوقت نفسه، من خلال علاقات نقدية واعية وأصيلة. فطموحنا الحوار مع الوضع القائم، لا إقامة قطيعة صارمة معه. وإعلان إنتماء إلى القرن الحادي والعشرين، إنطلاقاً من هويّة ثقافية واضحة المعالم، قابلة للتطوير بصفتها مشروعاً حيّاً دائم التنامي والتطوّر. هناك أيضاً وأساساً اللغة، فهي من صلب هذه المغامرة. كيف يمكن أن نتنفّسها ونحياها، كي

FIG. 24. Linotype *Yakout* (1956) (Smitshuijzen, 2009, pp. 388–389).

كل ابداع، بطبيعته، فعل تجاوز. وكل كتابة مغامرة غير مضمونة النتائج. فهل تتسع الثقافة العربية اليوم للتجاوز والمغامرة؟ ... الشباب نفهمه رفضاً للقوالب الجاهزة في شتّى مجالات التعبير والتفكير، وسعياً إلى توسيع هامش الحريّة. نفهمه خروجاً على الإرث التقليدي، وإنتماء إليه في الوقت نفسه، من خلال علاقات نقدية واعية وأصيلة. فطموحنا الحوار مع الوضع القائم، لا إقامة قطيعة صارمة معه. وإعلان إنتماء إلى القرن الحادي والعشرين، إنطلاقاً من هويّة ثقافية واضحة المعالم، قابلة للتطوير بصفتها مشروعاً حيّاً دائم التنامي والتطوّر. هناك أيضاً وأساساً اللغة، فهي من صلب هذه المغامرة. كيف يمكن أن

FIG. 25. Monotype *Naskh*, developed in 1945 (Smitshuijzen, 2009, pp. 446–447).

كل ابداع، بطبيعته، فعل تجاوز. وكل كتابة مغامرة غير مضمونة النتائج. فهل تتسع الثقافة العربية اليوم للتجاوز والمغامرة؟ ... الشباب نفهمه رفضاً للقوالب الجاهزة في شتّى مجالات التعبير والتفكير، وسعياً إلى توسيع هامش الحريّة. نفهمه خروجاً على الإرث التقليدي، وإنتماء إليه في الوقت نفسه، من خلال علاقات نقدية واعية وأصيلة. فطموحنا الحوار مع الوضع القائم، لا إقامة قطيعة صارمة معه. وإعلان إنتماء إلى القرن الحادي والعشرين، إنطلاقاً من هويّة ثقافية واضحة المعالم، قابلة للتطوير بصفتها مشروعاً حيّاً دائم التنامي والتطوّر. هناك أيضاً وأساساً اللغة، فهي من صلب هذه المغامرة. كيف يمكن

FIG. 26. Linotype *ASV-Codar* by Ahmed Lakhdar Ghazal, 1956
(Smitshuijzen, 2009, pp. 336–337).

Every creation is by nature an act of transgression. Every written text is an adventure with no guaranteed results. So does the Arabic culture have room today for transgressions and adventures? [...] We understand youth culture as a rejection for ready-made molds in all aspects of expression and thought, as a way of seeking the expansion of the boundaries of freedom. We understand youth culture as a deviation from the tra-

كل ابـداع، بطبيعته، فعل تجــاوز. وكل كتابة مغامرة غير مضمونة النتائج. فهل تتسع الثقافة العربية اليوم للتجاوز والمغامرة؟ ... الشباب نفهمه رفضاً للقوالب الجاهزة في شتّى مجالات التعبير والتفكير، وسـعياً إلى توسـيع هامش الحريّة. نفهمه خروجاً عـلى الإرث التقليدي، وإنتمـاء إليـه في الوقت نفسـه، مـن خلال علاقات نقدية واعية وأصيلة. فطموحنا الحوار مع الوضع القائم، لا إقامة قطيعة صارمة معه. وإعلان إنتمـاء إلى القرن الحـادي والعشرين، إنطلاقاً من هويّة ثقافية واضحة المعالم، قابلة للتطوير بصفتهـا مشروعاً حيّاً دائـم التنامي والتطوّر. هناك أيضاً وأساسًا اللغة، فهي من

FIG. 27. Linotype *Palatino Arabic* by Herman Zapf and Nadine Chahine, 2008 (Smitshuijzen, 2009, pp. 384–385).

خط الملاحظات الفردية لجريدة النهار

خط النسخ

Palatino® Sans Arabic الحداثة والتجديد

ء آ آ أ أ ؤ و إ إ ئ ئ ئ ا ا ب ب ب ة ة ت تت ث ثث ث ج جج ح حح خ خخ خ د د ذ ذ ذ ر ر ز ز س سس س ش ششش ص صص ص ض ضض ط طط ط ظ ظظ ظ ع عع ع غ غغ غ ف فف ف ق قق ق ك

FIG. 28. Linotype *Palatino sans Arabic* by Herman Zapf and Nadine Chahine, 2010.

Retrieved from: http://www.page-online.de/emag/typo/artikel/schrift_als_symbol_fuer_pressefreiheit

Every creation is by nature an act of trans-gression. Every written text is an adven-ture with no guaranteed results. So does the Arabic culture have room today for transgressions and adventures? [...] We understand youth culture as a rejection for ready-made molds in all aspects of ex-pression and thought, as a way of seeking the expansion of the boundaries of free-dom. We understand youth culture as a deviation from the traditional heritage and allegiance to it at the same time, through our pragmatic, conscious and genuine connection to it. Our ambition is

كل ابـداع، بطبيعته، فعل تجاوز. وكل كتابة مغامرة غيـر مضمونة النتائج. فهل تتسـع الثقافة العربية اليوم للتجاوز والمغامرة؟ ... الشباب نفهمه رفضاً للقوالب الجاهزة فى شتّى مجالات التعبير والتفكير، وسعياً إلى توسيع هامش الحريّة. نفهمه خروجاً على الإرث التقليـدي، وإنتماء إليه فى الوقت نفسـه، من خلال علاقات نقدية واعية وأصيلة. فطموحنا الحـوار مـع الوضع القائم، لا إقامة قطيعة صارمة معه. وإعلان إنتماء إلى القرن الحادي والعشـرين، إنطلاقـاً من هويّـة ثقافية واضحة المعالم، قابلة للتطوير بصفتها مشروعاً حيّاً دائم التنامي والتطوّر. هناك أيضاً وأساسـاً اللغة، فهي من صلب هذه المغامـرة. كيـف يمكن أن نتنقّسـها ونحياها، كي تشبهنا، من دون أن تخون نفسها، وتتنكّر.

FIG. 29. Linotype *Frutiger Arabic* by Herman Zapf and Nadine Chahine, 2007 (Smitshuijzen, 2009, pp. 342–349).

كل ابراع، بطبيعته، فعل تجاوز. وكل كتابة مغامرة غير مضمونة النتائج. فهل تتسع الثقافة العربية اليوم للتجاوز والمغامرة؟ ... الشباب نفهمه رفضاً للقوالب الجاهزة في شتّى مجالات التعبير والتفكير، وسعياً إلى توسيع هامش الحرية. نفهمه خروجاً على الإرث التقليدي، وإنتماء إليه في الوقت نفسه، من خلال علاقات نقدية واعية وأصيلة. فطموحنا الحوار مع الوضع القائم، لا إقامة قطيعة صارمة معه. وإعلان إنتماء إلى القرن الحادي والعشرين، إنطلاقاً من هويّة ثقافية واضحة المعالم، قابلة للتطوير بصفتها مشروعاً حياً دائم التنامي والتطوّر. هناك أيضاً وأساساً اللغة، فهي من صلب هذه المغامرة. كيف يمكن أن نتنفّسها ونحياها، كي تشبهنا، من دون أن تخون نفسها، وتتنكّر لتاريخها،

FIG. 30. Linotype *Sultan Free* (2005) (Smitshuijzen, 2009, p. 386).

كل ابـداع، بطبيعته، فعل تجـاوز. وكل كتابة مغامرة غيـر مضمونة النتائج. فهل تتسع الثقافة العربية اليوم للتجاوز والمغامرة؟ ... الشباب نفهمه رفضاً للقوالب الجاهزة في شـتّى مجالات التعبير والتفكير، وسعياً إلى توسيع هامش الحرية. نفهمـه خروجاً علـى الإرث التقليدي، وإنتماء إليه في الوقت نفسـه، من خلال علاقات نقدية واعية وأصيلة. فطموحنـا الحوار مع الوضع القائم، لا إقامـة قطيعة صارمة معه. وإعـلان إنتماء إلى القرن الحادي والعشـرين، إنطلاقاً من هويّـة ثقافية واضحة المعالم، قابلة للتطوير بصفتها مشروعاً حياً دائم التنامي والتطوّر. هناك أيضاً وأساسـاً اللغـة، فهي من صلب هذه

FIG. 31. Linotype *Sultan Nahia* (2005) (Smitshuijzen, 2009, p. 387).

كل ابداع، بطبيعته، فعل تجاوز. وكل كتابة مغامرة غير مضمونة النتائج. فهل تتسع الثقافة العربية اليوم للتجاوز والمغامرة؟ ... الشباب نفهمه رفضاً للقوالب الجاهزة في شتّى مجالات التعبير والتفكير، وسعياً إلى توسيع هامش الحريّة. نفهمه خروجاً على الإرث التقليدي، وإنتماء إليه في الوقت نفسه، من خلال علاقات نقدية واعية وأصيلة. فطموحنا الحوار مع الوضع القائم، لا إقامة قطيعة صارمة معه. وإعلان إنتماء إلى القرن الحادي والعشرين، إنطلاقاً من هويّة ثقافية واضحة المعالم، قابلة للتطوير بصفتها مشروعاً حيّاً دائم التنامي والتطوّر. هناك أيضاً وأساساً اللغة. فهي من صلب هذه المغامرة. كيف يمكن أن نتنفّسها ونحياها، كي تشبهنا، من دون أن تخون نفسها، وتتنكّر لتاريخها، وتفقد ذاكرتها؟ طموحنا

FIG. 32. Linotype *Midan* by Almohtaraf Assaoudi, 2005 (Smitshuijzen, 2009, p. 377).

كل ابداع، بطبيعته، فعل تجاوز. وكل كتابة مغامرة غير مضمونة النتائج. فهل تتسع الثقافة العربية اليوم للتجاوز والمغامرة؟ ... الشباب نفهمه رفضاً للقوالب الجاهزة في شتّى مجالات التعبير والتفكير، وسعياً إلى توسيع هامش الحريّة. نفهمه خروجاً على الإرث التقليدي، وإنتماء إليه في الوقت نفسه، من خلال علاقات نقدية واعية وأصيلة. فطموحنا الحوار مع الوضع القائم، لا إقامة قطيعة صارمة معه. وإعلان إنتماء إلى القرن الحادي والعشرين، إنطلاقاً من هويّة ثقافية واضحة المعالم، قابلة للتطوير بصفتها مشروعاً حيّاً دائم التنامي والتطوّر. هناك أيضاً وأساساً اللغة. فهي من صلب هذه المغامرة. كيف يمكن أن نتنفّسها ونحياها، كي تشبهنا، من دون أن تخون نفسها، وتتنكّر لتاريخها، وتفقد ذاكرتها؟ طموحنا

FIG. 33. Linotype *Isra* by Alamoun Ahmed, 2005 (Smitshuijzen, 2009, p. 361).

كل ابداع، بطبيعته، فعل تجاوز. وكل كتابة مغامرة غير مضمونة النتائج. فهل تتسع الثقافة العربية اليوم للتجاوز والمغامرة؟ ... الشباب نفهمه رفضاً للقوالب الجاهزة في شتّى مجالات التعبير والتفكير، وسعياً إلى توسيع هامش الحريّة. نفهمه خروجاً على الإرث التقليدي، وإنتماء إليه في الوقت نفسه، من خلال علاقات نقدية واعية وأصيلة. فطموحنا الحوار مع الوضع القائم، لا إقامة قطيعة صارمة معه. وإعلان إنتماء إلى القرن الحادي والعشرين، إنطلاقاً من هويّة ثقافية واضحة المعالم، قابلة للتطوير بصفتها مشروعاً حيّاً دائم التنامي والتطوّر. هناك أيضاً وأساساً اللغة. فهي من صلب هذه المغامرة. كيف يمكن أن نتنفّسها ونحياها، كي تشبهنا، من دون أن تخون نفسها، وتتنكّر لتاريخها،

FIG. 34. Linotype *Hakim Ghazali* by Hakim Ghazali, 2005 (Smitshuijzen, 2009, p. 351).

كل ابداع، بطبيعته، فعل تجاوز. وكل كتابة مغامرة غير مضمونة النتائج. فهل تتسع الثقافة العربية اليوم للتجاوز والمغامرة؟ ... الشباب نفهمه رفضاً للقوالب الجاهزة في شتّى مجالات التعبير والتفكير، وسعياً إلى توسيع هامش الحرّية. نفهمه خروجاً على الإرث التقليدي، وإنتماء إليه في الوقت نفسه، من خلال علاقات نقدية واعية وأصيلة. فطموحنا الحوار مع الوضع القائم، لا إقامة قطيعة صارمة معه. وإعلان إنتماء إلى القرن الحادي والعشرين، إنطلاقاً من هوية ثقافية واضحة المعالم، قابلة للتطوير بصفتها مشروعاً حياً دائم التنامي والتطوّر. هناك أيضاً وأساساً اللغة، فهي من صلب هذه المغامرة. كيف يمكن أن نتنفسها ونحياها، كي تشبهنا، من دون أن تخون نفسها، وتتنكر لتاريخها،

FIG. 35. Linotype *Firas* by Abbas Al-Baghdadi, 2005 (Smitshuijzen, 2009, p. 350).

Every creation is by nature an act of transgression. Every written text is an adventure with no guaranteed results. So does the Arabic culture have room today for transgressions and adventures? [...] We understand youth culture as a rejection for ready-made molds in all aspects of expression and thought, as a way of seeking the expansion of the boundaries of freedom. We understand youth culture as a deviation from the traditional heritage and allegiance to it at the same time, through our pragmatic, conscious and genuine connection to it. Our ambition is to have a dialogue about the present reality and not to create a strict break with that reality. We want to declare

كل ابداع، بطبيعته، فعل تجاوز. وكل كتابة مغامرة غير مضمونة النتائج. فهل تتسع الثقافة العربية اليوم للتجاوز والمغامرة؟ ... الشباب نفهمه رفضاً للقوالب الجاهزة في شتّى مجالات التعبير والتفكير، وسعياً إلى توسيع هامش الحرّية. نفهمه خروجاً على الإرث التقليدي، وإنتماء إليه في الوقت نفسه، من خلال علاقات نقدية واعية وأصيلة. فطموحنا الحوار مع الوضع القائم، لا إقامة قطيعة صارمة معه. وإعلان إنتماء إلى القرن الحادي والعشرين، إنطلاقاً من هوية ثقافية واضحة المعالم، قابلة للتطوير بصفتها مشروعاً حياً دائم التنامي والتطوّر. هناك أيضاً وأساساً اللغة، فهي من صلب هذه المغامرة. كيف يمكن أن نتنفّسها ونحياها، كي تشبهنا، من دون أن تخون نفسها، وتتنكر.

Every creation is by nature an act of transgression. Every written text is an adventure with no guaranteed results. So does the Arabic culture have room today for transgressions and adventures? [...] We understand youth culture as a rejection for ready-made molds in all aspects of expression and thought, as a way of seeking the expansion of the boundaries of freedom. We understand youth culture as a deviation from the traditional heritage and allegiance to it at the same time, through our pragmatic, conscious and genuine connection to it. Our ambition is to have a dialogue about the

كل ابداع، بطبيعته، فعل تجاوز. وكل كتابة مغامرة غير مضمونة النتائج. فهل تتسع الثقافة العربية اليوم للتجاوز والمغامرة؟ ... الشباب نفهمه رفضاً للقوالب الجاهزة في شتّى مجالات التعبير والتفكير، وسعياً إلى توسيع هامش الحرّية. نفهمه خروجاً على الإرث التقليدي، وإنتماء إليه في الوقت نفسه، من خلال علاقات نقدية واعية وأصيلة. فطموحنا الحوار مع الوضع القائم، لا إقامة قطيعة صارمة معه. وإعلان إنتماء إلى القرن الحادي والعشرين، إنطلاقاً من هوية ثقافية واضحة المعالم، قابلة للتطوير بصفتها مشروعاً حياً دائم التنامي والتطوّر. هناك أيضاً وأساساً اللغة، فهي من صلب هذه المغامرة. كيف يمكن أن نتنفّسها ونحياها، كي تشبهنا، من دون أن تخون نفسها، وتتنكر.

FIG. 36. Monotype Imaging *Tanseek Pro* and *Tanseek Modern Pro*, designed by Mourad Boutros, Dave Farey and Richard Dawson, 2008 (Smitshuijzen, 2009, pp. 454–469).

Every creation is by nature an act of transgression. Every written text is an adventure with no guaranteed results. So does the Arabic culture have room today for transgressions and adventures? [...] We understand youth culture as a rejection for ready-made molds in all aspects of expression and thought, as a way of seeking the expansion of the boundaries of freedom. We understand youth culture as a deviation from the traditional heritage and allegiance to it at the same time, through our pragmatic, conscious and genuine connection to it. Our

كل ابـداع، بطبيعتـه، فعل تجاوز. وكل كتابة مغامرة غير مضمونة النتائج. فهل تتسع الثقافة العربية اليوم للتجاوز والمغامرة؟ ... الشـباب نفهمه رفضاً للقوالب الجاهزة في شـتّى مجالات التعبير والتفكير، وسـعياً إلى توسـيع هامش الحرية. نفهمه خروجاً على الإرث التقليـدي، وإنتـماء إليه في الوقت نفسـه، من خلال علاقـات نقدية واعية وأصيلـة. فطموحنا الحوار مع الوضـع القائـم، لا إقامة قطيعة صارمة معه. وإعلان إنتـماء إلى القـرن إنطلاقاً مـن هويّة ثقافية واضحة المعـالم، قابلـة للتطويـر بصفتها مشروعـاً حيّاً دائم التنامي والتطوّر. هناك أيضاً وأساسـاً اللغة، فهي من صلب هذه المغامرة. كيف يمكن أن نتنفّسها ونحياها، كي تشبهنا، من دون أن تخون نفسها، وتتنكّر.

FIG. 37 *Adobe Arabic*, by Tim Holloway, Fiona Ross and John Hudson, 2007 (Smitshuijzen, 2009, pp. 524–527).

إن الحروف أمة من الأمم، مخاطبون، ومكلفون، وفيهم رسل من جنسهم، ولهم أَسماء من حيث هم. وعالم الحروف أفصح العالم لساناً، وأوضحه بياناً، وهم على أَقسام كأَقسام العالم المعروف بالعرف.

FIG. 38. Apple *Baghdad*, developed by Diwan software, 1992 (Smitshuijzen, 2009, p. 509).

كل ابدا ع، بطبيعته، فعل تجاوز. وكل كتابة مغامرة غير مضمونة النتائج. فهل تتسـع الثقافة العربية اليوم للتجاوز والمغامرة؟ ... الشباب نفهمه رفضاً للقوالب الجاهزة في شتّى مجالات التعبير والتفكير، وسعياً إلى توسيع هامش الحريّة. نفهمه خروجاً على الإرث التقليدي، وإنتماء إليه في الوقت نفسه، من خلال علاقات نقدية واعية وأصيلة. فطموحنا الحوار مع الوضع القائم، لا إقامة قطيعة صارمة معه. وإعلان إنتماء إلى القرن الحادي والعشرين،

كل ابدا ع، بطبيعته، فعل تجاوز. وكل كتابة مغامرة غير مضمونة النتائج. فهل تتسـع الثقافة العربية اليوم للتجاوز والمغامرة؟ ... الشـباب نفهمه رفضاً للقوالب الجاهزة في شـتّى مجالات التعبير والتفكير، وسـعياً إلى توسـيع هامـش الحريّة. نفهمـه خروجاً على الإرث التقليدي، وإنتماء إليه في الوقت نفسـه، من خلال علاقات نقدية واعية وأصيلـة. فطموحنـا الحـوار مع الوضع القائم، لا إقامـة قطيعة صارمة معه. وإعلان إنتمـاء إلى القرن الحادي

FIG. 39. Apple *Geezah Pro*, developed by Diwan software, 2003 (Smitshuijzen, 2009, pp. 515–516).

Hamburgefontsiv

هي كطوع المشعلادن

Hamburgefontsiv

هي كطوع المشعلادن

FIG. 40. Microsoft *Nina Arabic* by Matthew Carter, 1999/2008 (Smitshuijzen, 2009, p. 506).

FIG. 41. Simplification system registered by Lakhdar Ahmed. Images published in GIMÉNEZ Reíllo, Antonio (2012b), 'Veinticuatro punzones', http://anisdelmoro. blogspot.com.es/2012/02/veinticuatro-punzones.html [Accessed January 2013].

FIG. 42. Pages from 'Poema de Yúçuf' (Joseph's Poem), one of the most famous Aljamiado texts. Anonymous manuscript written in Maghribī script, 16th century (Sociedad Estatal de Conmemoraciones Culturales, 2010, pp. 215–216).

4
Arabic type design in Spain

One of the aims for this practice-based research is to look for original Arabic type specimens published in Spain as reference samples for my Arabic type design. This approach to history is not intended as the focus for this study but as a starting point for my work. I have considered it interesting to introduce a connection with Arabic type design in Spain. The reason is obvious since Spain has been long related with the Arabic culture and therefore an initial approach to Arabic type design should be concerned with that fact. So, this historical approach is motivated by the purpose of establishing a possible link with all those Arabic typefaces designed in the country or published in specimen books.[1]

Although the Spanish Arabic calligraphy legacy has been further studied, no specific study on Spanish Arabic types has been carried out so far. This chapter will try to lay the foundations for future research on Arabic collections in Spanish type specimens, to determine who designed them and establish any possible connections abroad.

The Arabic calligraphic tradition in Spain was important after Arabic became the official language during the time of Muslim rule in the conquered territories within the Iberian Peninsula (711–1492). During this period a mix of vernacular Latin-Arabic language (which is known as 'Mozárabe') was spoken and later influenced the evolution of the current Spanish language. Moreover, some of the inhabitants of Spain used the Arabic script as a way of writing the Romance Castilian language, which is known as 'Aljamiado' (also, *Aljamía*) script. Aljamiado was not an Arabic script style in itself, but a writing practice which mixed a script language with a spoken language. The written styles used in Aljamiado manuscripts used to be both Maghribī and Andalusian, mainly.

When looking for local references for my Arabic project I found it interesting to be aware of these Aljamiado manuscripts as they were part of Spain's cultural legacy. Nevertheless, I found those written script styles inappropriate for the purpose of my typeface. Anyway, Aljamiado script could be an interesting field for future studies and as a reference visual material.[2]

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1   Arabic types published in Spanish type specimens are listed in Appendix 1

2   With regard to Aljamiado, it is recommended to consult Harvey, L. P. (2005), *Muslims in Spain, 1500 to 1614*, Chicago: University of Chicago Press.

4.1 The end of the Arabic legacy

As Graham Shaw points out,

> Looking back in history, it may be timely to remember that in the thirteenth century the language of modernization, of innovation in science, technology and medicine, was not English but Arabic. European intellectuals were dependent upon the cutting-edge science, technology and medicine of the Arabs who had inherited and enhanced the knowledge legacy of the Graeco-Roman world. (Ross & Shaw, 2012)

Spain had for many centuries been the main gateway for all this knowledge, but it seems clear that the Catholic rulers were reluctant to tolerate the existence of any Arabic connection once the Arabs had been defeated and forced to leave Spain or converted to Catholicism. Cultural tolerance at the end of the 15th century was far from the times of the Toledo School of Translators (Escuela de traductores de Toledo), where Latin-Arabic-Hebrew manuscripts were conceived as a means of exchanging ideas and knowledge within the ancient Visigoth *Hispania*.

Despite the long coexistence of Muslims, Christians and Jews within the Spanish territories, in 1564 the Valencian Parliament banned the use of the Arabic language both spoken and written, and King Philip II did the same in 1567 for the territories of the Crown of Castile. The Inquisition was launched to hunt for any trace of the Arabic language, written or spoken, unfailingly identified with the practice of Islam (Garcia-Arenal, 2010).

In most cases the mere possession of a text in Arabic or simply using spoken language became the equivalent of a conviction for heresy. The language identification with religion was direct and no exceptions were made.

Many of the texts considered by the Inquisition as texts written in Arabic were, in fact, 'Aljamiados', that is, texts in vernacular Romance written by crypto-Muslims, transcribing the sound of words using the Arabic script [Fig. 42]. As for the case of Turkish, Spanish language has been written in both Latin and Arabic script at different times in history.

In 1609 King Philip III promulgated a decree which forced the Moriscos[3] to leave their homeland. This was the end of a coexistence which had lasted more than eight centuries.

In the words of Alfredo Mateos (2010), curator of the exhibition *Memory of the Moriscos*, "after reaching foreign lands, eventually merging with the Islamic communities of fate, and, unless the reminiscence of the name, little is left of the memory of those old Spanish people" (p. 17). "However, at the time of their

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3   'Moriscos' (word derived from 'Moorish') were Muslims of Al-Andalus that had accepted Christian baptism. Muslim population was forced to embrace Christianity following the Catholic Kings' rule of February 14, 1502.

expulsion, some Moriscos communities hid their books wrapped in linen cloths among the adobe walls of their houses" (Mateos, 2010 p. 17). The basic features are common to all these manuscripts: the styles, usually Naskhī (Maghribī and Andalusian) and Kufic for outstanding titles or phrases, the use of red, yellow and green for the diacritical dots and highlighting them on the black or brown coloured handwriting (Beneyto, 2010). These *Aljamiado* manuscripts, along with other books saved from destruction, began to be considered in the eighteenth century during the Enlightenment Period. It was at this time when one of the major books that would combine Latin and Arabic typefaces, the *Bibliotheca Arabico-hispana escurialensis* was published. Also, in the eighteenth century Arabic types were cut in Spain for printing press purposes by Spanish punchcutter Jerónimo Gil, whom I will refer to later in this chapter. It seems that during the mid-eighteenth century Spain looked back to his past Arabic legacy in order to investigate its roots. Those saved Aljamiado manuscripts, together with Arabic books, were catalogued and studied.

4.2 Arabic alphabets in Spanish books

As argued above, there was no reason to publish Arabic books within Spain since the use of written or spoken Arabic was punishable by the Inquisition. The Printing Press was introduced at a time when most of the knowledge on Arabic script and calligraphy was being banned in the Iberian Peninsula. Also, the burning of Arabic manuscripts and books related to religion ordered by Cardinal Cisneros in Granada, in 1501, led to a lack of references for future type punchcutters. The Spanish Inquisition helped to maintain the cultural *status quo* and for a long time the Printing business in Spain was under strict control. The only reason to use the Arabic alphabet in a printed edition was to display their 'exotic' formal characteristics and as a vehicle for converting Muslims. In no case it was used as an independent language for transmitting messages or content.

With the final conquest of Granada, in 1492, a plan was launched to evangelise the local population which already envisaged the need for language tools (Galeote, 2008). As soon as the Granada border had disappeared, powerful tools were available in print such as the books *Arte para ligeramente saber la lengua arauiga*, by Pedro de Alcalá (Granada, 1505), the *Doctrina Christiana en lengua Arauiga y Castellana*, by Martín de Ayala (Valencia, 1566) and *Recopilación de algunos nombres arábigos que los árabes pusieron a algunas ciudades y a otras muchas cosas*, by Diego de Guadix (c. 1580).

Aracil Varón (cited in Galeote, 2008) argues that in spite of differences between the Moriscos and Indians in Mexico, it is plausible that the evangelisation in the new Spanish American lands took into account the Granada experience. In fact, during the sixteenth century evangelisation would continue with both Moriscos and indigenous Americans. No doubt those printed books were supposed to help annihilate any traces of Arabic culture.

The first known sample of a published Arabic alphabet appeared in the book *Peregrinatio in Terram Sanctam* by Bernhard von Breydenbach, printed in Mainz (Germany) in 1486 and, later translated into Spanish and printed in Zaragoza (Spain) in 1498. The samples of Arabic shown in those editions were cut on wood. They were intended as formal illustrations of the Arabic alphabet and not produced as movable type. The letters, displayed in their isolated form, respond to a simplified version of the Arabic script which removes any calligraphic reference and reduces them to a formal geometric structure. As mentioned in an earlier chapter, letters are interpreted in wood carving and differ a lot from a proper script by hand definition [Fig. 20], although it seems clear that they were inspired by engraved Kufic decorative models, we can observe the characteristic of black-letter and other contemporary German styles. The artist, who had drawn the alphabet, together with the rest of illustrations that appear in the book, was Erhard Reuwich, from Utrecht, who accompanied Breydenbach in his pilgrimage to Jerusalem in order to draw the sights. It should be noted that this book, composed in black-letter characters is considered to be the first illustrated travel book in printing press history and was a highlight for book illustration development.

Some years later, in 1505, another sample of the Arabic alphabet was shown in the afore-mentioned *Arte para ligeramente saber la lengua arauiga*, by Pedro de Alcala and printed in Granada by Juan Varela [Fig. 21]. The first bishop of Granada, the prelate Fernando de Talavera, commissioned Juan Varela, who came from Salamanca, to publish two books that would help missionaries who did not know Arabic, to convert the population of the new reconquered lands (Aboussouan, 1988).

The book is a grammar of the Arabic language that was spoken in Granada at that time and contains a manual for Catholic practice. The Latin alphabet is used as a vehicle for learning Arabic, introducing several diacritical marks above the characters in order to translate the Arabic sounds. In the book, Latin appears as the regular script to represent Arabic. Moreover, Catholic religious content and worship prays were used as text samples for learning Arabic, since the main intention of the book was for it to be used as an evangelising tool. The Arabic alphabet only appears as a woodcut illustration and not as a real set of characters for the composition of words and text. The shapes of the letters are quite close to the Arabic Maghribī style that was used in the western part of the Muslim Empire. But, although letter shapes are better drawn than the alphabet samples in *Peregrinatio in Terram Sanctam*, letter image is poor and lacks proportions and definition. Taking into account the geometric structure of these letter drawings, it seems that the reference style taken was once again Kufic, although a kind of contrast in the strokes is depicted when defining the outlines.

As a complement to the book, Pedro de Alcalá published the *Vocabulista arauigo en letra castellana*, the first Castilian-Arabic dictionary intended for both Spanish and Muslim communities [Fig. 43]. I find what Pedro de Alcalá states in his book especially interesting:

It is very wise to enrich ourselves from our neighbours, both from those recent ones converted to our holy Catholic faith and from the old Christians who need to become their preachers and teachers. Thus, the aljamiados (or 'Old Christians') may, through this work, learn Arabic going from Romance to Arabic, and the Arabs (or 'New Christians') who can read the Castilian characters can learn Aljamia quickly passing first by Arabic.[4] (Alcalá, 1505, p. 2)

Although the goal is clear: training Christian priests and others involved in converting the Muslim population of Andalusia to Christianity, throughout the text we can already notice how a certain multilingual concern is expressed by Pedro de Alcalá as a way of approaching different cultures, Muslim and Christian. In spite of that multicultural concern, the Latin alphabet is used as the only medium to learn the Arabic words.

We could consider these two books mentioned above as the first ones where Arabic letters were displayed in Spain before Arabic metal type was used for type composition.

4.3 Arabic types in Spain

The first book composed with movable Arabic types was the *Kitāb salāt al-sawā'ī* printed in Fano (Italy) in 1514 by Gregorio di Gregorii. According to Miroslav Krek, the book was meant for use by Christians in Syria, and it is believed that the Arabic typefaces were cut by Francesco Griffo, the Italian punchcutter who worked for the printer Aldo Manuzio, and was also responsible for inventing the Italic version of the Latin script (Smithshuijzen, 2009, p. 30).

In Spain, the use of movable Arabic types was not known until the eighteenth century, when a renovated interest in the Muslim legacy was promoted by an intellectual minority of enlightened men. Miguel Casiri's *Bibliotheca Arabico-hispana escurialensis* [Fig. 44], published in 1760, revived the interest in Arabic culture. The arrival of Casiri to Madrid in 1748 was relevant for the development of Spanish Arabism. Miguel Casiri [Mihail Garcieh al-Gaziri (Tripoli, 1708 –† Madrid, 1791)] was a Syrian-Maronite presbyter and Arabist who took care of the Arabic manuscripts collection of El Escorial. According to Sempere, it was Rávago (confessor of King Philip V), Casiri's teacher in Rome, who promoted him to get a job at the Royal Library as an interpreter of Oriental languages, and who commissioned Casiri to make an index of all Arabic codex collected in the library of the Monastery of San

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4   Original text in Spanish: "Es muy sabio enriquecerse de nuestro prójimo, tanto de los recién convertidos a nuestra santa fe católica como de los cristianos viejos, que tanto necesitan convertirse en sus predicadores y maestros. De este modo, los aljamiados (o 'cristianos viejos') podrán, gracias a esta obra, aprender el árabe yendo del romance al árabe y los árabes (o 'cristianos nuevos') que sepan leer los caracteres castellanos podrán aprender rápidamente la aljamía pasando primero por el árabe". From ALCALÁ, Pedro de (1505), *Vocabulista arábigo en letra castellana*, Granada: Juan de Varela de Salamanca, p. 2.

Lorenzo de El Escorial (Sempere, 1785). He played an important role in the spread of Oriental knowledge within the country, teaching Arabic to Pedro Rodríguez Count of Campomanes[5] and Hellenist scholar José Carbonel Fogassa,[6] who wrote an Arabic grammar which is unedited.[7] Together with Martín Sarmiento[8], these men would be part of the enlightened scholars who would be influential in the renaissance of Oriental studies in Spain.

Under the protection of the Count of Campomanes and promoted by the Royal librarian, Juan de Santander, Casiri wrote the *Bibliotheca Arabico-hispana escurialensis* (Madrid, 1760-70), a two-volume catalogue of all Arabic manuscripts from the Monastery library of San Lorenzo de El Escorial. Both volumes, good samples of Latin-Arabic multi-script composition, were printed in Madrid by Antonio Pérez de Soto, the first printer who worked with Arabic movable types, in Spain (EEA, 2007).

For the first volume it was necessary to purchase a set of Arabic types abroad.[9] It was with the help of Juan Bautista Orcel, a French bookseller established in court, that an Arabic font collection was acquired in 1751. The commission was made to Zacharie Chatelain, a bookseller in Amsterdam, who dealt with all the formalities and contacted a type founder from that city (Corbeto, 2001, p. 160). This is also confirmed by Gregorio Mayans, who promoted Miguel Casiri's book. According to Mayans, the Arabic types came from Holland and the first printing proofs were made in July 1751 (*Epistolario*, Valencia, 1987, VII).[10] This proofs referred to as the *Bibliotheca Arabico-hispana escurialensis* were observed by oriental scholar Martín Sarmiento who said, "This Arabic-Latin sheet proof, which is printed in Madrid, has caused me a singular joy. Provided the bad Arabic alphabet that appeared in Pedro de Alcalá's grammar [*Arte para ligeramente saber la lengua arauiga*], never have been

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5   Pedro Rodríguez de Campomanes (1723-1802) was a Spanish statesmen and writer. He was appointed Minister of Finance in 1760 within the first reformist government of Charles III led by Prime Minister Count of Floridablanca. In 1763 he became a member of the Spanish Royal Academy, and in 1764 won the presidency of the Royal Academy of History. In 1780 he received the title of Count of Campomanes, although he did not belong to the nobility.

6   For further information on José Carbonel Fogassa, see: DIE Maculet, Rosario & ALBEROLA Romá, Armando (2010), 'Jose Carbonel Fougasse (1707-1801). El rastro de un erudito en la España ilustrada', *Revista de Historia Moderna*, 28, pp. 11–50. ISSN: 0212-5862.

7   Manuscripts of this unedited Arabic grammar are kept at the National Library, Mss. 11554, *Papeles varios de Gramática Arábiga*. The first is titled: *Elementos de la Gramática Arábiga, por Dn. Joseph Carbonel y Fogassa, Comisario de Marina, Discípulo de Dn. Miguel Rasir, Syro. Se empezó el día 10 de Junio de 1748. En Madrid* (Mss. 11554-1). In the tenth manuscripts group, it includes the draft for a *Specimen Arabicum* (Mss. 11554-10). The eleventh manuscript sheet includes a draft for Arabic and Samaritan alphabet (Mss. 11554-11).

8   Martín sarmiento (1695-1772) was a Spanish scholar, writer and Benedictine monk. He was part of the influential figures of the Enlightenment in Spain.

9   In 1751, Campomanes and Casiri, when translating two chapters from the 'Agriculture Treat' of Ibn al-'Awwam, made a list of Arabic glyphs (Varela-Orol, 2012).

10   Biblioteca Valenciana digital. http://bv2.gva.es/es/corpus/unidad.cmd?idCorpus=20000&idUnidad=49973&posicion=1 [Consulted January 2013].

seen any printing of Arabic characters in Spain, so far" (Sarmiento, cited in Varela-Orol, 2012). That comment from Sarmiento means that it was the first time an Arabic movable typeface was used for printing within the country.

In a footnote, Corbeto points out the acquisition of the Arabic font, together with other Latin ones: "from 1754 and 1756 fourteen boxes of Arabic and Latin types entered from Bilbao customs, purchased at Voskens & Clerck type foundry in Amsterdam".[11] It was necessary to purchase more Arabic types to continue with the printing of the *Bibliotheca Arabico-hispana escurialensis* and for its coming second volume which would be finished in 1763 but not printed until 1770.

The types used in the *Bibliotheca Arabico-hispana escurialensis* are quite similar to those used in the *Evangelium infantiae vel liber apocryphus de infantia Servatoris*,[12] by Heinrich Sike, printed in Utrecht in 1697 [Fig. 45]. Although these are very worn and poorly connected, giving a bad image in the composition of the text, they are identical to the Arabic types cast at the Voskens Foundry.[13] So it seems clear where the Arabic types came from, though it is not clear who cut them. Even though the saga of Voskens – Bartholomeus (the elder), Reinier, Hendrick, Dirk and Bartholomeus (the young) – who worked as punchcutters and provided many printers with their fonts, not all types shown in their type specimens were cut by them (Lane, 2004, p. 54). They bought types to the punchcutter Arent Corsz Hogenacker, among which are some of the Arabic types that were part of Voskens extensive catalogue. This could be a path to follow for future research. Since it is not so important for the practical part of this thesis, I am leaving this information open for a further investigation.

Pérez de Soto combine Fleischman's Latin types together with the types shown in Antonio Bordazar's *Plantificación de la Imprenta de el Rezo Sagrado* (Valencia, 1732)[14] [Fig. 46]. These types are close to the roman types from Plantin. In fact, Francisco Méndez in his *Typographia Española* confirms this fact (Méndez, 1796, p. 406).

Historian Daniel B. Updike in his *Printing Types*, considered the layout of Bibliotheca Arabico-hispana escurialensis a good sample of harmonisation between Arabic and Latin scripts (Updike, 1922).

Antonio Pérez de Soto printed more books using those Arabic typefaces: the *Tratado de las aguas medicinales de Salam-Bir* by Mariano Pizzi (1761) [Fig. 47] and the *Gramática arábigo-española* by Francisco Cañes (1776) [Fig. 48]. This author, also wrote the *Diccionario español latino-arábigo* but this time it was printed by Antonio de Sancha in Madrid, in 1787 [Fig. 49].

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11   Corbeto, Albert (2011), *Tipos de imprenta en España*. Valencia: Campgráfic. Note n. 238, p. 160.

12   The book can be consulted on-line at: http://ia700504.us.archive.org/27/items/evangeliuminfantootraj/evangeliuminfantootraj.pdf [Consulted August 2012].

13   http://www.hurqalya.pwp.blueyonder.co.uk/BIBLIOGRAPHY-HYP/BIBLES-MISC-OCC/ARABIC%20BIBLES%20-%20DARLOW%20AND%20MOULE.htm [Last accessed October 2012].

14   Those types are displayed in Bordazar's *Plantificación de la Imprenta de el Rezo Sagrado* as 'Caracteres de España'. Nevertheless, those types were founded from the matrices that were brought from Flanders by King Charles II and kept by type-founder Juan Gómez Morales, in Madrid.

In both books, *Tratado de las aguas medicinales de Salam-Bir* and *Gramática arábigo-española*, the Latin and Arabic types used are the same ones used in the *Bibliotheca Arabico-hispana*. Nevertheless, in the *Diccionario español latino-arábigo*, Jerónimo Gil's Latin types (*Parangona*, *Atanasia gorda*, *Atanasia chica* and *Entredos*) are used along the book together with his Arabic (*Arabe*). In the prologue it states that both Latin and Arabic types had been founded from the matrices that belonged to the Royal Library (Biblioteca Real), in Madrid, under the direction of Manuel Monfort, treasurer of the Library at that time (Cañes, 1787, p. V). For the printing of the *Diccionario español latino-arábigo* Antonio de Sancha[15] borrowed the matrices from the Royal Library. The Arabic type looks more sharp and new. In fact, they look more accurate than the worn out types that appear in the other books printed by Pérez de Soto.

In the same year 1787, Antonio de Sancha printed the *Ensayos sobre gramática y poética de los árabes* by Patricio de la Torre and Miguel García Asensio [Fig. 50]. Gil's typefaces are also used in this book which aim was to encourage the study of the Arabic language and cultural legacy in relation with Spanish language and history, also vindication for the role of the Arabs in the restoration of Science and Arts.

The first Arabic types displayed in a Spanish type specimen (regarding all the existent and known material on this matter) were shown in *Muestra de letras fundidas en las matrices hechas de orden del Rey nuestro señor*, *para la Imprenta Real*, a complete specimen sheet of Jerónimo Gil typefaces, printed in Madrid in 1774. These types were intended for the Royal Printing House and were presented to King Charles III with the aim of getting a grant from the Government. Gil also cut an Arabic typeface; together with different sizes of Latin faces and one of Greek and Hebrew [Fig. 51]. He was the first Spanish punchcutter who cut an Arabic typeface. Nevertheless we do not know about his knowledge on Arabic. There is no record or any notice of this kind of knowledge. It is quite plausible that Jerónimo Gil took into account current samples of Arabic typefaces as a reference when he cut his own Arabic version. In fact, the types used at the *Bibliotheca Arabico-hispana escurialensis* are quite similar to those that were featured by Gil in his specimen sheet in 1774. Nevertheless there were other reference specimens that could have influenced the final designs, such as the Arabic types at the Enschedé foundry in Haarlem. In fact, in *The Enschedé type specimens of 1768 & 1773. Introduction and notes by John A. Lane*, Lane refers to a request made by the Spanish Court in January 1770 to the Enschedé foundry asking for the 1768 type specimen (Lane, 1993, p. 21). This proves the interest to acquire the ultimate novelties from one of the most renowned foundries in Europe at that time. Albert Corbeto (2011) points out the possibility that Juan de Santander, responsible for the Royal Library, was behind this request to

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15   Antonio de Sancha (1720-1790) was an important Spanish publisher, printer and bookbinder. He had his printing office in Madrid. He printed and published some relevant books and also worked for the Royal Academy of History and the Royal Academy of Language as a bookbinder. Besides his work, Sancha organised influential enlightened meetings in the back room of his workshop.

the Enschedé foundry when "looking for the appropriate designs intended for the new type collection at the Royal Library" (note n. 260, p. 173). In fact, the original Enschedé type specimens from 1756 and 1768 owned by the Royal Library can now be consulted in the National Library in Madrid [Fig. 52], so, it may prove that the requested specimens got to Madrid and became part of the awareness on what was happening abroad.

The Arabic types displayed in both Enschedé specimens from 1756 and 1768 are exactly the same. They appear named as *Text Arabis* and *Text Maleits* (in the 1756 specimen) and *Text Arabisch* and *Text Maleitsch* (in the 1768 specimen), and not only are the typefaces the same but both specimens also use the same sample text. In the 1768 type specimen, both Arabic designs appear undersigned and dated by J. M. Fleischman, in 1742, as the punchcutter who cut them. At this point, it is important to say that Fleischman's designs had a strong influence over Spanish punchcutters, at least for his particular 'gros oeil' Latin designs.[16] It is well proven how influential his designs were on the first Spanish punchcutter Eudald Pradell's typefaces,[17] especially noticeable during his residential period in Madrid. The Spanish link with the Low Countries' printing tradition while they were part of the Spanish Empire is also obvious. This influential link would be of great importance even after the Utrecht Treaty. Nonetheless, the Arabic named *Dubbelde Augustyn Arabisch* which is shown in the Enschedé type specimen of 1773 is totally different from Fleischman's type samples from 1756 and 1768. According to *The Enschedé type specimens of 1768 & 1773. Introduction and notes by John A. Lane* (Enschedé, 1993, p. 85-86) that accompanies the Enschedé facsimile, that Arabic could well be attributed to Arent Corsz Hoogenacker (1616-1617). While we could observe certain similarities between Fleischman's designs with those of Gil, the *Dubbelde Augustyn Arabisch* is far away in time and appearance from the Arabic cut by Geronimo Gil, which was first presented in his specimen of 1774 and was featured again in the type specimen booklet titled *Muestras de los nuevos punzones y matrices para la letra de imprenta executados por orden de S.M. y de su caudal destinado a la dotación de su Real Biblioteca* [the Royal Library type specimen], published in Madrid in 1787, as *Arabe* and *Arabe con las mociones*[18] [Figs. 53a–53b]. For this new specimen, Gil added the vocalisation marks (or 'mociones') to his Arabic. As is noted below on the same page, they were cut in 1786.

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16   For further reading: Johnson, A.F. (1959), 'The evolution of the modern-face roman', in *Type designs, their history and development*, 2nd ed. London: Grafton & Co. Johnson, A.F. (1970), 'The 'goût Hollandois'' in *Selected essays on books and printing*, Amsterdam: Van Gendt & Co.

17   Eudald Pradell (1721-1788) was born in Ripoll. He pertained to a family of gunsmiths and learned the practice of being an armourer with his father, acquiring the knowledge of making punches. Pradell established his own workshop in Barcelona and cut his first 'petit canon' punches in 1758. His fame as a punchcutter increased and King Carlos III gave him a pension in order to provide new type designs for the Royal Printing House in Madrid, where he finally moved and set up his foundry.

18   As it is noted below the specimen page n. 44, Gil's Arabic had 122 matrices for the size of Text and 5 for the squares, with 119 punches.

Juan de Santander who was responsible for the Royal Library type collection, took care to collect all the typefaces that were featured in the Royal Library specimen of 1787. Most of the types shown in that catalogue were cut by Jerónimo Gil with some advisory from calligrapher Francisco Javier de Santiago Palomares,[19] who was an acknowledged paleographer. We can see in this booklet the types that Gil presented in his sheet specimen of 1774, including his Arabic type.

Antonio Giménez Reíllo in his article 'The Dutch connection' (Giménez Reíllo, 2012a) states that the Arabic types used in the *Bibliotheca Arabico-hispana escurialensis* are those that were also displayed in *Muestras de los nuevos punzones y matrices para la letra de imprenta executados por orden de S.M. y de su caudal destinado a la dotación de su Real Biblioteca* [the Royal Library type specimen of 1787], making no difference between the Arabic types cut by Gil and the ones that were purchased abroad for that purpose. It is true that they look very similar but they are not the same [Fig.58].

By the end of the 18th century, the Royal Printing House published three very complete type specimen books which included all the type collections they owned. These catalogues were a perfect sample of the kind of typefaces available in Spain during the second half of the 18th century. The first ones were published in 1788 and 1793. There was still a third type specimen book published in 1799 that would include some material acquired from the Royal Library printing office and from the Officina Bodoniana in Parma. In the specimens of 1793 and 1799 there were different Arabic collections: *Árabe en texto* and *Árabe en entredos* (in the 1793 specimen), *Árabe en texto*, *Árabe en texto con mociones*, *Árabe en lectura* and *Árabe en lectura con mociones* (in the 1799 specimen).[20]

The *Árabe en texto* shown in the Royal Printing House specimen of 1793 and the *Árabe en texto* and *Árabe en texto con mociones* from the specimen of 1799 are the same Arabic design cut by Jerónimo Gil which was featured in the Royal Library specimen of 1787. Nevertheless, the sizes *Árabe en entredos*, *Árabe en lectura* and *Árabe en lectura con mociones* displayed in the 1793 and 1799 specimens come from another source [Figs. 54–55]. These could well be the samples of Arabic that were purchased after 1787 when Manuel Monfort took responsibility for the Royal Library printing office and foundry. According to Corbeto, two more collections of Arabic were purchased after the Royal Library specimen book had been printed (Corbeto, 2011, p. 199). Here we have another path to follow for further future inquiry. It would be interesting to know where did Monfort bought these types (although only one is displayed even it appears under different names: *Árabe en entredos* and *Árabe en lectura*) and also look for Arabic specimens abroad.

In comparison with the Arabic type cut by Gil, this new Arabic is smaller in size

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19   Francisco Javier de Santiago Palomares (1718-1796) was a distinguished paleographer and Spanish diplomat. He was a member of the Royal Academy of History.

20   The original type specimens can be consulted in the Catalonian Library, Barcelona (Biblioteca de Catalunya) and the National Library, Madrid (Biblioteca Nacional).

and has a minor vertical extent, and includes several ligatures in his type set.

Gil's Arabic was also used in other books printed by the Royal Printing House, in Madrid, the *Parafrasis Arabe de la Tabla de Cebes* [Fig. 56], translated by Pablo Lozano y Casela, printed in 1793, and *Descripción de España de Xerif Aledris* [Idrīsī, Muḥammad b. Muḥammad al-Sarīf al- (ca. 1100-1166)] translated by José Antonio Conde, and printed in 1799 [Fig. 57]. They are two samples of multi-script text composition where Latin and Arabic are combined. The Arabic type of Gil was used by the Royal Printing House after they had acquired the material from the Royal Library foundry workshop. Other printers such as Antonio de Sancha had used Gil's Arabic when the matrices belonged to the Biblioteca Real (Royal Library) while the Arabic Dutch type was used at Antonio Pérez de Soto's printing office.

4.4 Jerónimo Gil's Arabic

Jerónimo Gil was, in fact, the only Spanish punchcutter to cut an Arabic typeface. Gil was a punchcutter formed at the Real Academia de Bellas Artes de San Fernando, in Madrid. He studied engraving and worked at the Royal Mint (Real Casa de la Moneda), and collaborated with Juan de Santander at the Royal Library. The Arabic that he featured in his type specimen sheet in 1774 was part of a complete type collection that Gil cut himself intended to be offered to the Spanish King Charles III.

When comparing the Arabic type designed by Gil with the ones purchased abroad, I could realise how close the characters are from those used in the *Bibliotheca Arabico-hispana escurialensis* [Fig. 58]. Nevertheless, I could observe that Gil's Arabic is a bit more fluent and closer to handwriting script than the Arabic used in those two volumes. Gil's characters connect with each other better, even though it is a difficult issue to achieve in most cases when composing Arabic.

Apart from the *Bibliotheca Arabico-hispana escurialensis*, Gil might have also been aware of the Enschedé specimen where Fleischman's Arabic was shown. As stated above, Fleischman's types had a strong influence among Spanish punchcutters. But both Fleischman and Gil have a conception of Arabic too linked to Latin script and its unconnected letters. In the samples of text shown in the different specimens, the 'Kashida' (the connecting baseline stroke) is overused and offers a poor image of the text composition.

It is feasible that Jerónimo Gil also had the Arabic types shown at the Enschedé specimen in mind. Anyway I am more inclined to think that Gil was more concerned with the types used at the *Bibliotheca Arabico-hispana escurialensis*, which was the main reference book for Arabic manuscripts during the second half of the eighteenth century.

They both took Naskhī style models, but they take a more typographical and modular approach instead of a more calligraphic one. The result is far from the types that Robert Granjon and Guillaume II Le Bé had achieved at the end of the 16th century. In those cases, the types shown were more fluid and close to a calligraphic hand and were less static.

It was poor practice to imitate earlier Arabic designs instead of achieving new ones from a proper awareness on Arabic calligraphy script. This was a practice that led to the development of Latin typography in most cases but, in the case of Arabic, the imitation without critical observation contributed to the misleading Arabic, thus the shaping of what Thomas Milo calls 'Eurabic'. Nevertheless, we should understand the position of punchcutters at the time Gil cut his Arabic. They followed the established Eurocentric logic, so their procedure was a logical one despite we consider it poor practice today.

So, the normal procedure for Jerónimo Gil's Arabic was to imitate the Arabic types purchased abroad and used in the *Bibliotheca Arabico-hispana escurialensis*, since that was surely the closest reference he had. If he had taken into account original manuscripts instead of taking printed Arabic types as reference material, his Arabic would have achieved a more calligraphic grammar. Surely, manuscripts were not easily available or accesible to punchcutters and printers. Walter Tracy defends the position of skilled punchcutters and points out the inaccessibility of original manuscripts (see Tracy's citation in page 78). This inaccessibility was more evident for the case of Spain were Arabic documents were under siege. Anyway, some improvements were made on Gil's Arabic in comparison with those Arabics from the Bibliotheca Arabico-hispana, perhaps those improvements were achieved with the help of paleographer and calligrapher Santiago Palomares who had good knowledge on old Spanish manuscripts.

Gil's Arabic were in use until well into the nineteenth century. In 1811 Juan José Sigüenza y Vera, a disciple of famous printer Joaquín Ibarra, used Gil's Arabic as a sample for the Arabic alphabet in his Mecanismo del arte de la imprenta[21].

Although the Arabic cut by Gil was not a good sample of Arabic type design, according to our contemporary type design standards, it was important for the spread of Arabic knowledge and the development of Arabism in Spain.

4.5 Arabic types in the 19th and 20th centuries

The second half of the eighteenth century was a highlight in the history of type design and punchcutting in Spain.[22] It also was the time where some of the best editions were made, including the *Bibliotheca Arabico-hispana escurialensis* which was significant in terms of being the starting point for oriental studies in Spain. This interest in reviving Arabic studies was promoted by a few enlightened people, Martín Sarmiento among

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21   *Mecanismo del arte de la imprenta para facilidad del los operarios que exerzan* (Mechanism of the art of printing), by Juan José Sigüenza y Vera, was printed by the Imprenta de la Compañía in Madrid. After Juan Caramuel's Syntagma de arte tipographica (1664), this is one of the most comprehensive treaty on the art of printing published in Spain.

22   For further reading on this area, see: AECID (2009), *Imprenta Real. Fuentes de la Tipografía Española*, Madrid: Ministerio de Asuntos Exteriores y de Cooperación - AECID

others, since they considered it would contribute to "the creation of a national identity throughout the vindication of a glorious past, thanks to the development of Arabic culture and its contribution to the European culture" (Varela-Orol, 2012). Also, by translating Arabic manuscripts into Spanish, it would be possible to find out more about the Moors and get a more complete knowledge about the History of Spain.

Following this enlightening programme a Latin-Arabic book was published in 1802 compiling part of the Arabic knowledge on Agriculture. The *Libro de Agricultura* (Agriculture book) by Aben Mohamed Ben Ahmed Ebn El Awam, the Sevillian [Ibn al-'Awwam], translated from Arabic by José Antonio Banqueri, was published with both Latin and Arabic scripts in a two-column multi-script text layout [Fig. 59]. The translation work was carried out with the help of Miguel Casiri, as the Count of Campomanes states in the censorial previous text for this book written in 1793. The two volumes were printed later at the Royal Printing House in 1802 and were composed with the *Árabe en lectura* of the 1799 type specimen (which had also appeared in the 1793 type specimen under the name of *Árabe en entredos*). This typeface was the one that was not cut by Gil and the author of which is not known. As previously mentioned they could well be the typeface that was purchased after the 1787 Royal Printing House type specimen was published.

The Arabic typeface cut by Gil will appear again in another specimen booklet, *Inscripciones que se compusieron é imprimieron en presencia de los reyes nuestros señores, de toda la real familia, y el serenísimo señor príncipe real de Sajonia Maximiliano y su augusta hija la serenísima señora princesa Amalia, el día 13 de Enero de 1825, en que se dignaron honrar este real establecimiento con su augusta presencia,*[23] printed by the Royal Printing House, in Madrid, in 1825 [Fig. 60]. In this booklet, different types of Latin and non-Latin types from the collection were displayed in some sort of homage to King Ferdinand VII.

During the second half of the nineteenth century, the now so called 'Imprenta Nacional' (National Printing House) – before 'Imprenta Real' (Royal Printing House) – started to lose control in favour of new type foundries that had established and started up their businesses since the Spanish Constitution of 1837 approved the freedom to publish.

The Royal Printing House, which at the beginning of the 19th century owned the main and best collection of punches and matrices all over Spain (and one of the best in Europe) started diminishing its preferential status and had to reorganise and adapt its material to contemporary needs (Corbeto, 2011, p. 264). In 1850, Eusebio Aguado, the court printer, asked for an Arabic set he needed for the printing of *Catálogo de la Real Armería* (Corbeto, 2011, p. 266), which was printed in 1854 and combined a modern didone Latin style with the *Arabe en Entredos* which was shown in the Royal printing House specimen of 1793 [Fig. 61]. This is certainly not the type that was cut by Jerónimo Gil. In this case the matchmaking for both Latin and Arabic is really discordant.

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23   National Archive / Archivo Histórico Nacional. Consejos - Legajo. sig. 11303 / 67.

In 1862, the National Printing House published the *Catálogo de los códices arábigos adquiridos en Tetuán por el Gobierno de S.M.* by Emilio Lafuente Alcántara [Fig. 62]. For this case, they used a totally new set of Arabic. The contrast with the Latin didone used is also inharmonious, but the Arabic looks more fluid and connected than earlier used Arabic forms.

In 1867 these Arabic type collections, together with other Greek and Hebrew collections were lost when the Government decided to close down the National Printing House (Corbeto, 2011, p. 267).

By the end of this century another book would use another set of Arabic: the *Biblioteca Arabico-Hispana* by Francisco Codera y Zaidín,[24] printed in 1895 combine also a Latin didone with an Arabic one that looks very close to the one used by the National Printing House [Fig. 63]. I would consider it the same type although in this case the types are more detached and worn out. It seems that some new characters were added, as we find two different Lam-Alif ligatures and a weird Alif_Lam-Alif ligature among the set. Moreover, it looks like different sorts were mixed up within the composition with the consequent lack of quality.

During the second half of the nineteenth century two major foundries started trading in Spain, Richard Gans in Madrid and Fundición Tipográfica Neufville in Barcelona. Richard Gans arrived in Spain in 1874 as a representative of several European factories and started a business in 1875. Fundición Tipográfica Neufville was purchased in 1922 by Carlos Hartmann. Together with Bauersche Giesserei in Frankfurt and the Bauer Type Foundry in New York, it became one of the first international references in type design production and distribution.

Richard Gans, as it is expressed in their catalogue of 1922, had its main offices in Madrid, Barcelona and Seville, also in Lisbon, Buenos Aires, Havana and Cairo. It featured two Arabic typefaces (Gans, 1922, p. 170), one in a regular weight and another one in a heavier weight [Fig. 64]. They have different designs and, therefore, they come from different approaches. The bolder version has more compact proportions and has a heavier horizontal stroke. The lighter version has a more calligraphic flow and more balanced proportions. This typeface is the one that appears under the generic name of *Arabe* in the *Catálogo general de tipos* (also known as *Catálogo azul*, the "blue catalog"), published by 1953 (pages 224–225) [Fig. 65]. No information has been published about this typeface, nor has the date and or authorship been credited. According to Dimas García, these Arabic types are considered to be cut by Carlos (Carl) Winkow (García, 2008, p. 15),[25] a German punchcutter and typographer who was established in Spain and worked for the Richard Gans Foundry and, after the Spanish Civil War, at the Fundición Tipográfica Nacional. Carl Winkow (Sömmerda, 1882 - Madrid, 1952) one of the

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24   Francisco Codera y Zaidín (1836-1917) was a historian, philologist, Spanish Arabist and scholar.

25   Dimas García got this information from Mr. Bienzobas, a worker at Richard Gans Foundry.

most important type designers in Spain, begun collaborating with Richard Gans in 1907 and after spending the Civil War years in Germany he came back to Spain in 1940 and worked for the Fundición Tipográfica Nacional, designing typefaces such as *Numancia*, *Hispalis*, *Interpol*, *Belinda*, *Cursiva Rusiñol* and *Electra*, among other designs.[26]

The Richard Gans blue catalogue is the last complete specimen that they had published and displayed a large range of original type designs. Together with Fundición Tipográfica Neufville (Bauerische Giserei), they were the most important type foundries established in Spain in the twentieth century.

By 1988, Fundición Tipográfica Neufville took over Les Fonderies Typographiques Réunies, successors of the Dib Foundry, in Beirut (Lebanon). Among the Arabic collections acquired by Neufville it included *Al-Wadhah*, a Naskhī styled Arabic typeface designed by Georges Dib [Fig. 66]. As Neufville manager Wolfgang Hartman says, none of the Arabic collections have been digitised so far, although they owned their copyrights.[27] Linotype is currently offering one of Dib's designs, its Kufic family[28] published in 1987.

Georges Dib worked for Neufville as a salesman until his death in 2007 and, according to its manager he visited several Arabic countries in order to offer the Arabic fonts he had designed and which were founded and distributed by the Neufville type foundry.

In the English-French bilingual catalogue entitled *Neufville Barcelona at the Arabic Printer's Service - Au Service de l'imprimerie arabe*, published by 1989, Neufville "features the typefaces acquired at the Fonderies Réunies de Caractères from Lebanon under the art direction of Mr Georges Dib" (Neufville, c. 1989). The specimen of typefaces was intended mainly for the Arab printers. The Neufville Arabic collection includes a *Kurdish Roman*, *Naskhi* (light, bold), *Naskhi Shadow*, *Naskhi simplified*, *Koufi normal* (light, bold, italic), *Koufi new* (light, bold), *Rouk'i* and *Al Wadhah* (light, bold), in different sizes [Fig. 67].

The matrices of these Arabic collections coming from Lebanon are currently stored at the Sala Temàtica d'Arts Gràfiques de la Diputació (Cabinet of Graphic Arts), in Lleida (Spain), to be catalogued and preserved. They were offered to this institution by Neufville when they closed down their foundry in 2008. Another important part of that donation went to the Imprenta Municipal-Artes del Libro (Council Museum for Printing Arts), in Madrid. As far as I have inquired into it, there was no Arabic included in that shipment.

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26   For further reading on Carl Winkow: García Moreno, Dimas (2006), *Carl Winkow, tipógrafo. 1882-1952*, Unos tipos duros, Valencia: Campgràfic.

27   Interview with Wolfgang Hartmann, manager of Bauer Types and Neufville foundry (March, 2013) and personal communication from December 2012 to January 2013.

28   http://www.linotype.com/es/111073/Kufi-family.html [Last accessed October 2012].

The Neufville Foundry also had a licence to fund metal version of *ASV-Codar*, from Ahmed Lakhdar Ghazal (1917-2008). The matrices were made by Georges Dib from Lakhdar drawings. As Hartmann comments, Dib only succeeded in cutting one single size of the typeface. It seems that not many founts were sold for this typeface in metal, and no type specimen was published.

Apart from the Gans' Arabic designed by Winkow, there is not much information about other initiatives during the difficult years of dictatorship. The use of Arabic typefaces for text composition during the phototypesetting years had to rely on foreign designs and foreign technology, also.

In the digital era, the designer Paco Fernández from the Granada Design studio,[29] designed several Arabic fonts as a personal project. In the year 2000, he started working for 'El Legado Andalusí' (Andalusian Legacy) and that fact prompted him to design Arabic typefaces based on inscriptions on Arabic Architecture monuments in Spain. As he comments "The process of work consisted of drawing the calligraphic inscriptions from pictures, reproductions and copies [...], and taking into account Ibn Muqlah principles in order to improve legibility [...]" (Fernández, 2006, p. 12). These Arabic typefaces have not been commercialised, most likely because they are intended as a personal project or have not been properly produced according to commercial standards.

This practice-based research represents the starting point for an original Arabic type design based on local legacy but looking at contemporary needs. This Arabic-Latin multi-script font will be the first font designed for this purpose, establishing a link between the Spanish Arabic typefaces used in the eighteenth century and the standards of global communication today. Nevertheless, it is not appropriate to imitate or follow what had been achieved by the Spanish punchcutters and type designers since they do not offer much quality in terms of Arabic script concerns. It is important to say that my approach to the Spanish Arabic types is about considering what has been done on Arabic punchcutting and to try to improve it from a digital perspective, taking account of calligraphy and Arabic script tradition. This will also be aided by looking at other reference works which have been carried out in recent years in order to obtain a useful result. For this reason, a closer look into history as investigation is necessary. As stated before, this is not a historical thesis but a departure point.

To sum up, taking into account of historical Spanish material obtained through research, this is the first type design project focused on Arabic type in Spain.

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29   About Granada Design studio: http://www.granada-design.com/ [Last consulted 30 December 2012].

Numero en romáce y arauigo.

Vno.	Guáhïo.	Quarénta.	Arbaãïn.
Dos.	yënëy	Cincuenta.	Bamçïn.
Tres.	ëalãëa.	Sesenta.	Citïn.
Quatro.	Arbãã.	Setenta.	çabaãïn.
Cinco.	Bãmce.	Ochenta.	ëamïnïn.
Seys.	Cëte.	Nouenta.	tïçaãïn.
Siete.	çãbaã.	Ciento.	Mïa.
Ocho	ëamïnïa.	Dozientos.	Mïtëy.
Nueue.	Tïçaã.	Trezientos.	ëalãë mïa.
Diez.	ãäraca.	Quatrociétos.	Arbaãmïa
Onze.	Bidãrar.	Quiniétos.	Bãmçu mïa.
Doze.	yënäãrar.	Seys ciëtos.	Cëu mïa.
Treze.	ëalatäãrar.	Seteciëtos.	çãbaã mïa.
Quatorze.	Arbaãtãrar.	Ochociëtos.	ëamïn mïa.
Quinze.	Bamiztãärar.	Noueciẽtos.	Tïçaã mïa.
Diziseys.	Citãärar.	Mill.	Elf.
Dezisiete.	çabaãttãar	Dos mill.	Elfëy.
Deziocho.	ëamantãërar.	Tres mill.	ëalãë ëlef.
Dezinueue.	Tïçaãtãra.	Quatro mill.	Arbãã ëlef.
Veynte.	Aïrerïn.	Cinco mill.	Bãmce ëlef.
Veynte y vno.	Guáhïo gua rïrïn.	Seys mill.	Cëte ëlef.
Veinte.ij.	yënëi guarerïn.	Siete mill.	çãbaã ëlef.
Veinte.iij.	ëalãëa guarerïn.	Ocho mill.	ëamïnïa ëlef.
Veynte.iiij.	arbãã guarerïn.	Nueue mill.	Tïçaã ëlef.
Veynte.v.	Bãmce guarerïn.	Diez mill.	ãäraca ëlef
Veynte.vi.	Cëte guarerïn.	Veynte milt.	Ayrerïn elf
Veynte.vij.	çãbaã guarerïn	Treynta mill.	ëalïëïn elf.
Veinte.viij.	ëamïnïa guarer	Quarenta mil.	Arbaãïn elf.
Veinte.ix.	Tïçaã guarerïn.	Cincuenta mill.	Bamcïn elf
Treynta.	ëalïëïn.	Sesenta mill.	Citïn elf.
		Setenta mill.	çãbaã mïat elf.

FIG. 43. *Vocabulista arauigo en letra castellana*, published by Pedro de Alcalá (1505).

„ gibili, novem Tractatibus comprehen-
„ fus , qui Syriacè extat ; Philofopho-
„ rum Hiftoria , cujus Tractatus quartus
„ Syriacè legitur ; & Liber Elemento-
„ rum , qui & Syriacè extat. (ª)

Eadem fermè verba refert Abul-
pharagius in *Hiftoria Dynaftiarum* , *pag.*
83. è fupra laudata Bibliotheca , cujus
auctor illo antiquior eft , exfcripta. Cur
verò uterque Scriptor in recenfendis Por-
phyrii libris nullam prorsùs mentionem
fecerint de quindecim illis adversùs no-
ftram Religionem voluminibus , quibus
pofteà Methodius , Eufebius & Apol-
linaris triginta apologeticis libris refpon-
derunt , caufam efle puto , quod illa
volumina ab Imperatore Theodofio
flammis jure damnata, ex hominum me-
moria per ea tempora exciderint ; vel
quod eadem , ut Mahometanis inutilia,
Chriftianis contraria , nec Arabicè , nec
Syriacè converfa fint ; atque eò magis,
quòd memorati Scriptores Porphyrii
monumenta Syriacè & Arabicè red-

dita folùm recenfenda fufceperunt.

DCXXXI.

Codex nitidè exaratus anno Egiræ
773. Chrifti 1371. foliis aliquot ab
initio detractis mutilus , quo continetur
Commentarius in univerfam Philofó-
phiam *Athireddini Abharitæ* fupra laudati,
cui titulus *Ad Scientias Manuductio* (1):
auctore *Mostapha Ben Joseph* , vulgò
Khovageh Zadeh Ali. (2)

DCXXXII.

Codex non una manu exaratus,
in quo habentur:

1.º   *Athireddini Abharitæ* Opera Phy-
fica , titulo *Liber Phyficorum* (3). Acce-
dunt incerti Auctoris Commentarii. (4)

Id autem opus exaratum eft in Re-
gia Perfiæ urbe *Schomakhia* (de qua
Cazinæum in fua *Geographia* , atque
Herbelotium confule) anno Egiræ 849.
Chrifti 1445.

2.º   Philofophorum Græcorum , Sy-
ro-

(ª) فرفوريوس الصوري من اهل مدينة صور من ساحل الشام وقيل كان اسمه
امونيوس ولد النباهة في علم الفلسفة والتقدم في معرفة كلام ارسطوطاليس وقد فسر
من كتبه كتاب قاطيغورياس كتاب الاخلاق وكتاب بارميناس ۞ ولما صعب
على اهل زمانه معرفة كلام ارسطو شكوا الى ذلك من الاماكن النائحة عنه
وذكروا سبب الخلل الداخل عليهم ۞ ففهم ذلك وقال كلام الحكيم يحتاج الى
مقدمة قصر عن فهمها طلبة زماننا لفساد اذهانهم ۞ وشرع في تصنيف كتاب
الابساغوجي واضافه الى كتب ارسطو وجعله اولها ۞ فمن تصانيفه كتاب الابساغوجي ۞
كتاب القياسات الحملية ۞ كتابان الى لبانوا ۞ كتاب الرد الى باماخيس
في العقل والمعقول تسع مقالات يوجد سربانيا ۞ كتاب اخبار الفلاسفة وجدت
منه المقالة الرابعة بالسرياني ۞ كتاب الاسطقسات يوجد بالسرياني ۞

(1) *Titulus* : ۞ رسالة هدا يبنة الحكمات
(2) *Auctor* : ۞ شرح مصطفى بن يوسف
۞ المعروف بخوجه زاده

(3) *Titulus* : كتاب الطبيعيات لاثير
الدين ۞
(4) *Initium* : ۞ فهذه مجلة
Finis : ۞ الحالة الاولى

FIG. 44 A. *Bibliotheca Arabico-hispana escurialensis* by Miguel Casiri, printed in Madrid
by Antonio Pérez de Soto in two volumes, in 1760 and in 1770.

„ Poema *de Literarum Dhad*, *& Zhad*
„ *difcrimine* ; & alia quæ numerum
„ quadragefimum facilè excedunt. (a)

Enimverò etfi *Ebn Alhagebus* in
'Afia , *Algerumæus* in Africa magni no-
minis & auctoritatis fint Grammatici;
nofter tamen *Ebn Malekus* , Arabum
nemine prorsùs difcrepante, Grammati-
corum & Philologorum princeps fem-
per habitus eft. Id fanè teftantur fplen-
dida , quibus donatur , elogia , necnon
luculenta Academiarum *Bafrenfis* & *Cu-
phienfis* fuffragia.

L X V.

Codex uno , aut altero folio fub
initium mutilus , literis Cuphicis exa-
ratus feria 2. die 11. menfis Dilhagia
anno Egiræ 712. Chrifti 1312. quo
continetur Commentarius in ejufdem
Scriptoris opus, de quo fuprà , *Facilis
Methodus* dictum , auctore *Abi Moha-*

Tom. I.

*mad Abdalla Ben Abbas Ben Moha-
mad Alkhazragi,vulgo Cordubensi.*(1)

L X V I.

Codex literis Cuphicis exaratus
abfque anni nota , quo continetur
Commentarius *Ben Maleki* in fuum
opus quod *Facilis Methodus* infcribitur,
hoc titulo : (2) *Commentarius in librum
Ben Maleki Facilis Methodus.* (3)

L X V I I.

Codex elegantifsimè exaratus anno
Egiræ 726. Chrifti 1325. quo conti-
netur Commentarius in Poema *Mille-
narium* , ideo ita appellari folitum quòd
mille verfibus *Ben Maleki* , illius arti-
fex , Grammaticæ regulas tradiderit:
cui titulus *Expofitio Alphiæ* (4) , aucto-
re *Abu Mohamad Abdalla Gema-
leldino Ben Gemaleldin Josepho
Ben Hescham Ansaræo* (5) , qui

C   octa-

قال الذهبي صرف همته الي اتقــان لســان العرب حتي بلغ فيـه الغــايـة وحــان (a)
قصب السبق واربي علي المتقدمين . وامــا اللغة فكــان البـع المنتهـا من نقل
غريــبهــا والاطلاع علي وحشتهــا . وامـا النحوؤ والتصريف فكــان فيـه بحرا وامـا اشعــار
العرب التي يستشهد بهـا علي اللغة والنحو فكــانـت الائمـة الاعلام يتعجبـون
فيـه ..... توفي بدمشق في شعبــان سنة اثنين وسبعين وستمــابة . ومن تمــانيفـه
كتــاب تسهيل الفوايـد في النحو . كتــاب الضرب في معرفة لسـان العرب . كتــاب
الكــافية وشرحهـا . كتــاب الخلاصة . كتــاب عمدة الالفــاظ وشرحهـا . كتــاب
تبك المنظوم . كتــاب اكمــال الاعلام . كتــاب التوضيح . لامية في الصرف وشرحهـا .
منظومة في المقصور والمدود وشرحهـا , منظومة في القراة . والالفبة ومنظومــات
في معرفة الظا والضاد , وغيرهـا تنوف علي اربعين كتــاب ☙

Finis : ☙ ــــــــــــــــــ ‏تـاليف ابي محمد عبدالله (1) *Auctor* :
(4) *Titulus* : ☙ ـــــــــــــــة شرح الالغبـــ ‏بن عبــاس بن محمد الخزرجـــــي
(5) *Auctor* : ابو محمد عبد الله جمــال ‏الشهير بـالقرطبي ☙
الدين بن جمــال الدين يوسف بن هشام ‏شرح بن مـالك لكتــاب (2) *Titulus* :
الانصـاري ☙ ‏تسهيل الفوايـد بـا لعربيـه ☙
‏قـال الشيـــــــــخ ☙ (3) *Initium* :

FIG. 44 B. *Bibliotheca Arabico-hispana escurialensis* by Miguel Casiri, printed in Madrid
by Antonio Pérez de Soto in two volumes, in 1760 and in 1770.

بسم الاب والابن والروح القدس
الاله الواحد ❊

نبتدي بعون الله وحسن توفيقه
وذكتب كتاب عجايب سيدنا
وربنا ومخلصنا يسوع المسيح
السرو انجيل الطفولية بسلام
من الرب امين ❊

قد وجدنا في كتاب يوسيفوس
رئيس الكهنة الذي كان علي
عهد المسيح وقد قال اناس انه قايافا
قال

IN NOMINE
PATRIS, ET FILII, ET
SPIRITUS SANCTI,
DEI UNIUS.

Auxiliante & favente summo numine incipimus scribere librum miraculorum Heri & Domini & Servatoris nostri Jesu Christi, qui vocatur Euangelium infantiæ, in pace Domini; Amen!

INvenimus in libro Josephi Pontificis, qui vixit tempore Christi, (dicuntque nonnulli eum esse Cajapham. dixit is:) Jesum locutum

A 2

FIG. 45. *Evangelium infantiae vel liber apocryphus de infantia Servatoris* by Heinrich Sike, printed in Utrecht in 1697.

CARACTERES DE ESPAÑA.

GRANCANON.

DEUS, qui nobis sub Sacramento mirabili, pafsionis tuę memoriam reliquifti, tribue quæfumus:ita nos Corporis & Sanguinis tui facra myfteria venerari ; ut redemptionis tuæ fructum in nobis jugiter fentiamus.Qui vivis & regnas, &c.

PETICANO.

TE ígitur, clementísime Pater , per Jefum Chriftum Fílium tuum Dóminum noftrum , fúpplices rogâmus , ac pétimus, ofculatur Altare , uti accépta hábeas , & benedícas, jungat manus, deinde fignet ter fuper oblata , hæc ✠ dona, hęc ✠ múnera,hęc ✠ fancta facrifícia illibâta, extenfis manibus profequitur , in primis quæ tibi offérimus pro Eccléfia tua fancta cathólica : quam pacificâre, cuftodîre, adunâre, &c.

A 2   MIS-

FIG. 46. 'Caracteres de España' (Spanish typefaces) in Antonio Bordazar's *Plantificación de la Imprenta de el Rezo Sagrado* (Valencia, 1732).

TRATADO
DE LAS AGUAS MEDICINALES
DE SALAM-BIR,
que comunmente llaman
DE SACEDON
ESCRITO EN LENGUA ARABE,
POR
AGMER-BEN-AB-DALA,
MEDICO DE TOLEDO,
en el año de mil cinquenta y quatro.

TRADUCIDO AL IDIOMA CASTELLANO, E ILUSTRADO
con varias notas, para su mayor inteligencia.

*Por EL DOCTOR DON MARIANO PIZZI
y Frangeschi, Medico en esta Corte.*

EN MADRID.

POR ANTONIO PEREZ DE SOTO, Impressor de los Reynos, y de
las Academias Española, y de la Historia.
MDCCLXI.

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ca , por el Marser-Abst- El Malek- Ben-
El-Manzor ; no hallando alivio en la
enfermedad de Gota , que padeció sie-
te años , con los remedios , que en
este tiempo le hicieron : solamente le
tuvo con las virtudes de estas Aguas de
Salam-Bir , libertandose de este mal en
el mes de Agosto del año de 445. de
la Xafchra. (*a*)

ابو عامر بن الفرج ذو الوزارتين كان من بيت
رياسة تصرف اباوه وقومه مع بني نبي النون
ملوك طليطة وولي علي كونكة من جنب المظفر
عبد الملك بن المنصور ولم جرله راحة في سبع
سنتين من وجع الملوك ولم يصيب في كل هذا
الزمان صحة في استعمال الادوية التي استعملها
فقط في خاصية امياة سلام يبرء صاب انسرارا في
تخليصه من هذا الوجع في شهرني القعدة سنة
خمسة واربعين واربعمائة من الهجرة ﷼

(a) Este año fue el de 1053. despues de la Venida de
Christo Señor Nuestro al Mundo.

FIG. 47. *Tratado de las aguas medicinales de Salam-Bir* by Mariano Pizzi, printed in Madrid by Antonio Pérez de Soto, 1761.

GRAMATICA
ARABIGO-ESPAÑOLA,
VULGAR, Y LITERAL.
CON UN DICCIONARIO
ARABIGO-ESPAÑOL,
EN QUE SE PONEN LAS VOCES MAS USUALES
para una conversacion familiar, con el Texto
de la Doctrina Cristiana en el
idioma arabigo.

POR
*FRAY FRANCISCO CAÑES, RELIGIOSO FRANCISCO
Descalzo de la Provincia de San Juan Baptista , Misionero Apostolico
en el Asia , Lector de lengua arabe, Guardian , y Cura que ha sido del
Convento de San Juan Baptista en Judéa , y del Colegio de Padres Mi-
sioneros Españoles de Tierra Santa , en la Ciudad de Damasco.*

CON LICENCIA DEL CONSEJO.

MADRID:
EN LA IMPRENTA DE DON ANTONIO PEREZ DE SOTO.
AÑO MDCCLXXV.

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ARTICULO LVI.
DE LOS NOMBRES DE ALGUNAS
legumbres , y verduras.

الفصل السادس و الخمسون

في الاسماء المختصة لبعض الحبوبات والخضرات

legumbres........................... حبوبات قطاني ﷼
trigo............................... قمح قموح قمحات حنطة بر ﷼
cebada...abena...................... شعير ﷼ شوفان شفان ﷼
maíz , panizo...negilla............. درا ﷼ نجوان نوان ﷼
arroz.............................. رز رزة رزات ﷼
espigarse el trigo , arroz , maíz &c......... اسبل يسبل ﷼
espiga............................. سنبل سنابل ﷼
granar el trigo , &c.......... حجن يحجن حجق يحجق القمح ﷼
garbanzos...garbanzos tostados......... حمص ﷼ قضامة ﷼
judias...lentejas..avas.............. لوبية ﷼ عدس ﷼ فول ﷼
trigo picado...altramuces.............. برغل ﷼ ترمس ﷼
verdura...verza , ú repollo....... خضرة خضر لخنا ملفوف ﷼
coliflor...bretones................. قنبيط ﷼ بنات القنبيط ﷼
verengenas...acelgas.......... باذنجان باذنجانة سلق ﷼
pimientos...tomates.............. فليفلة ﷼ باذنجان فرنجي ﷼
cebollas...ajos...ajos puerros.. بصل بصلة ﷼ ثوم ثومة ﷼ كرات ﷼
espinacas...lechugas.. achicorias....... سباتخ ﷼ حس ﷼ عندبه ﷼
calabazas...calabazas pequeñas........ قرع قرعة ﷼ كوسة ﷼
calabazas redondas.............. باقطين باقطنة رومية ﷼
calabazas largas , y blancas........... خفيق خفيقة ﷼
pepinos........................... خيار خيارة خيارات ﷼
co-

FIG. 48. *Gramática arábigo-española* by Francisco Cañes, printed in Madrid by Antonio Pérez de Soto, 1776.

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FIG. 49. *Diccionario español latino-arábigo* by Francisco Cañes, printed in Madrid by Antonio de Sancha, 1787.

FIG. 50. *Ensayos sobre gramática y poética de los árabes* by Patricio de la Torre and Miguel García Asensio, printed in Madrid by Antonio de Sancha, 1787.

FIG. 51. *Muestra de letras fundidas en las matrices hechas de orden del Rey nuestro señor, para la Imprenta Real,* a complete specimen sheet of Jerónimo Gil typefaces, printed in Madrid in 1774.

Text Arabis.

كُلُّ شَيْءٍ أَقَابَهُ مِنْ حِنْسِهِ حِنِّي ٱلْحَرِيرِ
ٱلْحَرِيرُ عَلَيْهِ بِٱ لمُرْدِ بِٱلْحَرِيرِ يُفلَخ
ٱلْفِلَخ هُوَ رُمْنَهُ ٱلشَّوُّ وَلاحَةُ ٱلاَرضِ ۞

Text Maleits.

برمول بكند اين قرلال عالم كٿد ممباچ ٿران
دان تڤسير ناد كتاب دان نقڤ استمٻيو
حكاية بالي دكتموٻين ادٿون ٿكرجاىٮن
ٻتكال ٿاٻ هاري مك بكند ٻماكى ٿكين
ٿديٮت درٿد سرٻان دان جبة دان سروال
دان ٻٻى مك بكند ٿون

Augustyn Romeyn Maleits.

Tatkâ 'îtu baṇgonah 'ija 'îni deṇgan menantuw
ṗ nja parampuw̄an, dan pûaṇgah deīri pada pâ-
daṇg ṗ an Maw'âb: kârana teàh dedeṇgarnja dâam
pâdaṇg Maw'âb, bahuw̄a ſudah dekondjoṇgkan
dl dj dz tſnj djch ſj gh k̄h ts kh ꭓ H̄h hh th g̅' p̅
DL TJ TS TL ꭓ DJ HH NG DZSJ CH TZ GH

Brevier Romeyn Maleits op Garmond Corpus.

6 Tatkâa 'îtu bâṇgonah 'ija 'îni deṇgan menantuw ṗ nja param-
puw̄an, dan pûaṇgah deīri pada pâdaṇg ṗ an Maw'âb: kârana teàh
dedeṇgarnja dâam pâdaṇg Maw'âb, bahuw̄a ſudah dekondjoṇgkan Huwa
'âkan khawmnja, deṇgan memberij raw tij pada marika 'îtu.
H̄h kh h̄h ſj h̄j th t̄hp tz tſ tl l b k ch m̄ n̄ ṇg dz d̄z nj dj dj ſ ſ r̄p g̅ gh
IJ SJ Ā A DL D TH È CH GH KH L H̄h N̄ R Ů TZ W̄ TS TL DZ

FIG. 52. *Epreuve des lettres et caractéres typografiques fondus a Harlem a la Fonderie de IZ. et Jean Enschedé*, Haarlem, 1756.

ARABE.

بستة خصال يعرف الاحمق
بالغضب من غير شي و الكلام
في غير نفع والثقة في كل احد
وبدله بغير موضع البدل وسواله عن
ما لا يعنيه و جانه ما يعرف
صديقه من عدوه ۞

Tiene este ARABE 122 MATRICES para el grado de Texto, y 5 para los quadrados, con 119 PUNZONES.
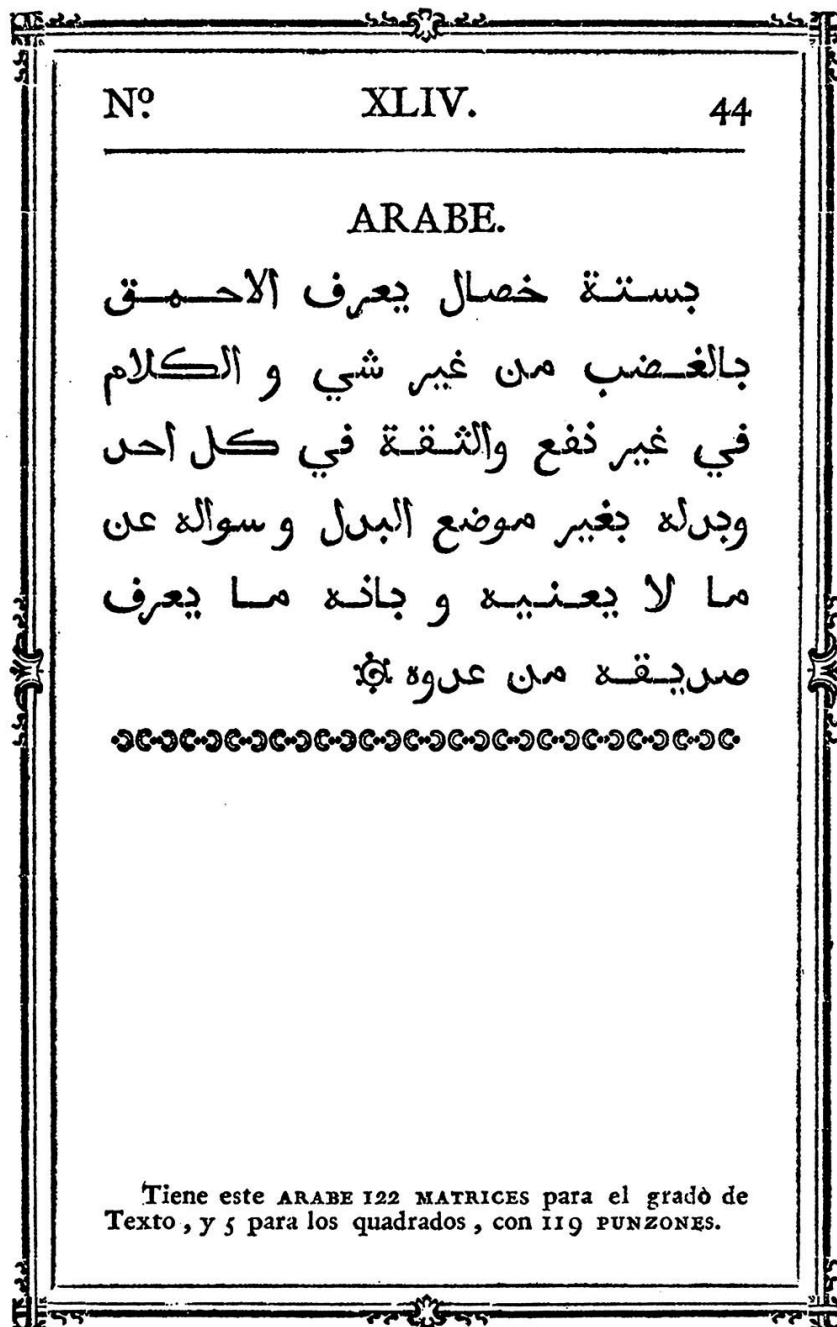
FIG. 53 A. *Muestras de los nuevos punzones y matrices para la letra de imprenta executados por orden de S.M. y de su caudal destinado a la dotación de su Real Biblioteca*, published in Madrid in 1787.

ثَلَاثَةٌ لَا يُعْرَفُونَ اِلَّا فِي ثَلَاثَةِ

مَوَاضِعَ لَا يُعْرَفُ الشُّجَاعُ اِلَّا

عِنْدَ الْحَرْبِ وَلَا يُعْرَفُ الْحَكِيمُ

اِلَّا عِنْدَ الْغَضَبِ وَلَا يُعْرَفُ

الصَّدِيقُ اِلَّا عِنْدَ الْحَاجَةِ اِلَيْهِ ۝

Este ARABE es el mismo de la muestra antecedente,
solo se añaden las mociones, que por no tenerlas hasta
aqui se han hecho nuevamente en este presente año de
1786, y son 10 MATRICES y 10 PUNZONES.

FIG. 53 B. *Muestras de los nuevos punzones y matrices para la letra de imprenta executados por orden de S.M. y de su caudal destinado a la dotación de su Real Biblioteca*, published in Madrid in 1787.

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ÁRABE EN ENTREDOS.

حَوْمَانِهَا جَوَلَانَ ٱلْهَايِمِ وَأَرُودُ فِي مَسَارِحِ

لَمَحَاتِي وَمَسَابِحِ غَدَوَانِي وَرَوْحَانِي كَرَبِمَا

أَخْلِفُ لَهُ دِيبَاجَتِي وَأَبُوحُ إِلَيْهِ بِحَاجَتِي

أَوْ أَدِيبًا تَفَرَّجُ رُوِيتَهُ غِمَّتِي وَتَرْوِي رِوَايَتُهُ

غُلَّتِي حَتَّى أَدْنَنِي خَانَةُ ٱلْمَطَافِ وَمُدَّتْنِي

فَائِدَةُ ٱلْأَلْطَافِ إِلِي نَادٍ رَحِيبٍ مُحْتَوٍ عَلِي

زِحَامٍ وَنَجِيبٍ فَوَلَجْتُ غَابَةَ ٱلْجَمْعِ لِأَسْبُرَ

مَجْلِبَةَ ٱلدَّمْعِ فَرَأَيْتُ فِي بَهْرَةِ ٱلْحَلْقَةِ

شَخْصًا شَحَّتْ ٱلْخَلْقَةُ عَلَيْهِ أُهْبَةَ ٱلسِّبَاحَةِ

وَلَهُ رِثَّةُ ٱلنِّبَاحَةِ وَهُوَ يَطْبَعُ ٱلْأَسْجَاعَ بِجَوَاهِرَ

لَفْظِهِ وَيَقْرَعُ ٱلْأَسْمَاعَ بِزَوَاجِرِ وَعْظِهِ وَقَدْ

أَحَاطَتْ بِهِ أَخْلَاءُ ٱلزُّمَرِ إِحَاطَةَ ٱلْهَالَةِ بِٱلْقَمَرِ

ÁRABE EN TEXTO.

حَدَّثَ ٱلْحَرِثُ بْنُ هَمَّامٍ قَالَ لَمَّا

اقْتَعَدتُ غَارِبَ ٱلِاغْتِرَابِ وَأَنَاخَنِي

الْمَنْرِبَةِ عَنِ ٱلِاتْرَابِ طَوَّحَتْ بِي

طَوَايِحُ ٱلزَّمَنِ إِلِي صَنْعَاءِ ٱلْيَمَنِ

فَدَخَلْتُهَا خَاوِي ٱلْوِفَاضِ بَادِي

FIG. 54. *Carácteres de la Imprenta Real.* Royal Printing House specimen of 1793.

ÁRABE EN TEXTO.

ومن كتاب ابن حجاج رحمه الله
تعالي في هذا المعني قال يوسس
ليس ينبغي ان تكون البقول قر يبة
من يبس وذلك ان الرباح تحتمل
دقاق التبن فتلقيه علي البقول قال
وجميع البقول تصير اجود كثيرا
واخصب والبن اذا حولة ولطفت عند
التعويس باحثا عند البقر واعلم انه قد
تبين ان البقل مع غيبة الما يصب
السرجين ايضا والرماد خير للبقل

ÁRABE EN TEXTO CON MOCIONES.

حَوْماتِها جَوْلانُ الْعَايِمِ وَأُرودُ في
مَسارِحٍ لِمُعاتي وَمَسايِحٍ غَدَواتي
وَرَوْحاتي كَرِيماً أَخْلَقَ لَه دِيباجَتي
وَأَبوحُ إلَيْهِ بِحاجَتي أَوْ أَدِيباً تَفَرَّجَ
رُوِيتُه غَمْنتي وَثَروي رِوايَتُه غَلْتَني حَتّي
أَدَنّني خاتِمَةُ الْمَطافِ وَهَدَنّني فاتِحَةُ
الْأَلْطافِ إلَي نادٍ رَحِيبٍ مَغْتُوٍ عَلَي
زِحامٍ وَنَعِيبٍ فَوَلَجْتُ غابَةَ الْجَمْعِ

ÁRABE EN LECTURA.

والخشخاش نبات مشهور ينبت في اكثر البلدان
وهو نوعان بزر احدهما ابيض وبزر الاخر اسود
وذو البزر الابيض ثلاثة انواع يتفق في البزر
ويختلف في المنابت والاسود حبه نوعان كذلك
وقد يزرع في تشرين الثاني وفي اخر الاول
يوافقه النشر في الارض في البرد ويحب الارض
التي يخالط تربتها الرمل والتي فيها ادني رطوبة
ونز والتي قد استغفنت بالما وتنسب عنها وورد
جميع انواعه سوا ورد ابيض في قدر ورد الشقايف
الاحمر وليس يحتاج الي افلاح لقلة ما يعرون
له من الافات وقد يزرع علي جهتين نثرا علي
الما ثم يغطي اذا انصب الما عنا بالتراب وقد

ÁRABE EN LECTURA CON MOCIONES.

حَوْماتِها جَوْلانُ الْعَايِمِ وَأُرودُ في مَسارِحٍ
لِمُعاتي وَمَسايِحٍ غَدَواتي وَرَوْحاتي كَرِيماً
أَخْلَقَ لَه دِيباجَتي وَأَبوحُ إلَيْهِ بِحاجَتي
أَوْ أَدِيباً تَفَرَّجَ رُوِيتُه غَمْنتي وَثَروي رِوايَتُه
غَلْتَني حَتّي أَدَنّني خاتِمَةُ الْمَطافِ وَهَدَنّني
فاتِحَةُ الْأَلْطافِ إلَي نادٍ رَحِيبٍ مَغْتُوٍ عَلَي
زِحامٍ وَنَعِيبٍ فَوَلَجْتُ غابَةَ الْجَمْعِ لَسْبَرَ
مَجْلَبَةِ الدَّمْعِ فَرَأَيْتُ في بَهْرَةِ الْحَلْقَةِ
شَخْصاً شَحْتُ الْخَلْقَةِ عَلَيْهِ أَعِنَّةُ السِّياحَةِ
وَلَه رَنَّةُ النِّياحَةِ وَهُوَ يَطْبَعُ الْأَسْماعَ بِجَواهِرَ
لَفْظِه وَيَقْرَعُ الْأَسْماعَ بِزَواجِرَ وَعْظِه وَفَّةَ

FIG. 55. *Carácteres de la Imprenta Real*. Royal Printing House specimen of 1799.

نَــغَــرٌ
قَابَــسُ صَاحِبِ أَفْلاطُــــنَ ۞

ENIGMA
DE CEBES, AMIGO DE PLATON.

ENIGMA

DE CEBES, AMIGO DE PLATON;

el qual es algo semejante á las cosas del mundo y lo que hay en él, y lo que conviene que obre en él el sabio, para que sea bienaventurado con bienaventuranza perfecta, y se liberte de los males que hay en él.

EN EL NOMBRE DE DIOS PIADOSO, MISERICORDIOSO.

Cuenta Cebes Platónico, denominado de Sócrates, el asunto de una Tabla, que halló colocada en el templo que estaba dedicado á Saturno: en ella un enigma que indica la direccion.

Dice Cebes: Mientras que nosotros andábamos en el templo de Saturno, y considerábamos lo que en él de variedad de dones, he aquí que vimos en la parte anterior del templo una Tabla colocada; en ella representacion de una pin-

نَــغَــرٌ
قَابَــسُ صَاحِبِ أَفْلاطُــــنَ ۞

وَهُوَ أَشْبَهُ شَيْ بِأَمْرِ ٱلْعَالَمِ وَمَا فِيهِ وَمَا يَجِبُ أَنْ يَعْمَلَ
فِيهِ ٱلْعَاقِلُ حَتَّى يَسْعَدَ ٱلسَّعَادَةَ ٱلتَّامَّةَ وَيَنْجُو
مِنَ ٱلشُّرُورِ ٱلَّتِي فِيهِ ۞

بِسْمِ (١) ٱللَّهِ (٢) ٱلرَّحْمَانِ (٣) ٱلرَّحِيمِ ۞
نَكَى قَابَسُ ٱلاَقْلاطُورِنِي ٱلْمَنْسُوبُ إِلَى سُقْرَاطَ أَمْسِ (٣)
لُوحٍ وَجَدَهُ مَوْضُوعًا فِي هَيْكَلٍ كَانَ مَنْسُوبًا (٤)
إِلَى زُحَلَ (٥) فِيهِ لُغَزٌ يَدُلُّ (٦) عَلَى هَدْيٍ ۞
قَالَ (٧) قَابَسُ بَيْنَمَا نَحْنُ نَمْشِي (٨) فِي هَيْكَلٍ زُحَلَ
وَنَتَأَمَّلُ (٩) مَا فِيهِ مِنْ أَصْنَافِ (١٠) ٱلْهَدْيِ أَنْ بَصُرْنَا
فِي مَقْدِمِ ٱلْهَيْكَلِ بِلُوحٍ (١١) مَوْضُوعٍ فِيهِ رَسْمُ صُورَةٍ

كَانَ رَسْمٌ فِي ٱللُّوحِ حَظِيرَةٌ فِي دَاخِلِهَا حَظِيرَتَانِ
أُخْرَيَانِ أَحَدُهُمَا أَكْبَرُ مِنَ ٱلْأُخْرَى وَرَأَيْنَا (١٥)
ٱلْحَظِيرَةَ ٱلْكُبْرَى لَهَا بَابٌ (١٦) كَأَنَّ عَلَيْهِ جَمْعًا كَثِيرًا
مِنَ ٱلرِّجَالِ وَمِنْ دَاخِلِ تِلْكَ ٱلْحَظِيرَةِ جَمْعٌ كَثِيرٌ
مِنَ ٱلنِّسَاءِ وَعَلَى هَذَا ٱلْبَابِ رَجُلٌ شَيْخٌ وَاقِفٌ كَأَنَّهُ
يُومِئُ (١٧) إِلَى جَمْعِ ٱلرِّجَالِ بِشَيْءٍ لَا نَدْرِي مَا هُوَ ۞

FIG. 56. *Parafrasis Arabe de la Tabla de Cebes*, translated by Pablo Lozano y Casela, printed in the Royal Printing House, Madrid 1793.

DESCRIPCION DE ESPAÑA

DE XERIF ALEDRISI.

En el nombre de Dios misericordioso.

Esta primera parte del quarto clima principia en la última banda del Occidente, de donde sale el seno del mar de Xâm del mar occidental hácia el Oriente, y en esta parte se contiene la region Andalus, que los Griegos llaman Esbánia, y tambien Gezirat Andalus; Gezira, porque su forma es triangular, y se estrecha por la parte oriental hasta ser entre el mar Xâmi y el mar occidental que rodea la isla Andalus cinco dias, y una punta de ella de distancia como diez y siete dias, y esta punta está en el extremo de Occidente, en los últimos términos de lo habitado de la tierra, cercada por el mar Océano, y no se sabe lo que hay mas allá de este mar Océano: ninguno ha podido averiguar cosa cierta de él, por su difícil

بسم الله الرحمن الرحيم

ان هذا الجز الاول من الاقليم الرابع مبدوة من المغرب الاقصى حيث البحر المظلم ومنه يخرج خليج البحر الشامي ما را الي المشرق وفي هذا البحر المرسوم بلاد الاندلس المسماه بالبوذنابية اشبانيا وسميت جزيرة الاندلس جزيرة لانها مشكل مثلث ويضيق من ناحية المشرق حتي يكون بين البحر الشامي والبحر المظلم المحيط بجزيرة الاندلس خمسة ايام وراسها العريض نحو من سبعة عشر يوما وهذا الراس هو في اقصى المغرب في نهاية انتها المعمور من الارض معصور في البحر المظلم ولا يعلم احد ما خلف هذا البحر المظلم ولا وقف بشر منه علي خبر صحيح

A 2

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(3)

بسم الله الرحمن الرحيم

ان هذا الجز الاول من الاقليم الرابع
مبدوة من المغرب الاقصى حيث البحر
المظلم ومنه يخرج خليج البحر الشامي
ما را الي المشرق وفي هذا البحر
المرسوم بلاد الاندلس المسماه بالبوذنابية
اشبانيا وسميت جزيرة الاندلس جزيرة
لانها مشكل مثلث ويضيق من ناحية
المشرق حتي يكون بين البحر الشامي
والبحر المظلم المحيط بجزيرة الاندلس
خمسة ايام وراسها العريض نحو من
سبعة عشر يوما وهذا الراس هو في
اقصى المغرب في نهاية انتها المعمور من

FIG. 57. *Descripción de España de Xerif Aledris*, translated by José Antonio Conde, printed in the Royal Printing House, Madrid 1799.

FIG. 58. Comparison with the Arabic type designed by Gil with the one that was used in Casiri's *Bibliotheca Arabico-hispana escurialensis*.

Enlarged version in next page

Arabic type from Jerónimo Gil (Gil's specimen of 1774)

ARABE.

ابولنيوس النجار رياضي قديم العهد قبل اقليس له كتاب المخروطات المولف في علم

Types from Royal Printing House / Royal Library type specimens

ايولنيوس النجار رياصي قديم العهد قبل قليس له كتاب المخروطات المولق في علم

Bibliotheca Arabico-hispana escurialensis

س النجار رياضي ديم العهد يل لندس له كتاب المجروطان الموف في علم

Arabic from Jerónimo Gil's specimen of 1774

Arabic from *Bibliotheca Arabico-hispana escurialensis*

140

Arabic type from Jerónimo Gil (Gil's specimen of 1774)

طبع في علم المؤلف المطبوعات الملكنات لذ صنكتاب ريذاضتي قنديم الحكور قبل اقلانسيس ابولنيوس

Types from Royal Printing House / Royal Library type specimens

طبع في علم المؤلفت المطبوعات الملكنات لذ صنكتاب ريجاضتي قرديم الحجور قبل قلبريس ابولنيوس

Bibliotheca Arabico-hispana escurialensis

طبع في علم الموؤف المطبوعات الملكنات لذ صنكتاب ريجاضتي ذيم الهجور مذل لندس لذكنتاب المطبوعات من التعذار ريذاضتي

en nuestra region son iguales con corta diferencia. Todo esto pues me movió á trasladar en este libro parte de lo contenido en aquella Obra.

ARTICULO VI.

De las señales que indican la buena ó mala calidad de la tierra segun otros libros diferentes de los dos [1] citados de Ebn-Hajáj y la Agricultura Nabathea.

Anatolio Africano dice , que es tierra fértil en la que hubiere plantas grandes y altas de tiernas, gruesas y verdes hojas , enlazadas unas con otras y de gruesas raices ; y así tambien es muy buena la tierra en que vieres grandes árboles silvestres que nadie haya plantado, los quales si fueren medianos, tambien lo es aquella tierra; y endeble, si vieres que los mismos son de una vegetacion enferma, de pequeñas y delgadas hojas y ramas, y de delgadas raices que presto se secan. Y asimismo no es buena en la que hubiere espinos y joyos silvestres , y cuyos árboles fueren pequeños.

Segun Kastos es señal de buena tierra si toman mucho incremento sus árboles sean de la especie que fueren; de mediana, si no crecen tanto ni tienen los ramos enlazados ; y de inferior, si son ellos delgados y débiles. ═ Segun el citado Anatolio la mejor tierra es la que no se resquebraja mucho en el rigor del calor, ni en la que con las muchas lluvias se hacen resbaladeros ni blanduras, ni [en la que] el agua se enxuga presto, ó no permanece largo tiempo en su superficie. El mismo Autor dice , que es buena tierra , y aun la mejor, la negra que

في بلدنا قريبا من ذلك الوقت فحرضني ذلك علي نقل بعض ما وضعوه في تلك الفلاحة الي هذا الكتاب *

فصل

ومن الدلايل علي انواع الارض في الطيب وغير ذلك من الكتابين المذكورين اعني كتاب ابن حجاج والفلاحة النبطية *

قال انطوليوس الافريقي اذا كان النبات في الارض عظيما طويلا · فمن الورق وخشن الخضرة ملتفا بعضه ببعض غليظ العروق فهي ارض كريمة وكذلك ان رايت فيها شجرا بربا عظاما لم يغرسها فيها احد فهي ارض جيدة ايضا واذا رايت ذلك فيها وسطا فهي متنوسطة في الطيب واذا رايت ذلك فيها ضعيف النبات قصير دقيق الورق والاغصان رقيق العروق · ويجف سريعا فتلك ارض ضعيفة وكذلك فيها الشوك والعرايب وشجرها صغار فليست بصالحة *

قال فسطوس علامة الارض الطيبة ان يكثر نبتها من الشجر كله والمتوسطة دون ذلك ويكون نبتها غير ملتف والدنية يكون نبتها رقيقا ضعيفا قال انطوليوس الافريقي اجود الارضين التي لا يكثر تشققها اذا اشتد الحر وان كثرت الامطار لم يكن فيها زلق ولا تمليس وتنشف الما سريعا ولا يطول مكثها علي وجهها وقال ايضا خير الارض واجودها

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1 Prefiérese من غير الكتابين del original á el solo الكتابين de la copia.

FIG. 59. *Libro de Agricultura* by Aben Mohamed Ben Ahmed Ebn El Awam, the Sevillian [Ibn al-'Awwam], translated from Arabic by José Antonio Banqueri, printed in the Royal Printing House, Madrid 1802.

المـــلك العزيز والمحسن الكريم

فردانس السابع

محيي الصنائع

ومحرك اهل الصناعة

ومظهر مسابر الفنون

في جميع ممالكة ❁

الله يأتيه بالسعادة الكاملة

ويغنيه بالبركات من خزائنه ❁

———————

EL. REY. MAGNÍFICO. Y. GENEROSO

FERNANDO. VII

VÍVIFICA. LAS. ARTES,

FOMENTA. Á. SUS. PROFESORES

Y. HACE. FLORECER. LA. INDUSTRIA

EN. TODOS. SUS. REINOS:

DIOS. LE. DÉ. COMPLETA. FELICIDAD

Y. COLME. DE. BENDICIONES.

FIG. 60. *Inscripciones que se compusieron é imprimieron en presencia de los reyes nuestros señores, de toda la real familia, y el serenísimo señor príncipe real de Sajonia Maximiliano y su augusta hija la serenísima señora princesa Amalia, el día 13 de Enero de 1825, en que se dignaron honrar este real establecimiento con su augusta presencia,* printed in the Royal Printing House, Madrid 1825.

SECCION SEGUNDA,

QUE COMPRENDE LOS OBJETOS ENCERRADOS EN SIETE ARMARIOS.

ARMARIO A.

Los objetos contenidos en este armario tienen casi en su totalidad dos procedencias; y para mayor brevedad y evitar repeticiones, los dividiremos de este modo.

Objetos cojidos en el palacio de Mustafá, bey de Orán [*].

1498 y 1499. Un cinto de cuero con recamos de lo mismo, y un cuerno grande para pólvora.

1504 y 1510. Un collar de esclavo y una cofia de hierro.

1508, 1513 y 1535. Elegantes bolsas árabes de piel, bordadas de sirgo de colores, y con la misma inscripcion que tiene la adarga indicada en el núm. 532.

1509 y 1517. Alquiceles blancos.

1511. Un turbante de raso amarillo y terciopelo que fué morado, guarnecido de gasa blanca.

[*] Los moros se habian apoderado de Orán en 1708. Un renegado español, llamado *Bigotillos*, que se habia puesto á la cabeza, obligó á rendirse al Marqués de Valdecañas, que era el gobernador de la plaza. Por esta accion Bigotillos, simple albañil de profesion, escapado al África á consecuencia de un asunto con la Inquisicion, fué electo bey de Orán. En 1732, queriendo Felipe V recuperar dicha plaza, envió una escuadra de mas de 600 naves con una ejército al mando del Conde de Montemar. A la llegada de las tropas, los habitantes abandonaron la poblacion, como tambien el palacio del bey, en donde hallaron gran parte de los muebles que su precipitada fuga no le permitió llevar. El renegado se habia puesto por nombre Mustafá, y segun otros Hacen; y tenia en aquella época 80 años de edad. [Véanse los *Comentarios del Marqués de San Felipe*, y la *España bajo los reyes de la casa de Borbon* por *W. Coxe*.]

1518. Pequeño atabal de arzon, moruno.

1519. Bolsa de terciopelo carmesí, bordada de plata de ataurique de realce, que contiene un libro en carácter árabe africano y dorado, de oraciones y devotas salutaciones dirijidas á Alá en obsequio de Mahoma. Todas las hojas de este libro curiosísimo tienen una cenefa ú orla de ataurique ó de lazería, ó bien de uno y otro, alternando con variedad. La encuadernacion tiene tambien atauriques. Este libro está escrito en la Mecca ó Medina, segun los planos que contiene de ambas mezquitas. Al fin del libro se halla esta fecha: *Se acabó el dia antes de la festividad del nacimiento de Mohamed en el año felicísimo de 1132*. [Este año de la Hejira corresponde al 1720 de Cristo.]

El testo de la portada de este libro es el siguiente:

بسم الله الرحمن الرحيم والصلاة والسلام علي محمد نبيه الذي
انتقذنا به من عبادة الاوثان وعلي اهله واصحابه الكرام * وبعد هذا
فالغرض في هذا الكتاب نكر الصلاة علي النبي وفضايلها نذكرها محمد
وقت الانسانيه ليسهل حفظها علي القاري * وهي من اهم المهمات لمن
يريد القرب من رب الارباب وسميته بكتاب دلايل الخيرات وشوارق الانوار
في ذكر الصلاة علي النبي المختار * ابتغا مرضات الله تعالي ومحبته في
رسوله الكريم محمد صلي الله عليه وسلم * والله المسؤل ان يجعلنا
لسننه من التابعين فانه علي كل شي قدير *

«En el nombre de Dios clemente y misericordioso: la bendicion de Dios y la paz sea á Mahoma su Profeta, por quien nos ha libertado de la esclavitud de la idolatría, y á sus parientes y venerables compañeros. El intento propuesto en este libro es de promover las frecuentes bendiciones y salutaciones del Profeta, haciéndose mencion de las ventajas que resultan de ellas, y tambien para comodidad del lector; pues esto es de suma precision á quien desea acercarse al Señor de los Señores. He intitulado este libro: *Los preseajios de sus felizidades y explendores de las luzes provenientes de los repetidos obsequios al escogido Profeta*. Con esto, deseoso de agradar á Dios, manifiesto mi fino afecto á su augusto enviado Mahoma. En fin, ruego á Dios que nos haga verdaderas accuaces de sus leyes, siendo él Todopoderoso.»

[Esta version es la que tenia el catálogo anterior.]

1520. Elegante frasco para pólvora cubierto de terciopelo y labores de plata, algo parecido al que trae Meyrick en el tomo II de su obra, lám. 124, fig. 7. [V. dib. de S., supl., lám. 10, fig. 1.]

FIG. 61. *Catálogo de la Real Armería*, printed by Eusebio Aguado in 1854.

En fólio.—Caractéres africanos. Incompleto.

Este autor parece ser el padre del famoso jurisconsulto y teólogo Mohammad ben Yúsuf As-Senusi, de quien se trata en el número siguiente.

14.

CÓDICE INCOMPLETO POR EL FIN. En el corte: السنوسي «As-Senusi.»

Dice en el fólio 1.°:

«En esta obra, con la ayuda y proteccion de Dios, me he propuesto explicar las palabras de oscuro sentido, y que puedan parecer dificiles al estudioso, en el comentario á (la obra titulada) *Akidat-al-Sográ* (pequeño tratado de los artículos de fe) del Iman *Abú Abd-Allah Sidi Mohammad ben Yúsuf As-Senusi*.» Es por lo tanto esta obra un apéndice al comentario de la *Akida de Senusi*.

En fólio.—Caractéres africanos.

Abú Abd-Allah Mohammad ben Yúsuf As-Senusi, cuyo nombre se encontrará frecuentemente en este *Catálogo*, nació en Tremecen el año 830 de la héjira (1426—7). Desde muy temprano reveló gran inteligencia y despejo, y habiendo estudiado con los mejores maestros de aquella ciudad, entre ellos con *Abú Zeid Abd-er-Rahman at-Tsaalabi* (véase el núm. 1.°), la filosofía, matemáticas, astronomía, teología y jurisprudencia, escribió á la edad de 19 años su primera obra titulada: المستنفي على الحنفي «El intérprete perfecto del (tratado de jurisprudencia de) *El-Hanefí*.» Despues escribió diversas obras sobre gramática, astronomia, matemáticas y lógica, y principalmente sobre teología, ciencia en la cual llegó á ser superior á todos sus contemporáneos. Sus obras continúan siendo estudiadas en las escuelas, y tenidas en grande estima, sobre todo la titulada: عقيدة الصغرى «El tratado menor de los artículos de fe.» Murió en chumada 2.ª de 895 (Mayo de 1490), y sus discípulos, ayudados por la liberalidad del Sultan, le levantaron una suntuosa tumba, que aun se conserva en Tremacen, así como las inscripciones de su lápida sepulcral. (*Revue Africaine*, troisième année, página 245).

15.

BREVE COMENTARIO á la obra de *As-Senusi* titulada *Akida* (عقيدة) por *Mohammad ben Mohammad ben Ibrahim* el de *Telemsan*: محمد بن محمد بن ابراهيم التلمساني

En 4.°—Caractéres africanos.—28 fólios.

16.

1.° تحرير المطالب لما تضمنته عقيدة ابن الحاجب لابي عبد الله محمد بن «Resolucion de las cuestiones comprendidas en la *Akida* (artículos de fe) de *Ebn-al-Háchib*, por *Abú Abd-Allah Mohammad ben Abil-Fadhl Al-Baqui*.»—116 fólios.—Copia del año 1091 (1680).

2.° عقيدة اهل التوفيق والسداد في شرح عقيدة اهل التوحيد «Columna de los favorecidos por Dios y de los justos, sobre el comentario á los artículos de fe de los unitarios.» Es la misma obra de *Yúsuf ben Omar As-Senusi*, ya descrita en el núm. 13.—118 fólios.

3.° Comentario á otra obra sobre la misma materia, de *Omar An-Nesefi* (النسفي), por *Saad eddin At-Taftazani*.—87 fólios.

4.° Varios párrafos sueltos sobre la misma materia.

En 8.°—Caractéres africanos.

Abú Amr Osman, conocido por *Ebn Al-Háchib* (ابن الحاجب) na-

ció en el alto Egipto el año de 570 (1174—5), y murió en Cairo en 646 (1248—9).

El tratado de la unidad de Dios, de *An-Nesefi* comentado por *Taftazani*, famoso gramático y teólogo, que murió en Marruecos en 792 (1389—90), se encuentra en El Escorial, número MCCCCXCII de Casiri.

17.

1.° Un tratado del dogma.—3 fólios. Incompleto. Despues hay otros 3 fólios en blanco, dispuestos sin duda para continuar la copia.

2.° Tratado de los contratos.—10 fólios. Autor: *Ebn Chumad* (ابن جماعة).

3.° خلاصة التحصيل في وصية التنزيل «Quinta esencia de los conocimientos de los preceptos de la revelacion.»—6 fólios. Anónimo.

4.° 46 fólios de párrafos sueltos y poesias escritas en malísimos caractéres.

5.° Tratado jurídico-religioso, muy carcomido por el principio.—29 fólios.

6.° Varias plegarias.—4 fólios.

7.° Varias poesías de *Sidi Ahmed ben Abd-el-Hayi* (عبد الحي), de Alepo.—19 fólios.

8.° 14 fólios de otras varias poesias escritas en muy confusos caractéres.

En 8.°—Caractéres africanos.—104 fólios.

18.

1.° Un tratado sobre la ley musulmana, por *Obeid-Allah Mohammad ben Aly Al-Hazubi* (الحزوبي), esplicando la obra que sobre el mismo asunto compuso *Abul Abbas Ahmed ben Ahmed ben Mohammad ben Isá Al-Bornusi* (البرنسي), conocido por *Zarruc* (زروق).—10 fólios.

2.° Tratado de los sueños y otras supersticiones.—10 fólios.

3.° Parte de un tratado de gramática, incompleto por el principio y fin.

En 8.°—Caractéres africanos.

Zarruc murió en Trípoli de Berbería el año 899 (1493—4).

19.

1.° Tratado de varias cuestiones teológicas, por *Obeid-Allah ben Musa ben Aly ben Musa Al-Wazani* (الوزاني).—43 fólios.

2.° Un cuento de una jóven que hablaba en tono profético, usando de las palabras del Coran.—3 fólios.

3.° Una poesía compuesta de manera que cada verso termina en una de las letras del alfabeto.—2 fólios.

4.° Una plegaria y algunos párrafos sobre las oraciones.—2 fólios.

5.° Breve tratado de algunas cuestiones legales, por *Mohammad ben Abd-Allah ben Mohammad ben Ahmed ben Abd-er-Rahman ben Abd-el-Hac ben Temin Al-Yefrani* (اليفراني), conocido por «el de Mequinez.»—12 fólios.

6.° Parte de un tratado gramatical.—10 fólios. Muy carcomido por la parte superior.

En 8.°—Caractéres africanos.—42 fólios.

20.

COMENTARIO Á UN TRATADO DE LOS PRECEPTOS RELIGIOSOS. No aparece el título ni el nombre del autor.

En 8.°—Caractéres africanos, incompleto, y en gran parte ilegible por lo deteriorado y carcomido.

21.

TRATADO DE LA VERDAD DE DIOS Y DEL PROFETA, por *Abú Abd-Allah Mohammad ben Yúsuf As-Senusi*, ya varias veces

FIG. 62. *Catálogo de los códices arábigos adquiridos en Tetuán por el Gobierno de S.M.* by Emilio Lafuente Alcántara, published by the National Printing House, Madrid 1862.

المسند على الصحيحين لابى ذر عبد بن احمد الهروى ٢٨٦

مسند ابى محمد عبد الله بن محمد بن ابى ناجية ١٤٢

مسند كتاب الشهاب لابى عبد الله محمد بن سلامة بن جعفر القضاعى ١٨٥

مسند ابى عبد الله محمد بن عبد الله بن سنجر ١٤٢

مسند ابى بكر محمد بن معاوية القرشى ١٤٣

مسند الموطا لابى القاسم عبد الرحمن بن عبد الله بن محمد الغافقى
الجوهرى المالكى المصرى ٨٩

مسند ابى الوليد هشام بن عمار عن ملك بن انس ١٥٢

مشتبه التسمية لعبد الغنى بن سعيد الحافظ ٢١٧

المشعر لابى بكر خطاب بن يوسف بن هلال الماوردى ٣١٩

اختصار مشكل الاثار للطحاوى لابى الوليد محمد بن احمد بن
رشد ٢٤٣ ٢٠٠

مشكل اعراب القران لابى بكر بن فورك ٦٩

مشكل اعراب القران لابى محمد مكى بن ابى طالب ٦٨

مشكل القران تاليف ابى محمد عبد الله بن مسلم بن قتيبة ٦٧

المشتمل فى الوثائق لابى عبد الله محمد بن عبد الله بن ابى زمنين ٢٥١
المصادر للاصمعى ٣٧٤

المصادر لابى زيد سعيد بن اوس الانصارى ٣٧١

مصافحة البخارى ومسلم لابى بكر بن العربى ١٦٦

مصافحة مسلم والبخارى لابى بكر احمد بن محمد الحافظ البرقانى ١٦٥

المصباح والراعى الى الفلاح فى حديث رسول الله لابى الفتح نصر
ابن ابراهيم المقدسى ١٥٩

مصنف ابى عبد الرحمن احمد بن شعيب بن على بن سنان بن بحر
النسائى ١١٠ ١١٧ ١٢٦

FIG. 63. *Biblioteca Arabico-Hispana* by Francisco Codera y Zaidín, 1895.

Núm. 1. Cuerpo 9 (mociones a cuerpo 5)

والتين والزيتون ۞ وطور سينين ۞ وهذا البلد الامين ۞ لقد
خلقنا الانسان فى احسن تقويم ۞ ثم رددناه اسفل سافلين ۞
الا الذين امنوا وعملوا الصالحات فلهم اجر غير ممنون ۞

وَٱلتِّينِ وَٱلزَّيْتُونَ ۞ وَطُورِ سِينِينَ ۞ وَهَذَا ٱلْبَلَدِ ٱلْأَمِينِ ۞ لَقَدْ
خَلَقْنَا ٱلْآنْسَانَ فِى أَحْسَنِ تَقْوِيمٍ ۞ ثُمَّ رَدَدْنَاهُ أَسْفَلَ سَافِلِينَ ۞
إِلاَّ ٱلَّذِينَ آمَنُوا وَعَمِلُوا ٱلصَّالِحَاتِ فَلَهُمْ أَجْرٌ غَيْرُ مَمْنُونٍ ۞

Núm. 5. Cuerpo 10 (mociones a cuerpo 5)

عن بعض الادباء قال حضر ملك الروم عند المتوكل
فاجتمعت به فقال لما احضر الشراب ما لكم معاشر المسلمين
قد حرم عليكم فى كتابكم الخمر ولحم الخنزير فعملتم

عَنْ بَعْضِ ٱلْأُدَبَاء قَالَ حَضَرَ مَلِكِ ٱلرُّوم عِنْدَ ٱلْمُتَوَكِّلِ
فَٱجْتَمَعْتُ بِهِ فَقَالَ لَّمَا أُحْضِرَ ٱلْفَرَابُ مَا لَكُمْ مَعَاشِرَ ٱلْمُسْلِمِينَ
قَدْ حُرِّمَ عَلَيْكُمْ فِى كِتَابِكُمُ ٱلْخَمْرُ وَلَحْمُ ٱلْخَنْزِيرِ فَعَمِلْتُمْ

Núm. 2. Cuerpo 12 (mociones a cuerpo 5)

والتين والزيتون ۞ وطور سينين ۞ وهذا البلد الامين
لقد خلقنا الانسان فى احسن تقويم ۞ ثم رددناه
اسفل سافلين ۞ الا الذين امنوا وعملوا الصالحات ۞

وَٱلتِّينِ وَٱلزَّيْتُونِ ۞ وَطُورِ سِينِينَ ۞ وَهَذَا ٱلْبَلَدِ ٱلْأَمِينِ
لَقَدْ خَلَقْنَا ٱلْآنْسَانَ فِى أَحْسَنِ تَقْوِيمٍ ۞ ثُمَّ رَدَدْنَاهُ
أَسْفَلَ سَافِلِينَ ۞ إِلاَّ ٱلَّذِينَ آمَنُوا وَعَمِلُوا ٱلصَّالِحَاتِ ۞

Núm. 6. Cuerpo 12 (mociones a cuerpo 5)

عن بعض الادباء قال حضر ملك الروم
عند المتوكل فاجتمعت به فقال لما احضر

عَنْ بَعْضِ ٱلْأُدَبَاه قَالَ حَضَرَ مَلِكِ ٱلرُّومِ
عِنْدَ ٱلْمُتَوَكِّلِ فَٱجْتَمَعْتُ بِهِ فَقَالَ لَّمَا أُحْضِرَ
ٱلشَّرَابُ مَا لَكُمْ مَعَاشِرَ ٱلْمُسْلِمِينَ قَدْ حُرِّمَ

Núm. 3. Cuerpo 16 (mociones a cuerpo 6)

الحرف الاول الاسلامبولي البسيط من حر
وف المطبعة الادبية في بيروت التي تقدم
جميع ما يطلب منها من الحروف ۞ ١٩٢٥

أَلْحَرْفُ ٱلْأَوَّلُ ٱلْاسْلَامْبُولِيُّ ٱلْمُسَكَّلُ مِنْ حُرُ
وفِ ٱلْمَطْبَعَةِ ٱلْأَدَبِيَّةِ فِي بَيْرُوتَ ٱلَّتِي تُقَدِّمُ

Núm. 7. Cuerpo 16 (mociones a cuerpo 6)

عن بعض الادباء قال حضر ملك
الروم عند المتوكل فاجتمعت به

عَنْ بَعْضِ ٱلْأُدَبَاء قَالَ حَضَرَ مَلِكِ
ٱلرُّومِ عِنْدَ ٱلْمُتَوَكِّلِ فَٱجْتَمَعْتُ بِهِ

Núm. 4. Cuerpo 20 (mociones a cuerpo 6)

الحرف الاول الاسلامبولي الب
سيط من حروف المطبعة الادبية
في بيروت التي تقدم جميع ما يد

أَلْحَرْفُ ٱلْأَوَّلُ ٱلْاسْلَامْبُولِيُّ ٱلْمُش
كَّلُ مِنْ حُرُوفِ ٱلْمَطْبَعَةِ ٱلْأَدَبِيَّةِ

Núm. 8. Cuerpo 20 (mociones a cuerpo 6)

عن بعض الادباء قال حضر
ملك الروم عند المتوكل
فاجتمعت به فقال لما احضر

عَنْ بَعْضِ ٱلْأُدَبَاء قَالَ حَضَرَ
مَلِكِ ٱلرُّومِ عِنْدَ ٱلْمُتَوَكِّلِ

FIG. 64. Arabic typefaces shown in Richard Gans catalogue of 1922.
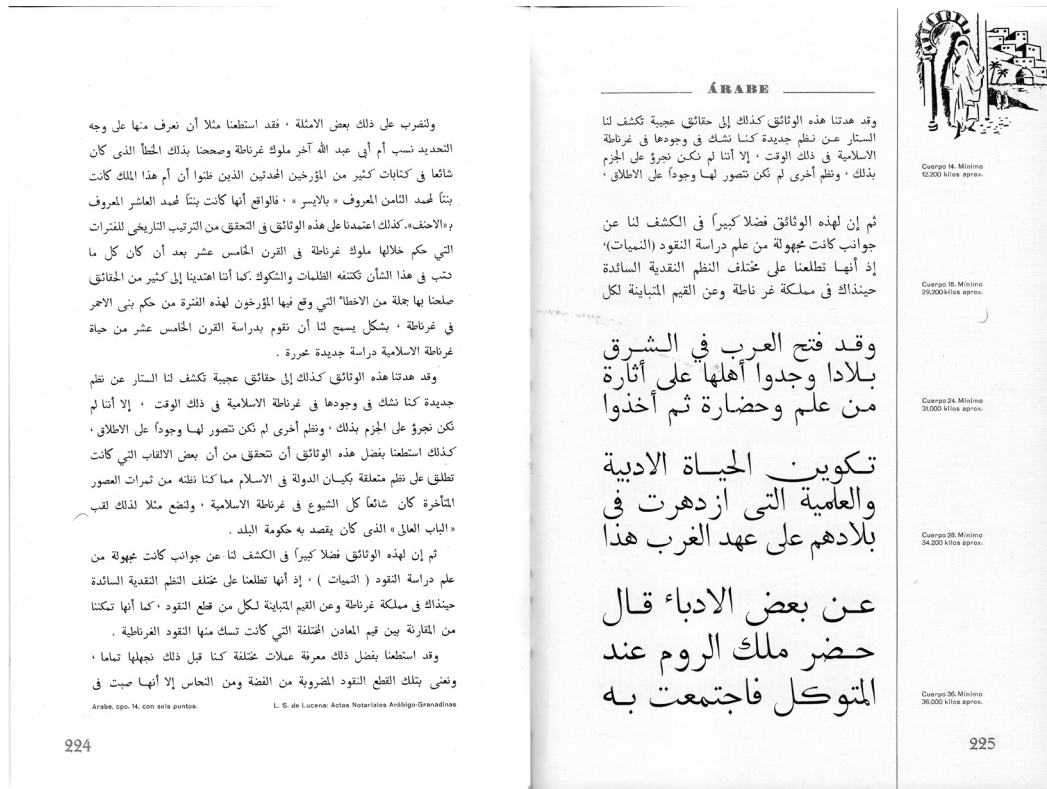
FIG. 65. Arabic typefaces shown in Richard Gans 'Blue catalogue' (ca 1953).

FIG. 66. *Al-Wadhah* typeface, designed by Georges Dib.

جسم ١٦ كوفي

لقد استطاعت بلاد الشرق العربي ان تنفض عن نفسها غبار الجهالة وتمضي قدما في ركب الحضارة . فزودت نفسها بالآلة التي لا يمكن ان يستغني عنها بلد متحضر الا وهي المطبعة .

Koufi normal gras **bold** — جسم ٢٤ كوفي أسود

لقد استطاعت بلاد الشرق العربي ان تنفض عن نفسها غبار الجهالة وتمضي قدما في ركب

Koufi normal italique *italic* — جسم ٢٤ كوفي مايل

لقد استطاعت بلاد الشرق العربي ان تنفض عن نفسها غبار الجهالة وتمضي قدما في ركب الحضارة . فزودت نفسها

جسم ١٦ كوفي

٠٩٨٧٦٥٤٣٢١ « ( ) : . * ÷ ؛ — ●

جسم ٢٤ كوفي أسود

٠٩٨٧٦٥٤٣٢١ (— « . : .) .

جسم ٢٤ كوفي مايل

٠٩٨٧٦٥٤٣٢١ « (— ، . .

جسم ٤٨ كوفي

لقد استطاعت بلاد

(، : .)

جسم ٦٠ كوفي

لقد استطاعت بلاد

جسم ٦٠ كوفي

٠٩٧٦٥٤٣٢١

جسم ٤٨ أسود

لقد استطاعت بلاد الشرق العربي ان تنفض عن نفسها غبار الجهالة .

٠٩٨٧٦٥٤٣٢١ ، ! » ( ) . *

Naskhi gras bold — جسم ٦٠ أسود

تولى زمان لعبنا به وهذا زمان بنا يلعب

٠٩٨٧٦٥٤٣٢١ ، ؟ ! . * » (-)

جسم ٣٦ أسود

لقد استطاعت بلاد الشرق العربي ان تنفض عن نفسها غبار الجهالة

٠٩٨٧٦٥٤٣٢١ » . : ؛ ؟ ! ؛ .

٠٩٨٧٦٥٤٣٢١

Naskhi maigre light — جسم ٤٨ نسخي

لقد استطاعت بلاد الشرق العربي ان تنفض عن نفسها

٠٩٨٧٦٥٤٣٢١ * ، . » ( ) ! ؟

جسم ١٦ أسود

لقد استطاعت بلاد الشرق العربي ان تنفض عن نفسها غبار الجهالة وتمضي قدما في ركب الحضارة . فزودت نفسها بالآلة التي لا يمكن ان يستغني عنها بلد متحضر الا وهي المطبعة . وقاست المطبعة أول أمرها الاهوال وذاقت الامرين ثم ما لبثت ان حطمت من

جسم ١٦ نسخي

لقد استطاعت بلاد الشرق العربي ان تنفض عن نفسها غبار الجهالة وتمضي قدما في ركب الحضارة . فزودت نفسها بالآلة التي لا يمكن ان يستغني عنها بلد متحضر الا وهي المطبعة . وقاست المطبعة أول أمرها وذاقت الامرين ثم ما لبثت ان

جسم ١٦ نسخي

٠٩٨٧٦٥٤٣٢١ * » ( ) ! ؟ ؛ = : . ، / +

جسم ١٦ أسود

٠٩٨٧٦٥٤٣٢١ ٠٩٨٧٦٥٤٣٢١ ! ، . » (= — ! ؟

جسم ١٢ أسود

لقد استطاعت بلاد الشرق العربي ان تنفض عن نفسها غبار الجهالة وتمضي قدما في ركب الحضارة . فزودت نفسها بالآلة التي لا يمكن ان يستغني عنها بلد متحضر الا وهي المطبعة . وقاست المطبعة أول أمرها الاهوال وذاقت الامرين ثم ما لبثت ان حطمت من يعترض لها ويقف في طريقها في بعض بلاد الشرق العربي .

جسم ١٢ نسخي

لقد استطاعت بلاد الشرق العربي ان تنفض عن نفسها غبار الجهالة وتمضي قدما في ركب الحضارة . فزودت نفسها بالآلة التي لا يمكن ان يستغني عنها بلد متحضر الا وهي المطبعة . وقاست المطبعة في أول أمرها الاهوال وذاقت الامرين ثم ما لبثت ان حطمت من يعترض لها ويقف في طريقها في بعض بلاد الشرق العربي .

جسم ١٢ نسخي

٠٩٨٧٦٥٤٣٢١ ٠٩٨٧٦٥٤٣٢١ ! ! — = : .) (× ÷ . : . / ؛

جسم ١٢ أسود

٠٩٨٧٦٥٤٣٢١ / : . . ! — = ! ؟

الشكل
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الشكل
الشكل
الشكل

الوضاح Al Wadhah maigre light

البحر وظلت الامواج

اسلوب جديد في الطباعة ٤٣

صفت هذه السطور وترجمت بلينوجراف
ميلانو ، وعلى اتم الاستعداد لخدمتكم ١٢٤.

كل حرف درس بعناية، كما رسم ووضع في المقاس
المضبوط وعدل الشكل بطريقة أفضل تجعله
أكثر وضوحاً عند القراءة.

رقعي

Rouk'i

جسم ٦٠ رقعي

لقد استطاعت بلاد
الشرق العربي ان تنفض
عن نفسها غبار الجهالة
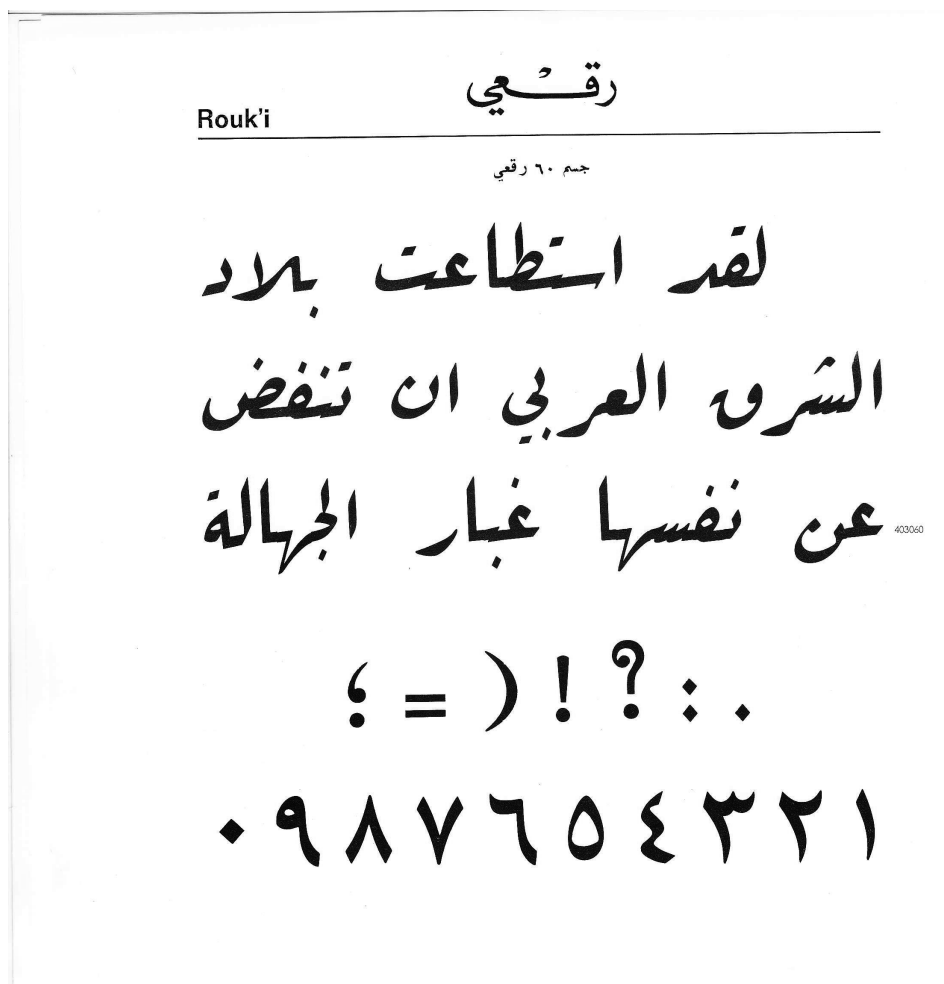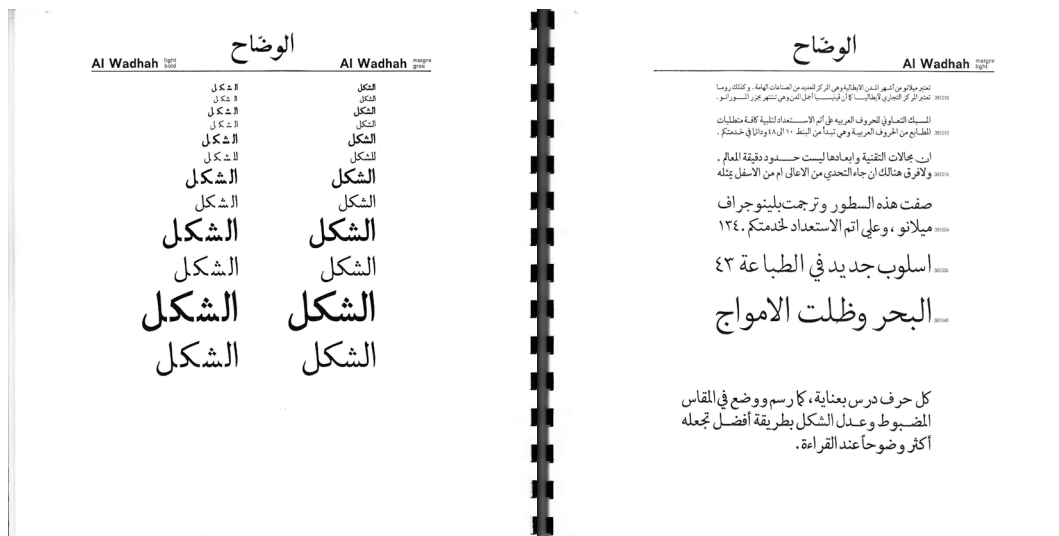
؛ =) ! ؟ : .

٠٩٨٧٦٥٤٣٢١

FIG. 67. The Neufville Arabic collection in 1988.
Naskhi (light, bold), *Koufi normal* (light, bold, italic), *Koufi new* (light, bold),
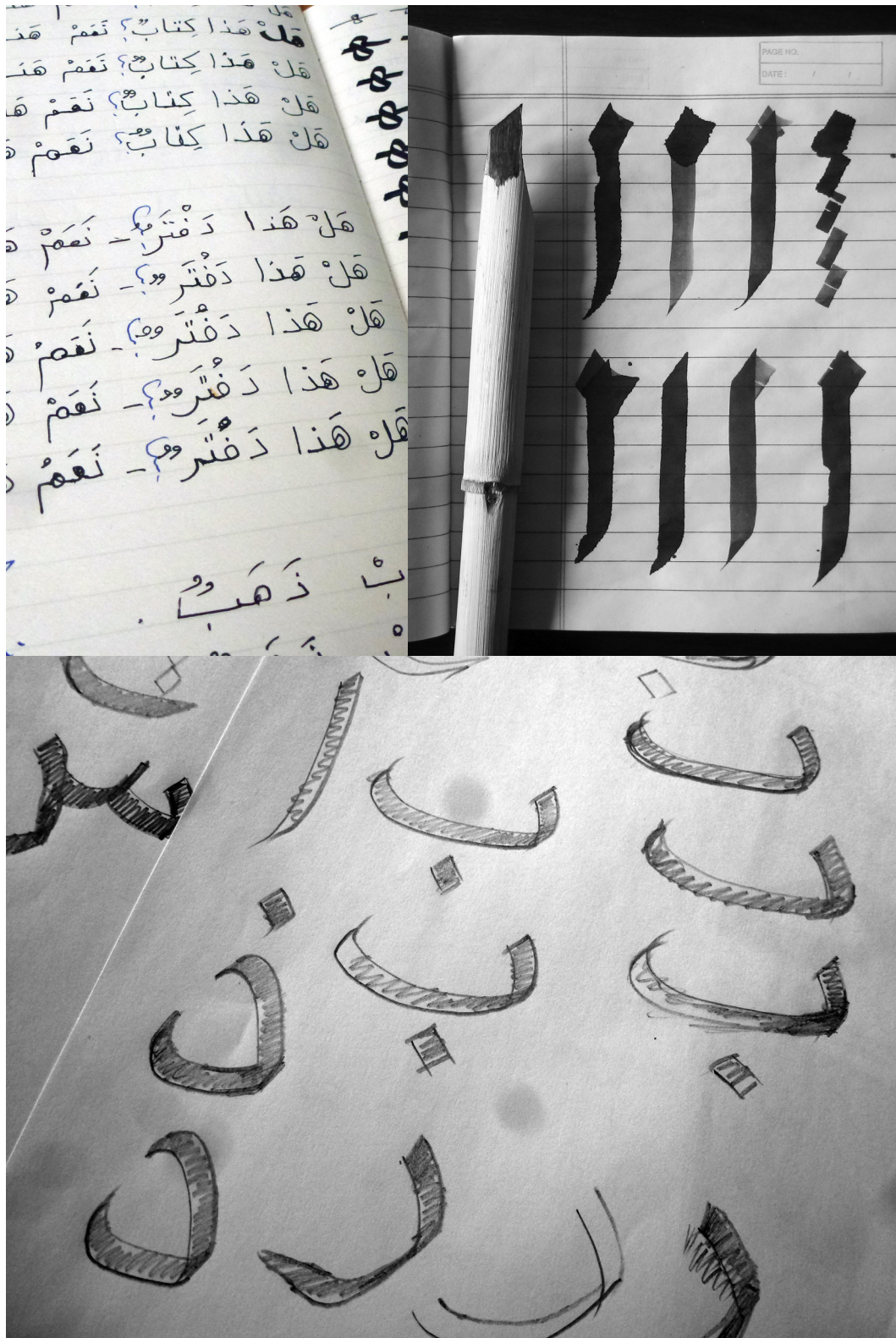*Rouk'i* and *Al Wadhah* (light, bold).

FIG. 68. Writing exercises and sketching Arabic letters.

5
METHODOLOGY

This practice-based research project has been developed in parallel with a theoretical investigation, based on reading, studying Arabic script and researching Arabic types designed and used in Spain.

As a designer and type designer I have applied my professional experience when approaching this practical part of the thesis. Moreover, I have tried to follow an active research approach where experimenting and trial-and-error has been part of the conventional work process. In this chapter I focus on the general guidelines than could be applied to non-Latin type design process, more specially to Arabic type design and its harmonisation with Latin. The next chapter is more focused on how I delivered these guidelines when designing my Arabic and accomplishing the multi-script Latin-Arabic type design. What follows is a proposal for a method when approaching a non-Latin typeface such as Arabic. Every stage of the process has been explained, not only with my personal experience but also with other experiences and statements that come from other practitioners and relevant professionals in the field. Designing an Arabic typeface from a non-Arabic background demands reliance on one's experience and a commitment to a challenging process even though experience on Latin type design can be demonstrated. Since Arabic appeared as a non-familiar script system, I also had to look at other's type design experiences and take into account other opinions and procedures.

In the following sections, I try to give an overview of the process which is as open as possible in order for other designers to be able to find their own way of doing things. I have always believed that there is not a unique way to approach things. There are as many processes as practitioners.

Prior to starting any type design process, I believe it is advisable to observe some principles that apply, not only to non-Latin but to any alphabet design.

5.1 Type design principles

An alphabet, as Saad D. Abulhab expresses, serves several functions. The most important among them is facilitating language learning and writing (Abulhab, 2008, p. 184). Leonidas states that,

> Typography and typeface design are essentially founded on a four-way dialogue between the desire for identity and originality within each brief ('I want mine to be different, better, more beautiful'), the constraints of the type-making and type-setting technology, the characteristics of rendering process (printing

or illuminating), and the responses to similar conditions given by countless designers already, from centuries ago to this day. (Leonidas, 2010)

In type design there are important aspects to take into account. No matter which script, we need to consider different aspects: conventional and the technical aspects and those related to culture. According to Leonidas (2010), "Typographic design never happens in a vacuum".

5.1.1 *Conventions in type design*

Our relationship with lettering, typography and symbols is such a preconditioned aspect of our nature and culture that our appreciation of typography can never be without prejudice (Urban lettering, 2011).

Letterforms are based on conventions. As type designer Gerard Unger states "some aspects have changed very little over long periods and can be called constants".[1] Characters have their own proportions which are based on certain conventions. Tools have contributed to determining them throughout the history of lettering. In the end, letters represent language, which is a convention. Baines argues that "typographers should begin to understand the features of language while at the same time learning the conventions for its notation and the technical processes for its reproduction" (Baines & Haslam, 2005, p. 10). According to Jury (2006), the act of reading is one of the most ruled and governed of all activities. Being taught the meaning of typographic conventions and the function of predictability should not be shirked (Jury, 2006, p. 28).

Although we are currently facing changing habits, shifting from paper to screen, we have developed certain reading habits. This has to do with how the eyes and brain work on writing and reading.[2] As Gerard Unger states, "Habit formation has a considerable effect on typography, and the forms of letters are strongly influenced by habit. Conversely, the types that are most commonly read are reinforced by the habits of readers" (Unger, 2007, p. 84). Not rules, but conventions (or *constants*, as Unger calls it) that come from tradition and should be taken into account in any type design project. So, history is a faithful guide when looking for references or samples in order to analyse how tradition has shaped conventions and habits and how all this have affected type design and typography. For Stanley Morison, the concept of 'tradition' was another way to express the unanimity on some fundamental aspects established from the basis of trial-and-error and corrections, for centuries: *Experientia docet*.[3]

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1 Notes taken from 'Universalia', a lecture of Gerard Unger on 6 July 2009. TDi, University of Reading (UK).

2 On this subject, I recommend further reading UNGER, Gerard, (2007), *While you're reading*, New York: Mark Batty publisher.

3 From MORISON, Stanley (1967), 'Postscript', in *First Principles of Typography*, Cambridge: University Press (1967 edition). Consulted Spanish version, edited by Josep M. Pujol . Barcelona: Ediciones del Bronce, 1998.

Gerrit Noordzij says that "shapes that do not confirm to convention are just not writing" (Noordzij, 2005, p. 9). When writing, there are different reading directions which affect the way to write and movement of the tool and it does affect letter shapes. Type has a direct connection with writing (and not with calligraphy, as a beauty expression of script). Typefaces are based on writing, so they follow similar conventions derived from how the shapes were formed along the centuries.

Also, languages affect the way we see the text, its particular colour and how much space we need for a particular amount of text, its length. Specific letter combinations are more frequent in one language than another. In brief, every language defines its own visual conventions that affect the reading process.[4]

5.1.2 *Cultural context of design*

Designing typefaces for different cultures also affects the design process: designing a new script, for instance, or designing a signage for a historical spot in a touristic city centre. There is a semantic aspect in each case that affects the design.

When designing a typeface for the signage system for Salamanca University (Spain), I took into account the sign lettering samples that had been used for centuries in the old town walls. This historical approach to the problem helped to come up with a solution that connected with the spirit and the idiosyncrasy of the place.[5]

The designer's cultural context also affects the process. As Gerard Unger admits, "the personality of the designer is also part of the design, time and place of origin, but also style and trends".[6] Designing an Arabic typeface from a Spanish-based culture is not the same as if it is based on a Dutch cultural context, even though the results might look similar.

Designing a typeface has to do with detailing letterforms. Details do matter: they are the semantic part to type. Design conveys meaning.

All these aspects or principles (conventional, cultural and technological) have to be considered before starting a type design project. They will affect the process and, consequently, the results. They will also help us to make decisions and get the right answers to any questions during the design process.

5.1.3 *Technical aspects in type design*

Tools have influenced writing and the formal variations of the script: the sort of tool (chisel, broad nib pen, brush, reed pen, etc.), the angle and direction, have

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4   This statement can be demonstrated through the samples shown at: Sadek, George & Zhukov, Maxim (1997), *Typographia polyglotta. A comparative study in multilingual typesetting*, 2nd edition, New York: The Cooper Union / ATypI.

5   For more information on this work: Balius, Andreu (1999), 'Trabajo de campo: Universitas Studii Salamantini', *Grrr magazine*, 5. Barcelona.

6   Notes taken from 'Universalia', a lecture of Gerard Unger on 6 July 2009. TDi, University of Reading (UK).

had different results on the size, weight, inclination, width, and other more formal aspects which affect different qualities of the letterform. Different tools give rise to different shapes, although the letter is the same. Also, the results we obtain are affected by the surface we use (stone, wood, paper, parchment, screen).

Digital technology lets us go beyond metal type and the constraints of a physical shape. Technology provides both limitations and challenges. It forms the framework we work in with type design. The purpose and aims in every type design project will affect the design process and the final result. Legibility is the main goal for any typeface which is supposed to be used for reading purposes. So, designing a typeface for a book, newspaper, signage or whatever, all demands a specific approach to the design process. Reading from a certain distance or reading something that is moving involves different approaches. All processes entail technological knowledge when achieving these challenges.[7]

5.2 Aims and Goals

No project should be started without a clear idea about what to achieve. Even when experimenting, we should be looking for something in particular, otherwise we can get easily lost throughout the experimentation process. It is advisable to focus on something in particular when designing a typeface. We start by sketching and experimenting with tools, shaping forms, whatever, but a goal to achieve should, at least, be in our mind. As Leonidas (2010) states, "First ideas are just that: sketches that may offer starting points, but have to be followed by a clear methodology of structured changes, reviews, testing — and repetition of the whole process". And adds, "At the heart of this process is dialogue with the brief".

Aims and goals — and a proper brief — are prior when starting a design process. They will influence — and determine — the process approach and, obviously, the final result. As Smitshuijzen points out, "all design activity starts with defining the purpose of the design application and the context in which the design has to perform its intended goal" (Smitshuijzen, 2001, p. 117).

We could distinguish between general goals and particular ones. It depends on the kind of project we are dealing with. In this case, general and specific goals have been defined in the introductory chapter and they have to have been present throughout the work process.

When a typeface has to work on text sizes for continuous reading, as is the case here, the image of text should be considered as a whole. Not only are character drawings important but, moreover, the image of the paragraph.

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7   For further information on technical aspects, see: Hersch, Roger (1993), *Visual and Technical Aspects of Type*. Cambridge: Cambridge University Press.

5.3 Non-Latin script: general guidelines

These are basic guidelines that not only apply to non-Latin scripts. In fact, they are prior steps to take into account when designing a typeface.

One prior thing is to consider an alphabet as a system, a code where the same design principles apply to all its components (glyphs). This will provide a unity to the whole character set and cohesion to the entire font.

All design departs from a specific purpose to be pursued, even if experimenting is an important part of the process. Sketching, whether on screen or paper, as a way to 'visualise' ideas, is a proper way to start. After some sketching practise and with a more specific design in mind, we should consider the typeface proportions first: horizontal and vertical [Fig. 69].

Horizontal proportions concern the width of the characters, whether they are more or less condensed or extended, how much space they will save. Vertical proportions determine the relationship between height and depth for all the characters in a font. Proportions are paramount when defining the purpose for our type design.

In digital, vertical proportions are important when designing characters within the constraints of a specific *em* square (when designing with a digital font editor such as *FontLab Studio*). So, first thing should be establishing ascender and descender height by assessing tallest and deepest character measures, taking into account diacritical marks (if necessary). Font editors work on units per em (UPM), where an 'em' has a relative value. There are two main standards in digital font production; the most familiar is the 1000 em square, used mainly for Postscript-based fonts. The 2048 em square is more commonly used for TrueType fonts. This option provides more room for outline definition but, in turn, tends to make characters look smaller in relation with a certain point size.

So, after extreme values have been established, a body size for base characters could be defined. This is the proper relationship between baseline and x-height, cap height, ascenders and descenders (for a Latin alphabet, for example). Not to mention optical adjustments such as overshooting which will establish optical guides for rounded and sharp characters on top and bottom, above x-height and below baseline, in order to look consistent with the rest.

Normally, a base test word is paramount when establishing proportional relationships in a single word-image. It helps to visualise how the proposed proportions work according to the specific purpose for our typeface and, moreover, how the characters look as a whole. Another important detail to determine when defining characters is the relative stroke weights, if they are thin (light style, regular style, etc.) or thick (bold style, black style) when we draw the outlines. The character stroke defines the weight for our typeface. Again, according to the typeface purpose, one weight will be more suitable than another. If we plan to design a family, we should considerer to begin with a regular/normal weight at first. Even, if we plan to design a large family dealing with interpolation, I recommend to start with the most

usual weights and interpolating middle weights.

Counters, white space inside and outside characters, should be balanced enough to provide a unified view of the character set. This fact also contributes to the proportional aspect. A character can be seen as bigger or smaller, depending on its counters.

If we work on a connected script (Arabic, Devanagari, for instance), we need to consider the joining method and how we solve the overlap between characters. In case, we take into account any accompanying script (Latin, Cyrillic, Greek…), we need to consider adapting each gently to achieve a better relationship. Every script is different and has evolved differently. So, they have to be considered and studied independently and not subordinated to any other script, as usually happens.

These guidelines would be the very starting point and will be further explained throughout this document.

5.4 Arabic type design: general guidelines

5.4.1 *Determining the style*

The first point to be considered is the style. As mentioned above, there are different Arabic styles. The most common ones are Kufic, Thuluth, Naskhī, Muhaqqaq, Rayhānī, Nastaʿliq, Tawqī and Ruqāʿ (they have been further explained in chapter three). Some of them are more suitable for certain purposes than others. So, it is paramount to define the style before start work on the specific shapes when sketching or defining letterforms. In Arabic, the script style is very much related to the purpose of use. The designer Pascal Zoghbi agrees that, "Upon starting an Arabic typeface design, the first step to do is to choose a calligraphic style to refer to while drawing the letters. The choice of calligraphic style is directly depended on the purpose and use of the typeface" (Zoghbi, 2007).

Each style has its own conventions. So, following one style will provide more unity to the type design. A mix of styles would be misread by a familiar Arabic reader. It would be complete nonsense. Style is not only a convention that comes from a specific writing school but a high cultural issue. The style also defines the degree of simplification needed when drawing letters: A style such as Kufic allows more room for form simplification than other styles less related to geometry.

It is advisable to have reference material on this specific script. Having photos or reproductions from original manuscripts, or a calligraphy manual with written samples would help for those who are unfamiliar with a specific Arabic style.

In the following chapter I will discuss which decisions and criteria I have followed when designing my Arabic.

5.4.2 *Experimenting & learning*

While sketching and looking at different samples of Arabic writing, it is necessary to practise writing by going back to basics, i.e. shaping the different letters of the Arabic alphabet in their different forms: isolated, initial, medial and final. It is

advisable to attend a calligraphy course or self-taught learning course using a good manual. Starting with the isolated letters first is a good way of becaming familiarised with the Arabic alphabet and the pen movements. Writing direction and the pen angle influences the whole letter shape when writing. In order to maintain the most comfortable writing angle of 30-45 degrees, the nib of the pen for Arabic is cut diagonally to the left about 35-40°, while the pen for Latin is cut off at an angle of 60-70° to the shaft [Fig. 72]; which is why Latin type emphasises the vertical stems of letters. Arabic, on the other hand, puts the emphasis on the horizontal strokes, which are thicker than the vertical ones. The width is greater in Arabic letters than in Latin ones, since horizontality it assumes more relevance. Whereas, in Latin where letters are unconnected, the height is paramount in order to keep characters visually upright.

As Huda Smitshuijzen explains in her *Arabic Typography* book:

The European scribes used their pens at an angle of 3o° when writing Latin text from left to right. The result of the pen's angle and the writing direction created letters that consist of heavy vertical strokes (slightly slanted towards the writing direction), and thin horizontal strokes, the latter used to connect the letters to one another. (...) The thin horizontal strokes of Latin script created simple, horizontal connections between letters, thus eliminating any need for shape variations per individual letter regardless of its position within a word. (Smitshuijzen, 2001, p. 94)

Regarding Arabic, she says,

The writing pen used may vary in size and shape from one calligrapher to another, but when compared to the pens used in Latin calligraphy, they are invariably cut at a much steeper angle, and the writing runs in the opposite direction of Latin script. These two facts led to an opposite effect on the construction of the Arabic letterforms. The letters in Arabic consist of thin vertical strokes and thick horizontal strokes. The thickness of the horizontal strokes which form the connections between the letters, gives them an important presence, and creates a complex system that governs the way letters can be connected to form a word. (...) The complexity and importance of the connections between letters in the Arabic script explains the need for shape variations of individual letters in relation with their position within a word. (Smitshuijzen, 2001, p. 95)

5.4.3 *Drawing letters*
When designing a Latin typeface, it is useful to begin definite drawings (on paper or screen) using a test word: a word that contains base letters which apply to certain basic proportions on height, depth and width. Such words as 'Hamburgervons' can help in order to get a specific word-image that helps to value how our typeface is

working visually.[8] 'The quick brown fox jumps over the lazy fox' is the most used pangram in English, since this sentence contains all the letters of the alphabet (for the English language). Something similar is impossible for Arabic because of the different positioning shapes of letters. When looking for a test sentence or word for the Arabic, there is no established standard so far.

Smitshuijzen suggests the sentence: هي كطوع المشعلادن (Smitshuijzen, 2001, p. 183), while Pascal Zoghbi proposes also Smitshuijzen's sentence and introduces a new one: هُمْ وطرابيشُهُم يرقُصون الدبْكَة (Zoghbi, 2007a).

As in Latin, any word or character combination which uses the 'extreme' characters (tallest and deepest) of the Arabic alphabet could be also valid as a starting point, regardless of whether the sentence makes sense or not; it is a matter of proportional visualisation. Zoghbi (2007) proposes that the sentence should include letters with ascenders (Alif, Kāf, Ṭā'), descenders (Rā', Nūn, Ḥā', ʿAyn), eyes (Wāw), loops (Fā') and teeth (Sīn, Tā'). Abulhab (2008) proposes that "ascender and descender values of Alif, Dāl, Bā and ʿAyn can certainly be adequate reference points to work with in any Arabic typeface design project (p. 188). But he states that "Bā is the best letter to start with followed by Alif. These two shapes define the font's harmony and style" (Abulhab, 2008, p. 189).

My position is quite close to that proposed by Abulhab. I have to say that I began experimenting with different letters (since all was new and very appealing to me), but at a certain point I realised that I should be more efficient and work on some basic (isolated) shapes, such as: Alif, Bā, Sīn, ʿAyn, Wāw and Ḍād. The most important thing was to define the tallest and deepest characters in order to establish ascenders and descenders for the Arabic.

In order to follow an easier procedure when drawing the rest of characters, it is advisable to first design all base characters as other characters derive from them. The base characters are: Alif, Bā, Ḥā', Dāl, Rā', Sīn, Ṣād, Ṭā', ʿAyn, Fā', Qāf, Kāf, Lām, Mīm, Nūn, Hā', Wāw and Yā' [see Fig. 4 on page 66]. I come to this later in Chapter Six, where I focus on my project.

5.4.4 *Historical script knowledge*

Throughout the history of Arabic script some conventions have been established when defining the right model to follow. According to Ibn Muqlah, one of the masters who renovated and unified Arabic calligraphy practice in the tenth century, three principles for letterform proportions should be applied:

Nizam Al-Dairah principle: The height of letter Aleph defines the diameter of a virtual circle which all the basic letters should relate to [Fig. 13].

Nizam Al-Nuqat principle: Taking the dot (defined by the thickness of the horizontal stroke of the pen) as a modular element, each letter is drawn according

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8   In the MA of type design at Reading University, they use the test word 'adhesion'. There are other base-image words as: 'handgloves' or 'video span'. For Latin, I use the word 'albino' or 'alpino' (in lowercase) for Spanish, or 'bacalhao' for Portuguese.

to a specific number of dots. That maintains the relations among letters according to the same unity element [Fig. 13].

Nizam Al-Tashabuh principle: In order to keep visual unity consistent within the system it is important to draw similar strokes in different letters [Fig. 13].

These geometric proportional principles should not condition the designing of an Arabic typeface, but would be a good referent in some cases to follow conventions.

Although I have taken this classic proportional canon into account, I consider typography does not need to stick on these calligraphic rules too literally. When defining proportional guidelines which apply better to typography than calligraphy, we are already defining the relations between letters. The last principle is basic in order to provide consistency. I believe the last Ibn Muqlah's principle is the only one that fits with typographical principles.

So, I relied on my eye, even though I tried not to distance my drawings too much from those calligraphic conventions.

5.5 Character design

5.5.1 *Outline drawings*

From paper sketching we can define the final drawing design for our characters. At a certain point of the process of defining our characters, we can start drawing outlines on screen. We can use vector drawing software such as Adobe Illustrator or go directly to our preferred Font Editor. At the moment there are different open source font editor software packages available, such as FontForge, and licensed software such as Fontographer, FontLab Studio, Glyphs and RoboFab (are the main ones). There are also other small applications that provide support to specific parts of the design and production process: Superpolator, Prepolator, MetricsMachine, RoundingUfo and UfoStretch. Programming in Python can help to automate tasks since most software packages permit it.

The Arabic alphabet has 28 letters and the necessary Lam-Alif ligature and the Hamza. As already mentioned, there are letters that share the same basic design; they are only differentiated by their diacritical dots (they may be from one to three, above or below the letter). So, in the Arabic alphabet, we find 18 basic shapes that can be drawn first, since the rest can be obtained later [Fig. 4]. It is advisable to begin with the isolated letters and continue with the alternate (initial, medium and final) forms. For these cases, the similarities in shape with base characters also apply.

If we have defined our letters using a base test word, then we can start digitising those characters in our Font editor and see what the test word looks like on screen. When digitising, we could start by scanning the sketches and importing them as a background layer. Otherwise, I recommend redrawing sketches on screen without the scanning process. No matter how we begin, if sketching and drawing on paper

or directly on screen, as explained above, there are certain letters that would make a good starting point.

5.5.2 *Setting proportional guidelines*

In the Arabic alphabet we find four levels of sound information, and therefore meaning: the letterforms, the diacritical dots, the vocalisation marks and the miniature letters. The vocalisation marks are not always used within the text but it is necessary to make allowances. For decorative purposes, a fifth layer with ornamental signs could be added, but since this is more related with calligraphy practice than typography, it will be discarded in this project [Fig. 8].

Arabic script is unicase. There is no need to define a cap height guideline as we often do in Latin for all those cases where cap height is different that ascender height. Also, there is no sense establishing an x-height as we normally do when designing Latin alphabets. For Arabic, there is not only one x-height guideline; instead there are loops and tooth heights that should match the different specific levels. So, proportional guidelines for Latin and for Arabic should not necessarily fit. In fact, they must not; otherwise we would get a distorted result of the script with consequences for legibility.

For the Arabic letterforms we have different proportional guidelines that fix the highest and deepest part of any character: (from top to bottom) Ascender - Loop height 1 - Loop height 2 - Tooth height - Baseline - Descender 1 - Descender 2 (Smitshuijzen, 2009, p. 93). But we could have more guidelines, if it fits. In fact, I have defined more guidelines [Fig. 69].

For the diacritical dots, we do not have any specific lines, since they should be located over or below the character at a certain distance according to legibility conventions. The same applies to the vocalisation marks and miniature letters which appear over or below characters. One of the mistakes is to locate all marks at the same height, which makes a mechanical impression of the script. This practice was quite frequent in the days of metal type. With digital, we can be more close to writing mark positioning. According to Abulhab,

> Designing a type with multiple x-height values is as easy or difficult as designing one with a unique x-height value. It is true that Arabic body shapes are not confined to three uniform fixed y-axis values, but they do not ascend and descend randomly. In a harmonious design, they should adhere to multiple y-axis values determined by their relationship with each other. (Abulhab, 2008, p. 188)

As Zoghbi states: "There isn't a rule that fits all Arabic typefaces as in the Latin typefaces" (Zoghbi, 2007). According to the Ibn Muqla principles, Zoghbi (2007) considers that the proportional guidelines in Arabic type designing replace both *Nizam Al-Dairah* and *Nizam Al-Nuqat* principles. In fact, as mentioned before, guidelines establish type relationships among all characters in a font. If we work on a type design based on Kufic, it is more easy to stick to a few guidelines (as happens

with Latin), but if we decide to work on the basis of a calligraphic style such as Naskhī or Thuluth, then we need more guidelines that those proposed above. In fact, as I will explain later, I have defined a few more guidelines in order to have a more 'calligraphic' appeal.

5.5.3 *Joins*
Arabic characters should join, if they are not isolated. The kind of join and how characters overlap should be well considered and tested to provide enough flow and movement among characters. Since Arabic typography is so close to writing, the connection between characters is an important goal to achieve. Hudson encourages all designers of Arabic fonts to do two things, though: move away from the flat baseline which is an artefact of earlier typesetting technologies and not consistent with an authentic Arabic Naskhī style, and use contextual variants instead of ligatures (Hudson, 25 October 2010, personal communication).

That is an important point, I believe. Following Hudson's advice I tried to make my joins as short and curvilinear as possible in order to get a 'faster' and more fluent *ductus*.

For Abulhab (2008), "writing speed was possibly a major factor behind connectivity. But the creation of alternative position dependent shapes was most likely a requirement for an uninterrupted pen flow" (p. 185). He establishes a link between writing speed, the need for connectivity and the alternate shapes of letters. Having an extended set of ligatures in the font improves the visual richness of text. Also with contextual variants, as Hudson recommends.

5.5.4 *Dots and vocalisation marks*
For Abulhab (2008), "dots are crucial to Arabic glyphs. They should be generously emphasized" (p. 189). Dots are placed relative to characters. They should be adequately proportional to the glyph since they respond to the logic of the tool stroke. The dots are identical throughout the entire font. Like the dots, the vocalisation marks are placed relative to shapes, as Abulhab recommends, "adequately distant locations in order to preserve shapes' integrities and emphasize vowel diacritics from dots and other mark diacritics" (Abulhab, 2008, p. 188).

When designing the diacritical dot, I recommend staying close to the width stroke. This makes more sense to the whole character set [Fig. 70].

Vocalisation marks need to be visible enough in small sizes. So, they should be designed according to character proportions. Allowance in the vertical axis is necessary [Fig. 71].

5.5.5 *Type design references*
It is advisable to look at good type design references to see how other designers have solved specific letterforms or how characters relate to each other. This helps to understand how other practitioners have faced certain problems such as proportions, diacritics positioning or joins between characters.

The *Arabic font specimen book* by Edo Smitshuijzen (2009) is a huge source of

Halpino-x

ASCENDER

LOOP HEIGHT
TEETH HEIGHT 2
TEETH HEIGHT 1

BASELINE

DESCENDER 1
DESCENDER 2

DESCENDER 3

Hxl ابلين

ASCENDER

LOOP HEIGHT
TEETH HEIGHT 2
TEETH HEIGHT 1

BASELINE

DESCENDER 1
DESCENDER 2

DESCENDER 3

قفهدووط

ASCENDER

LOOP HEIGHT
TEETH HEIGHT 2
TEETH HEIGHT 1

BASELINE

DESCENDER 1
DESCENDER 2

DESCENDER 3

رسصحعم

FIG. 69. Proportional guidelines.

samples, although not all the fonts collected deserve the same attention. There we can find the 'classics' from Linotype (*Yakout*, *Karim*, *Lotus*) and other relevant foundries.

Foundries specialising in multi-script fonts, like Rosetta (http://rosettatype.com/) publish type specimen PDF available for download. Also the works done on the MA in Type Design at the University of Reading are published on line at: http://www.type-facedesign.org.

5.5.6 *Complete design set*

We need specific characters to write in other languages different from Arabic language itself. Arabic script, apart from being used for the Arabic language, is also used for other non-Arabic languages such as Farsi (Persian), Pashto, Dari (Afghanistan), Urdu (Pakistan and India), Jawi (Indonesia), Kurdish (Iraq), Uyghur (China), Baluchi, Dargwa, old Hausa, Ingush, Kazakh, Kashmiri, Kirghiz, Lahnda, old Malay, Punjabi, Sindhi, old Turkic, and others.

We have to take into account which characters should be included in our font. Creating a specific encoding for this is recommended.

Numerals are also a new challenge since Arabic script uses both Arabic and Latin figures. Arabic combines Latin numerals within the text. That can be tricky, but the only thing to take into account is that Latin figures should not look bigger than Arabic characters. Arabic numerals should follow the same logic as characters. In order for them not to look too high in relation to the rest of characters, I recommend making them shorter than Alif characters. So, a new vertical guideline should follow for Arabic numbers.

5.6 Matchmaking process: Latin-Arabic multi-script font

5.6.1 *Proportions*

Latin and Arabic are different scripts and, throughout history they have evolved differently. Every script has its own structure and proportions. Whereas, when combining two or more scripts in the same font, each one should maintain its own proportions since it affects legibility and its cultural idiosyncrasy. So, it is important to respect this principle, no matter how difficult the matchmaking process is.

Latin designers are used to a reduced number of proportional guidelines. It is a mistake to force the proportions of Latin onto other scripts, unless they fit by nature (for example, the combining of Latin script and Cyrillic). For Arabic script, we will need to deal with different kinds of proportions, whereas we will try to match both scripts for proper use as a reading text. The only thing that Arabic and Latin scripts will share is the baseline guideline, although this is not always true in some Arabic styles. The baseline is the visual base guide where all glyphs will be positioned according to its reading orientation. In our case, this would be a good principle to begin with.

As Březina points out, "harmonization of the base-height[9] of two type-faces is nothing else than optical balance of their apparent size" (Březina, 2007. p, 8).

It is useful to analyse the extreme characters, the deepest and the highest on both scripts and try to harmonise them side by side. The different range of ascenders and descenders in the Arabic script, together with the relative small shapes and counters, usually makes Arabic look smaller than Latin script (Nemeth, 2006a). The extremes for the Arabic (ascenders and descenders) are normally more prolonged than for the Latin characters, even more so if we take into account allowance for vocalisation marks. So, the clue is to balance the base-height of both scripts visually. There is no need to force proportions.

The need for the vertical space for the case of the Arabic script forces enlarged line space (extra leading) in order to avoid a collapse between lines when composing text. This extra leading makes Latin text look too open. To avoid the excess of white space between the lines, the ascenders and descenders of the Latin typeface could be enlarged slightly (without compromising the original proportions).

5.6.2 *Colour*

One important thing to asses when combining different scripts is the colour and texture they provide to the text. When designing typefaces for reading purposes the aspect of the paragraph precedes anything else. Any little detail in typeface design can influence the general colour of the text. When harmonising scripts, text colour is an important issue.

As Bringhurst states "the more closely different alphabets are mixed, the more important it becomes that they should be close in colour and in size" (Bringhurst, 1996, pp. 106–107).

Colour and texture are influenced by the script, but also the language we use when composing text.[10] As Březina remarks, "the languages defines the composition of a character set, letter frequency, certain letter combinations and use of diacritics" (Březina, 2007, p. 12). Latin script can have different textures depending on the language we use: Spanish does not work in the same way as English or German which have very large word images. Changes to texture and colour are more evident when we use different scripts.

Colour is influenced by the thickness of the stroke, how thick or light the character is, its weight. Weight is distributed differently in Arabic than in Latin. Arabic, for example, with its connected letters offers a more evident horizontal line on the baseline: while Arabic distributes its weight on the horizontal strokes, Latin does it on the vertical strokes. Also counters and space between letters affects the

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9   *Base-height* is a term that Březina uses for the base character height, the dominant vertical proportion of the script

10   This statement can be demonstrated through the samples shown at: Sadek, George & Zhukov, Maxim (1997), *Typographia polyglotta. A comparative study in multilingual typesetting*, 2nd edition. New York: The Cooper Union / ATypI.

colour of text. Another important issue to observe is that the regularity of x-height in lowercase Latin reinforces reading the horizontality, while Arabic with the different range of ascenders and descenders, including vocalization marks, uses the vertical space of the line more.

So, as we observe, both scripts distribute colour in an opposite way. Therefore equalising colour means establishing a weight balance between vertical and horizontal strokes for both scripts, taking optical considerations into account.

Connected or unconnected scripts affects texture. Stylistic elements such as serifs affect texture, as well. Contrast and modulation also affects both colour and texture. The differences between thin and thick parts in the characters are related to how boldness is spread along the lines of text.

The contrast balance between Latin and Arabic can also be achieved trying to equalise the thinner and thicker part of character strokes and establishing similar criteria when applying contrast zones and modulation. But, according to Březina's advice, "the natural look of the script should not be sacrificed for the purpose of texture harmonisation" (Březina, 2007. p. 12).

5.7 Transliteration characters (Latin)

When using Latin script in an Arabic perspective, transliteration of Arabic characters into Latin characters is a must. Transliteration is also simple in the sense that one Arabic letter (consonant) is transliterated with one roman letter.

Normally, these characters are not included in commercial fonts. As Pim Rietbroek points out in his article about Arabic transliteration, "Until recently, common computer operating systems had few fonts which supported all of them (transliteration characters): Times New Roman, for instance, lacked some until it was updated with the introduction of MS Windows Vista".[11]

Transliteration characters, although they are included in Unicode table, are usually not available in multi-script fonts. Since OpenType enables the inclusion of a large number of glyphs within the font file, I find the lack of these characters quite illogical. They will be particularly useful when transliteration from Arabic is needed within the text. Including characters within the font which would be an important upgrade to the final result.

There are different transliteration methods for Arabic. I have used the *Deutsche Morgenländische Gesellschaft* rules (original document is included in Appendix 2), which corresponds to the DIN 31635 (1982) norm, since it is one of the most used and recommended systems for transliterating Arabic for scholarly purposes.

The easiest way to key the transliteration characters is to use a dedicated keyboard for Arabic transliteration. One of the best, and available for both MS

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11   RIETBROEK, Pim (2010), 'Brill's simple Arabic transliteration system', http://www.brill.com-downloads-Simple_Arabic_transliteration.pdf.webloc [Last accessed on 23th January 2013].

Windows and Mac os x at no cost, is Alt-Latin. It can be downloaded from The University of Chicago Library site, where you can also find clear documentation.[12]

5.8 Font production

5.8.1 *Encoding*

One of the first things when assigning glyphs to keyboard keys is defining a proper encoding in order to cover all necessary basic languages for Arabic script.

Encodings are based on the Unicode (Universal Character Code) system and they are normally included in any Font Editor software. Unicode is a method of programming fonts that assigns a unique code to every symbol in every writing system. Thus, no matter what Unicode font is being used, software will always use precisely the symbol being called for (assuming that the font has that glyph or symbol).[13]

As it is further explained in Knut S. Vikør's page 'The Arabic Macintosh. An informal resource centre',

> Unicode is actually just an agreement between computer makers (a standard) that every character in every possible script and language in the world, dead or alive, is given its own particular number. The computers use these numbers to identify the characters, and thus a Mac and Windows machine will agree on what should be displayed as an *Alif*. Unicode is actually no more than that, a piece of paper signed by various computer companies and an international standards board, it is not a program you can install on your machine that does something or such. Thus, computers and applications can choose to apply this standard in their software, or not. Today, basically all computers do, but applications may or may not.[14]

This agreement together with OpenType font format have solved traditional problems for displaying large writing systems such as Arabic, Chinese or Devanagari, for instance, since Unicode can provide ID numbers up to 65,535 different glyphs.

In the last version of Unicode (Unicode 6.2) Arabic script is defined in different blocks.[15] The basic encoding ranges for Arabic are U+0600–U+06FF. Other encoding ranges include glyphs mostly used for non-Arabic languages, additional Qur'anic notations, contextual forms and ligatures: Arabic supplement (U+0750–U+077F), Arabic Extended-A (U+08A0–U+08FF), Arabic Presentation Forms-A (U+FB50–U+FDFF), Arabic Presentation Forms-B: U+FE70–U+FEFF.

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12   See Appendix 2 for more detailed Arabic transliteration information. It also explains the way to access these special characters.

13   For further info on Unicode, see: www.unicode.org [Last accessed August 2012].

14   http://www.smi.uib.no/ksv/ArabicMac.html#uni [Accessed February, 2013].

15   Unicode ranges are included in Appendix 4.

5.8.2 *Metrics (spacing & kerning)*

An important part of the production part is the spacing for each character according to optical 'black and white' balance. Letter spacing is an essential aspect of font quality. Most font editors are provided with an automatic spacing parameter which I do not recommend because the results are far from accurate.

Anyway, there are ways to make the process easier by establishing a series of classes for glyphs that have similar design forms. This way, the same values are assigned to all the glyphs that belong to the same class. This also can be applied for kerning values.

Space is set when assigning specific values to each side (side bearing values). There are different 'techniques' to follow when defining spacing values. One of the most widely used is that recommended from Walter Tracy in his book *Letters of Credit* (pp. 70–80). Obviously, this is useful for the Latin characters. The variability of Arabic with its different glyphs for each character makes it difficult to figure out some sort of formula. For the isolated ones, the characters Alif and Bā could be a good starting point.

Since Arabic characters are attached when composing words, it is important to determine a good connection between them. That is, to define the distance of the connecting part (horizontal stroke) and the white space that is left on both sides.

Kerning is not less important. It has to do with making spacing adjustments for specific letter combinations. When working with classes, some kerning exceptions are needed when some specific glyphs do not fit well with the general values. It usually happens with accented characters.

5.8.3 *OpenType features*

OpenType is a font format technology co-developed by Adobe and Microsoft which allows the features inside the font to be created (Boeuf, 2011). The features determine the behaviour of glyphs within the font, how they interact with each other, and gain control of character substitutions and positioning within the text. These features can be defined with font editor software such as FontLab or Glyphs, or using tools such as VOLT (Visual OpenType Layout Tool),[16] offered by Microsoft. Programs that support OpenType fonts will allow control to be taken of the OT features. Working with Arabic, for example, it is necessary to use the glyph substitution feature for initial ('init'), medial ('medi') and final ('fina') forms; also for some required ligatures ('rlig') such as Lam-Alif ligature. If the font is multi-script, there should be as many features as necessary according to each script's functionalities (small caps, old style numbers, tabular figures, discretional ligatures, etc.).

5.8.4 *Font generation*

The last stage of the process is preparing the document to generate the font, i.e.

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16   The *Arabic font production tutorials* from Stéphane Boeuf provide some basic information on how to deal with VOLT.

exporting the font file in a specific format to be able to use it in any application software or platform. It is important to check all the information that is attached within the font file and fill it up before generating the font, although some of this data can be defined at any moment throughout the work process. In fact the metrics and dimensions for the font should have been defined at the very beginning. That is, the font UPM value, the Ascender, Descender and x-height values. These values are different for Latin and Arabic, although both scripts should fit within the same UPM value. Font editor allows different guides to be set for vertical proportions, so the ascender/descender values can be applied to any of the scripts. Only the x-height value should fit for the Latin script.

Among the stored data whose values or information should be defined before generating the font are: the identification data, the font naming and copyright, checking encoding, hinting settings and all export specifications depending on the font format (Postscript, TrueType or OpenType).

Moreover, if the font is supposed to work on screen, it is advisable to check hinting and export the font as a TTF for a later export to other font formats specific for web, such as the .WOFF (web open font format) format.

The process of hinting, which would lead to more extensive literature, is done automatically with the generating process. Both FontLab and Glyphs generate hinting instructions when generating/exporting the font. For further information on different technical processes, it is advisable to check the user manuals.

5.9 Working from a historical approach

When working from a historical perspective, doing research on old type specimens and other printing material, it is important to know what the goal of the research is and what the goal for the practical project is. Both processes should run in parallel and complement each other and never compete. The results from a historical investigation cannot always fulfil or be totally implemented in the practical work.

Performing a revival can be effective if the purpose of the typeface is clear and not diminished by the historical features. Reviving something from the past can be a heavy weight to carry on throughout the whole design process and can lead to a type design that is a too old-fashioned and not very useful.

There are certain stages in the historical research process where it is necessary to analyse to what extent the research is helping the practical design process or not.

Sometimes, results are not what was expected and it is better to follow different paths. And this usually happens when the historical material is focused on the research is not of a sufficient quality or could lead to unsatisfactory results.

This has occurred in my approach to the Arabic types created in Spain in the second half of the eighteenth century. When studying the Spanish types cut by Jerónimo Gil, I realised that they were not of a high enough quality to be used as a reference model to follow. So I had to discard those samples even though I tried to

keep a tiny hint of the Spanish typefaces, as I will discuss in Chapter Six.

As has been explained in previous chapters, there is a lack of quality in most of the Arabic types that were cut in Europe during the printing press years. When considering the work of European punchcutters, Geoffrey Roper argues that,

> Those imposed distortions and limitations on their Arabic type designs, [were] partly because of their own failure to appreciate the subtleties of Arabic calligraphy, and partly because of the need to economise with ligatures and other refinements in order to create practical and affordable founts. The same was true of many other Arabic typographers in different areas of Europe down to the 20th century. (Roper, 2009)

When it comes to Spain, this is no different. Apparently, it becomes difficult to understand the reason for this misunderstanding of the Arabic script when being translated into the printing technology, taking into account the large cultural Arabic legacy within the Iberian Peninsula. But, as argued in earlier chapters, Spain was no exception. As Lara Captan (2011) recognises, "There is hardly any scholarly work discussing the forms generated at the birth of Arabic typography, nor how they evolved until the advent of the printing press in the Ottoman Empire" (p. 5). I also realise that there is no study that examines the reasons for this misunderstanding of the Arabic script for the printing press, apart from a few articles and a couple of lectures on Euro-Arabic type design (Thomas Milo's lecture in ATypI Reykjavik 2011).

Nevertheless, any historical research, although it would not help with finding proper references for an original type design, has the power to put things within their context and provide a broader scenario to understand.

This chapter tried to summarise the most important steps in a multi-script type design process, focusing on Arabic type design. It began by exploring some basic principles that apply to any type design and script and followed by more general guidelines to some more specific ones. While explaining the process, I have tried to set up a methodology. And although some parts of the process may occur in parallel, I have tried to establish a certain order. It is important to take into consideration that part of the reading process explained in the literature review happens simultaneously to some of these practical stages: the calligraphy literature part, for example, or the observation of manuscripts and primary sources.

Readings on history and more academic essays have provided a general framework that helped me to make decisions during the design process. As mentioned, the historical approach provided a richer backdrop to the whole work process.
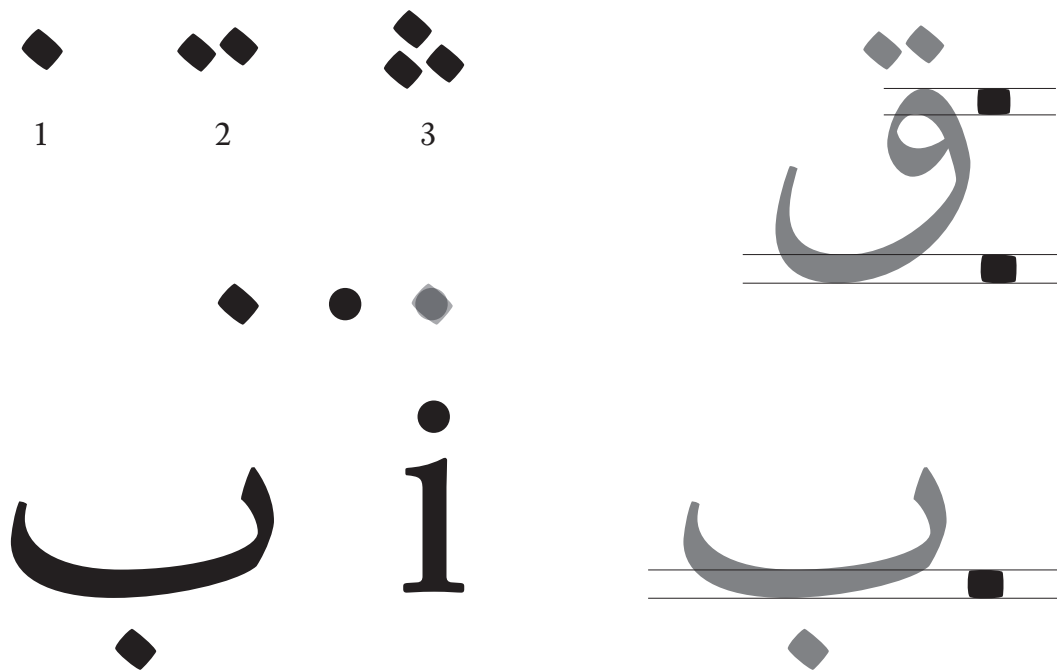
FIG. 70. Diacritical dot in relation with the stroke.
Double and triple dots are a bit smaller than the single dot in order to avoid exessive weight. Rhombic Arabic dot is similar in weight as Latin dot.
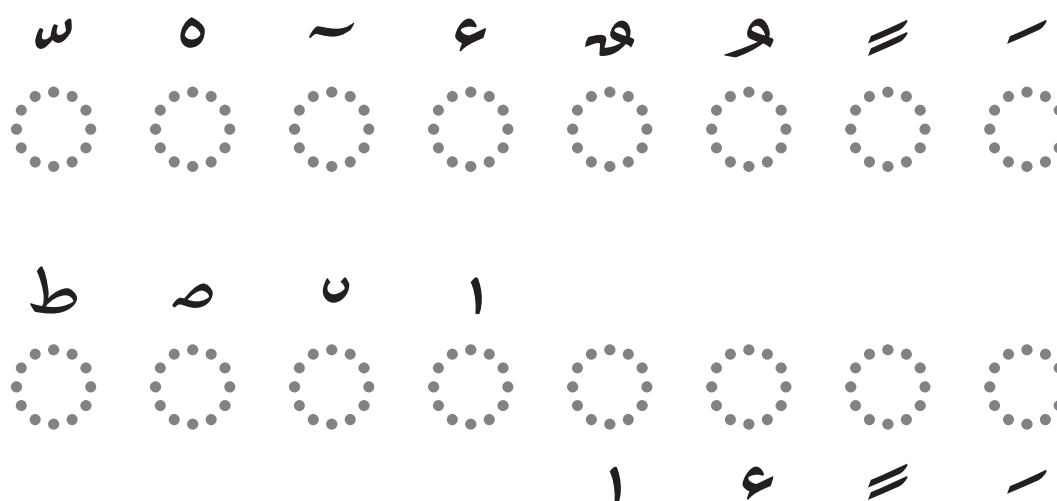
FIG.71. Vocalization marks.

6
The design of Al-Andalus

The multi-script Latin-Arabic typeface which is part of this practice-based research is called *Pradell Al-Andalus*. Since I took my typeface *Pradell* as the Latin counterpart, inspired by the work of Spanish punchcutter Eudald Pradell, I thought the Arabic part could join the family instead of being something separate. Moreover, when thinking of the use of the font, I found it more useful to select both Latin and Arabic by using the same name.

The name 'Al-Andalus' was chosen in remembrance of the Arabic cultural legacy. This is the reason for this name, although I am conscious that this name could lead to misunderstandings, since it could lead to the thought that the Arabic was inspired on the Andalusian script or even the Maghribī style. As the Arabic was intended for continuous reading, I based it on Naskhī script style, as it is discussed later in this chapter. Moreover, Naskhī style fits better with *Pradell's* original purposes. The *Pradell* typeface was adapted, as will be explained, to harmonise with the Arabic companion. So, it has been a matchmaking design on both sides: *Pradell Roman* 'married' *Al-Andalus*, and the result is *Pradell Al-Andalus*.

Because the focus of this work has been the designing of a non-Latin type design, most of the work explained here corresponds to the process of designing *Al-Andalus*, as *Pradell Roman* was published as a commercial font in 2003 (ten years ago, now).[1]

This chapter focuses on the applied methodology (described in Chapter Five) when making *Pradell Al-Andalus*, more precisely its Arabic design. Since the last chapter dealt with general guidelines, here I explore the creative process and which criteria and decisions were made during the work process.

There were some questions that have been addressed in this part of the practice-based research: how do you design an Arabic font from scratch while taking into account historical research, and also how do you harmonise both Latin and Arabic scripts within the same font file? Are there any Arabic type design legacies in Spain which could be applied as the basis of this practical work? Are the Arabic typefaces cut in Spain a good departure point?

These questions are answered in the following sections, but I could propose that although the Arabic featured in Spanish type specimens from the 18th century was

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1   A brief summary of all this design process, together with some cultural contextual information was presented in the lecture 'Type as a tool for integrating cultures, a form of dialogue and miscegenation. The *Al-Andalus* project' (*La tipografía integradora de cultures, una forma d'unió i mestisatge. Projecte Al-Ándalus*) during the 'Society and Visual Comunication' Conference organised by the Escola d'Art i Superior de Disseny Serra i Abella, in CaixaFòrum (Barcelona, Spain), March 2012. Also, a more reduced version of that talk was delivered in Cairo (Egypt) as part of the activities for the itinerant exhibition 'Tipos Latinos' at the Cervantes Institute - Spanish Embassy Centre in Cairo in November 2012.

not suitable for my work, this study on Spanish Arabic types has been useful, not only because it provides new information on type history and also proves that Arabic had an important presence in the Spanish printing press history, but it helps to better contextualise the Pradell Al-Andalus typeface.

6.1 Creativity and work process

The creative process is kind of a mix of everything. Obviously, it does not happen at a specific stage during the design process, instead creativity is a very important part of the whole project, happening at any time during the process. Also when connecting theoretical knowledge with expertise in the design field, and historical research.

With this specific purpose in mind and the information (historical, visual, personal professional expertise) acquired, during the sketching process a number of drawings have been made in order to fix letterforms in different ways. During the experimenting process, several trials were achieved using double pencil, a reed pen for Arabic and other tools that were more specific to the Latin alphabet to find out and experience the differences between both scripts [Fig. 68]. As explained before, the different pen angle gives different results. It is obvious. Nevertheless, without testing, it is difficult to understand how it affects the result and how it influences the way letters are perceived by readers. There are some sort of visual experiences that are difficult to write down on paper as theoretical achievements. But, experiencing while practising with different tools makes it easier to understand the logic of shapes; how shapes arise from a specific tool or hand movement and, therefore, how all of this influences drawing letters according to writing results.

This kind of knowledge comes from practising. Although it is fed by theoretical knowledge, while reading about Arabic script and understanding calligraphic-writing basic concepts.

Sometimes trial-and-error has been the way of learning how things should be done. There are no rules (at least, as far as I could see). A non-Latin typeface implies a sort of 'starting from zero', and it is necessary to put aside all preconceived ideas. Things go differently as it used to be when designing a typeface based on the Latin alphabet. Conventions are different, for example, and this implies another kind of approach.

During the process, following some stages in a certain order helps to achieve the proper result in the minimum time possible. This is what I am trying to asses in this document, where different parts of the personal process are being explained and contrasted with other similar experiences from other colleagues. There is not a unique way of doing things, since it depends on many factors, but this document explains a process in a more general way, taking away those particular actions that would not be relevant enough or which have already been mentioned in previous chapter.

6.2 Sketching process

6.2.1 *Determining the style*

According to the intended use for the typeface, sketching Arabic letterforms have been made taking Naskhī style into account. According to Pascal Zoghbi, (2007) "most text Arabic typeface are based on the Naskhī style, while most display Arabic typefaces are based on Kufic or Diwani".

Naskhī has usually been the style for reading long text purposes, literature and religious texts, mainly. Actually, most of the Arabic typefaces which are used in newspapers are based on Naskhī. Since the purpose for my Arabic typeface is literature texts, this particular style appears to be the most suitable to take as the reference.

The style also defines the degree of simplification of the drawings. In the case of Naskhī, it was necessary to get closer to calligraphic tradition.

6.2.2 *Experimenting & learning*

While learning how to write Arabic letters,[2] I have been practising calligraphy from its basics. I built my own reed pen (or *calamus*) as the main tool for practising Arabic calligraphy [Fig. 72], following indications from Professor Mustafa Ja'far (2002).

Being used to classic Latin calligraphy (*Foundational script* or *Carolingian*), the shapes that resulted from the reed pen have a different logic: the different angle provides different stress and contrast in the pen strokes. The results are different because of the angle and handwriting inclination and writing direction [Fig. 73].

Arabic letter Bā, for example, looks completely different when using a Latin pen or an Arabic pen. The tool and the way it is used follows its own logic and this influences how a simple letter is drawn and read. In one case, the letter is illegible (or misread) while in the other case the letter is perfectly recognisable as in the case of the letter Bā.

These writing details are important in type design. They break down Latin-based conventions where reading direction (left to right, top to bottom) influences how we see things according to balance composition, from a single character to the whole page. That is something quite tricky that is difficult to explain since it has a lot to do with learned visual conventions. So, a certain skill and training is necessary to perceive things the other way round. It is similar as how 'strange' it could be opening a book by its cover.

"For the major part of our life, perceiving very small details remains an important factor in something we all do practically every day—reading" (Smitshuijzen, 2001, p. 174). Legibility, in terms on how we perceive forms and distinguish the signs we read, one from another, has a lot to do with our reading habits. Type

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2   I decided to enroll on a basic Arabic course in order to learn to read and write Arabic. I joined a basic course at 'Casa del Libro Árabe' in Barcelona, in December 2010.

designer Zuzana Licko said " We read best what we read most." Her statement points out about our preconceived behavior when we read and perceive the shapes of letters.

So, that is what a non-based Arabian trained reader can experiment when looking at how shapes look like. Training on writing and calligraphy can improve certain awareness of how this visual logic works before designing a typeface. That constitutes a real landmark in the process.

6.2.3 *Drawing letters*
No specific order has been followed when starting to sketch letters, although at a certain point in the process I began defining the first two letters: the Alif (ا) and the Bā (ب). Both letters provide horizontal width proportions and vertical height proportions. If they work well together, that is a nice starting point. In order to define the descender's depth, the drawing of the character 'Ayn (ع) is necessary. This way, I had established the height and depth by defining the tallest and the deepest character.

Some more characters were added in order to define other characteristics of Arabic: the Sīn (س), in order to define teeth and the curled tail; the Wāw (و), because of his small eye and stiff tail and letter Ḍād (ض) for the counter and the diacritical dot above. Also, Ḥā' (ح), Dāl (د), Rā' (ر), Ṣād (ص), Ṭā' (ط) and Fā' (ف) [Fig. 74].

The proper way to proceed with the drawing process was to first define the base characters, as has already been argued in the previous chapter. The base characters are: Alif, Bā, Ḥā', Dāl, Rā', Sīn, Ṣād, Ṭā', 'Ayn, Fā', Qāf, Kāf, Lām, Mīm, Nūn, Hā', Wāw and Yā' [Fig. 4].

I did not spend much time drawing on paper. I began drawing outlines on screen right away.

6.2.4 *Historical script knowledge*
During this writing practise process, I read books on Arabic calligraphy, together with manuals on calligraphy to become aware of Arabic writing conventions and learn about the cultural context for the script.

In previous chapters, historical awareness of Arabic script has been described. Moreover, a study on Arabic type in Spanish specimens was conducted (see Chapter Four and Appendix 1) in order to contextualise this research-based project. As already explained, the lack of quality of those typefaces made me focus on a more functional direction, which is less attached to the historical references. Later in this chapter I discuss this historical approach further.

On behalf of the principles of Ibn Muqlah's Arabic reform, the *Nizam Al-Tashabuh* principle has been taken into account, that is, in order to keep consistent visual unity within the system it is important to draw similar strokes in different letters. The other two principles apply more to calligraphy practice that typography. Thus, I have considered them but I have set proportions optically and

following the proportional guides system. Also, as I will mention later I took the proportions of *Pradell Roman* into account, the Latin typeface that is intended to match the Arabic.

6.3 Character design

6.3.1 *Outline drawings*

From sketching, we can get several approaches to our letterforms. As soon as I determine a valid draft that fits with my idea, I draw it on the computer. That is the digitising process that leads to get a proper image of the letter on screen. I started drawing outlines at a very early stage. For this purpose, I have used *FontLab Studio 5*, a professional Font editor that is widely used as standard software for type design and font production.

I have only sketched a few characters and redrawn them in FontLab directly, without a previous scan. I believe that this way I would feel more freer to consider the first sketch and find a better solution for the final outline.

I had followed a drawing on-screen according to the first 18 basic characters (isolated forms); doing printing-proofs until the twenty-eight Arabic characters were finished.

Lam-Alif and the rest of ligatures were designed after the basic characters were well defined. Figures, extended Arabic for Farsi and Urdu, diacritical marks and punctuation signs were defined as the final stage for completing of the whole Arabic set.

6.3.2 *Setting proportional guidelines*

Proportional guidelines for letterforms are the most relevant since they affect the aspect of the script itself.

In Latin we basically divide the vertical axis into three areas: x-height, ascenders and descenders. In Arabic, we have more than just three areas, we have at least five. As mentioned in Chapter Five: (from top to bottom) Ascender - Loop height 1 - Loop height 2 - Tooth height - Baseline - Descender 1 - Descender 2. For my Arabic, I have established some more guidelines to get a more calligraphic flavour [Fig. 69].

Arabic should not necessary be the same heights as Latin letters. They do not need to match each other because they have a diverse structure and proportional logics (which come from writing conventions).

6.3.3 *Joins*

Since Arabic typography is so close to writing, the connection between characters is an important goal to achieve.

I made joins by overlapping the main stroke of about 50 units (em), so that the connections are more consistent.

I also reduced the connection to avoid an increase of visual space among characters and an excess of horizontal lines. A rounded connection makes it tidier [Fig. 75].

6.3.4 *Dots and vocalisation marks*

The diacritical dots are defined according to the width of the tool stroke angle. That way they appear balanced with the character. The angles of the rhombic dot have been rounded to smooth the shape as has also been done other with similar parts of letters where angles or final endings may appear too sharp.

Vocalisation has been designed according to character proportions, optically not too large or small, so that they can be legible in small sizes. They have been positioned above and below characters at a sensible distance, optically centred.

6.3.5 *Type design references*

While designing my very first version of Arabic during a non-Latin intensive course at the Department of Typography & Communication (University of Reading), Fiona Ross suggested that I observe some samples of Arabic typefaces. Since they have an extensive collection of Linotype material at the Type department (University of Reading), I looked at *Karim*, *Yakout*, *Badr*, *Nazanin* and *Lotus* from Linotype; also I took into account of *Adobe Arabic* as a key reference. All of these are based on Naskhī style.

These were the basic references for my Arabic typeface as they had a very calligraphic approach. I also kept Gil's Arabic in mind, although it was not a good reference to follow.

The Linotype references, in general, have a very classic and traditional flavour. I found that this fitted perfectly well with *Pradell Roman*, as this was designed for literary text purposes. So, I took those Linotype 'classics' and tried to increase the calligraphic effect. Linotype 'classic' referents such as *Yakout* tend to look spread along the line with a very horizontal appearance. This gives a strong unified image of text which is perfect for newspapers which need a more even colour. *Al-Andalus* (as I named the Arabic part of my multi-script typeface) is less unified in comparison with *Yakout* in order to provide a more 'irregular' look which is closer to calligraphy. Other Linotype references also have the same unified and regular look as *Yakout*, I think this is due to its original linotype machine technical requirements. Nevertheless, as I said before, these were some good references to look at.

Some comparisons between *Al-Andalus* and other Arabic typefaces are included at the end of this chapter.

6.3.6 *Complete design set*

According to the number of languages, I have established a complete set of Arabic characters by writing my own encoding in FontLab (I will come to this later in this document). I included characters for Arabic and extended Arabic: Farsi (Persian) and Urdu.

After designing the basic characters and completing all the basic alternates, I continue completing the character set. I have included more ligatures than those strictly necessary (Lām-alif ligature) in order to get a more vivid text composition and more alternative shapes. In this respect, I do not misunderstand calligraphy with an increased number of ligatures. I plan to design some alternate characters in future

that could work as contextual glyphs for the font and so, improve the calligraphic flavour. Moreover, including new style members to the Arabic family.

These extended ligatures can be located within the OpenType discretional ligature ('dlig') feature. So, they can be easily activated or deactivated by the user.

Numerals have been designed in order to look harmonious within the text. Latin figures (proportional and tabular lining figures) have been made slightly under the Latin ascenders height in order to fit better with the Arabic characters (I will explain this later in the matchmaking section). Arabic figures are a bit shorter than the Alif character. A new vertical guideline was defined for this reason for the Arabic figures.

6.4 Matchmaking process

Until this point, this methodology process has focused on the designing of the Arabic script. But, as mentioned, the aim of the practical part for this project is the design of a multi-script font which should contain both scripts, Arabic and Latin. The Arabic typeface of this practice-based project is intended to work with *Pradell Roman*, its Latin counterpart.

Pradell is a type family I designed between 1999 and 2003 as a result from research on eighteenth century Spanish type specimens, and specially inspired by the works by Eudald Pradell, one of the most relevant punchcutters in Spain.

Pradell Roman was designed in order to be used for continuous text, especially for literary purposes. Also, because *Pradell* has this 'classic' Spanish flavour which is connected with the eighteenth century, and with the same type specimens which featured the first Arabic Spanish types.

For more practical reasons, it is more consistent commercially to include the Arabic typeface within an existent font family I have already designed. This means that all the rest of the *Pradell* family styles (Italic, SemiBold, SemiBold Italic, Bold and Bold Italic) can also be used with the Arabic script.

At a certain point of the work process, when Arabic letterforms and proportions were well established, the letterforms of the Arabic typeface and letterforms of *Pradell Roman*, the Latin companion, should begin to match each other. That is, some considerations had to be taken into account in order to adapt these different typefaces for smart matchmaking.

The considerations that have been followed to harmonise both scripts are found below. These considerations are explained in a more general way. It also matches in other cases.

6.4.1 *Proportions*
As said before, every script has its own proportions – and guidelines. When combining two or more scripts in the same font, each one should maintain its own proportions since it affects legibility and its cultural idiosyncrasy. So, it is important

to respect this principle no matter how difficult the matchmaking process is.

The baseline is the visual base guide where all glyphs will be positioned according to their correct orientation. In our case, this would be a good principle to begin with.

Although Arabic can have different baselines, I have established a single one. Both scripts were compared, side by side. The extreme characters have been analysed, the deepest and the highest of both scripts and have been harmonised accordingly. It does not mean that ascenders and descenders for both scripts were unified; on the contrary, what was taken into account was the visual aspect of the 'base-height' (a term that Březina uses for the base character height, the dominant vertical proportion of the script). The base-height was harmonised by reducing the overall size of *Pradell* by 10%.

Since Arabic has a more horizontal look it needs to be optically balanced with Latin, which used to be more vertical. Therefore, the Arabic base-height has increased by approximately 10% in order to gain legibility in smaller sizes and be optically balanced with the apparent size of *Pradell*.

For the numerals, since *Pradell* lining figures look optically a bit bigger when they are used with Arabic characters, they have been reduced by approximately 10%. This way Latin lining figures do not stand out in the middle of the text.

Also, in order to avoid the excess of white space between the lines, the ascenders and descenders of the Latin typeface (*Pradell Roman*) were enlarged slightly (without compromising its proportions).

6.4.2 *Colour*

A good balance in colour between different scripts, as for the case of Latin and Arabic, is necessary in order to get a nice visual appearance of both on the page.

As said before, colour is also influenced by the thickness of the stroke, how thick or light the character is. Counters and space between letters also affect colour. Counters in both typefaces have been balanced to get a more unified colour [Fig. 77]. A bigger counter makes the character look bigger. Counters and loops for Arabic have been balanced with those of *Pradell* where possible without compromising the particularities of the script.

Contrast and modulation also affects both colour and texture. The differences between thin and thick parts of the characters influence the amount of boldness within the text.

To balance both scripts I have considered balancing the thickest and thinnest parts of the strokes. So, the thicker horizontal stroke for the Arabic corresponds visually with the thicker vertical stroke for the Latin, and the same applies to the thinner strokes in each script. In our case, since *Pradell Roman* was already defined, the thicker and thinner strokes for the Arabic were defined according to this [Fig.78].

But, not only does the Arabic design have to be adapted to its Latin companion (*Pradell Roman*), the latter has also been refined in order to better fit the Arabic. To

match with Arabic diacritical dots, *Pradell* dots were balanced in shape [Fig. 70].

Connected or unconnected scripts affect texture. Arabic, for example, with its connected letters offers a more evident horizontal line on the baseline. Instead, Latin reinforces its vertical strokes. Stylistic elements such as serifs affect texture, as well.

White space in Arabic tends to be more irregularly situated because of its calligraphic relationship, while in Latin the balance between blacks and whites tend to be more closed.

That means that the particularities of each script affects colour. To balance colour for both scripts is a challenging affair. Balancing counters and contrast is fine, but in the end the colour of both Latin and Arabic paragraphs as a whole (as a unit) have to be harmonised to get the same importance, otherwise one would appear darker and visually more relevant.

The final refinements to text colour were necessary to get a more balanced result between both scripts.

6.4.3 *Final refinements to text colour*

Before the final balancing of text was achieved, a final fixing was made after my last decision to match both scripts with a 1000 UPM font.

Early versions of my Latin-Arabic font design (with a basic set of Latin) were established on a 2048 UPM criteria in FontLab Studio. The shift from 2048 to 1000 UPM was made in such a way so as to match an improved proportional relationship between both scripts, and, at the same time, enable the multi-script Arabic-Latin new font be used together with the *Pradell* font family, which includes the Italic, SemiBold, SemiBold Italic, Bold and Bold Italic versions (that were all designed with a Postscript 1000 UPM criteria). That would make a more complete font family to work together with the Arabic.

Since FontLab does not provide support for Arabic script, I decided to test it with new software called Glyphs which was first presented in Robothon 2009 and fully released in 2011 and claimed to support non-script type designs. So, I chose this new Font editor software.

For this final part, the original 'Pradell Roman.vfb' file (Latin extended), previously designed in FontLab Studio 5, was exported to Glyphs[3] software as an UFO file. The Arabic characters, now reduced to 1000 UPM, were included in the final 'Pradell Roman.glyphs' file for final refinement and font production. Then, the resulting digital file included both Arabic extended and Latin extended all together.

Beta versions of the multi-script font were made in order to test them in continuous text. Printing proofs were used for testing (again) proportions, text colour and texture.

As it happens, an equal size for both scripts did not balance very well. Therefore,

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3   The versions used for font production have been Glyphs v. 1.3.15 (413) and Glyphs beta version 1.3.18 (447). 2012-2013.

different sizes for Latin and Arabic had to be determined to obtain an optimum relationship between them.

After testing, the Arabic characters were scaled to 106% in order to better fit with the Latin alphabet in a better colour proportion. Different text size tests were made in order to set this percentage increment.

For the numerals, since the *Pradell* lining figures looked optically slightly bigger when they were used together with Arabic characters, they had to be reduced by approximately 10%. This way Latin lining figures do not stand out in the middle of the text. Arabic numbers were also reduced by 2.5%.

The basic font dimensions (proportional guidelines) for the Latin family had been set to: 670 (ascender), -250 (descender), 655 (caps height) and 415 (x-height) vertical values. With the baseline set to zero. Arabic vertical dimensions had been set at different heights, according to optical improvements.

6.5 Transliteration characters (Latin)

When using Latin script in an Arabic perspective, transliteration of Arabic characters into Latin characters is a must. So, in order to complete the font, the special characters for Arabic transliteration have been included.

As stated before, since OpenType enables the inclusion of a large number of glyphs within the font file, I find the missing out of these characters quite illogical. They will be particularly useful when transliteration from Arabic is needed within the text. Including these characters within the font is an important upgrade to the final result, in my opinion.

Transliteration characters for Arabic includes those of the DIN 31635 (1982), the ISO 233 (1984), the UNESCO transliteration list and the DMG (Deutsche Morgenländische Gesellschaft) rules.[4]

6.6 Font production

Usually, most non-Latin typefaces have been produced using Microsoft VOLT, which is a powerful Windows-only application. Although I had learnt how to use VOLT and made an initial Arabic beta version using this program in July 2010, I decided to use Glyphs for refinement and font production as a way of testing this new software and to provide feedback to its developers.

Glyphs has a Forum website as an application support for users and font developers. The forum is used as a FAQ site and help guide where discussions on methodology processes and feedback on design procedures are posted. There are not

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4   Transliteration original tables are included in Appendix 2

many threads on Arabic, so I have contributed, as much as my knowledge enabled me to, with feedback and suggestions.[5]

I noticed some problems with character substitution for the ligature feature when automatic button was checked. Some glyphs were missing or not properly recognised by the program. For this project, all OpenType features have been written manually to make sure they work properly.

6.6.1 *Encoding*
One of the first things when assigning glyphs to keyboard keys is defining a proper encoding in order to cover all the necessary basic languages for Arabic script.

Instead of using a standard Arabic encoding, I defined my own encoding for Arabic in order to cover the necessary glyphs for the Arabic writing system, including Farsi and Urdu characters. The character encoding includes both extended Latin and Arabic. This makes it possible to compose any text language based on Arabic or Latin.

6.6.2 *Metrics (spacing & kerning)*
Since *Pradell Roman* had been designed and produced in FontLab Studio, the metrics process was already done in this Font editor. While in the case of the Arabic typeface, the complete metrics process (spacing and kerning) was made using Glyphs.

In the beginning, previous versions of Glyphs did not support kerning exceptions for Arabic. In fact, I detected several bugs throughout the process that were solved with some personal communication with the Glyphs programmer and designer Georg Siebert and a beta upgraded version of the program came along.

When both Arabic and Latin were joined within the same Glyphs file, and after the final refinements were made, I had to check the metrics again and redo some work. I used the classes feature in order to facilitate the process of spacing and kerning.

6.6.3 *Font Generation*
Although the first version of Arabic characters had been designed with FontLab Studio,[6] Glyphs has been used for the production stages of Arabic since this newer Font editor provides support for Arabic.

After establishing the metrics for both scripts, OpenType features were defined. Different beta versions of the multi-script font *Pradell Al-Andalus* have been generated for test purposes in OpenType font format.

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5   Georg Siebert, personal communication, August 2011 – February 2013.

6   FontLab Studio 5 version 5.0.4 Mac (build 2741). Copyright 1996-2007 FontLab Ltd.

6.7 Working from a local historical approach

The thing that makes this Latin-Arabic matchmaking project different from other similar projects is the appreach to Arabic font design from a Spanish perspective. Arabic is supposed to be based on or inspired from by historical approach; the same historical approach that was used to design *Pradell Roman*, its Latin counterpart.

I thought that it might be interesting to take into account those Arabic specimens I had found when I was researching Spanish type design history. I always wanted to establish a link between the Spanish typefaces that inspired me when designing *Pradell* typeface with the Arabic types that were featured in the same time period. The historical approach had been initiated before the basic Arabic characters were totally defined. In this case, as a reference, I used good quality copies (photos from the original specimen pages) of the Arabic types that I had requested from the reproduction department service at the National Library in Madrid. This material was carefully observed and analysed, since it is also part of the theoretical research.

According to Thomas Milo (2 January 2013, personal communication), the types shown in those specimens "have the exact same structures as what I classified as Eurabic". That is, in brief, a complete misunderstanding of Arabic originated in Europe (this idea has already been discussed in the Chapter Three).

I first considered all the movable Arabic type collections present in the Spanish type specimens, but later I focused on the Arabic that was cut by Spanish punchcutter Jerónimo Gil, who appears to be the only punchcutter who cut Arabic types in Spain.

The historical approach and later analysis helped me to reach to some conclusions:
- There was no specific tradition for Arabic type design in Spain, although there had been a long tradition of Arabic culture and script that endured from the 8th (Arabic conquest of Al-Andalus) to the 15th century (Conquest of Granada by Catholic Kings), and later on, until the expulsion of the Moriscos in 1609.
- Arabic type cut in Spain by Jerónimo Gil was fully influenced by those Arabic collections that came from Holland and were used for publishing the *Bibliotheca Arabico-hispana escurialensis*.
- The Arabic cut by Gil was designed from a Latin/European understanding of the script rather than having a real knowledge of the Arabic script grammar.
- The Arabic cut by Gil had technical problems when connecting letters and that made the script poor and lacking in the natural flow that is characteristic of the script.
- The proportions and character shapes although inspired by traditional Naskhī style, did not succeed at giving the script the proper image.

The problem with Gil's typeface and most of the typefaces cut by European punchcutters, as argued in previous chapters, is that they did not consider the nature

of the Arabic script grammar and they translated their forms to a very simplified scheme. This scheme was closer to the logic of the Latin alphabet than a true Arabic approach. As a result, the forms of Arabic script were misshaped.

Nevertheless,
- The *Arabe* typeface that featured in Jerónimo Gil's specimen in 1774, was the first metal type cut in Spain by a Spanish punchcutter. And that deserves, at least, to be mentioned as an important effort from someone who was not familiar with the Arabic culture.
- Jerónimo Gil cut his Arabic from a Spanish calligraphic understanding basis. We know that Gil was close to Santiago Palomares, a top Spanish paleographer and calligrapher who advised him on several works on Latin type design.
- Gil was a skilled punchcutter. Before cutting his Arabic, he had already cut beautiful typefaces in different sizes as we can be observed in his type specimen of 1774 [Fig. 51]. Together with Eudald Pradell and Espinosa, they are the most relevant Spanish punchcutters ever.
- Gil improved the design of some of the characters from the ones that were used at the *Bibliotheca Arabico-hispana escurialensis*. He probably also took into account the characters shown at the Enschedé specimen when drawing his own designs and got some advice from Santiago Palomares.

With all of this in mind, I decided not to use Gil's Arabic typeface as a reference, otherwise I would be compromising the functionality of the results and the respect for the Arabic script itself.

6.8 Test proofs & Feedback

Although a complete type specimen of *Pradell Al-Andalus* follows in next chapter, I would like to overview some test proving and feedback received.

The first printing proofs helped to improve the overall image of text colour and refine some outlines and check metrics. After having the last beta version of *Pradell Al-Andalus* font, I designed a type specimen PDF with all the character set and some text compositions. As I am not familiar with the process of reading Arabic, I decided to send that PDF to some type designers and native Arabic readers. Although I had joined a basic course of Arabic learning, I could not rely on my extremely basic knowledge. I needed native people or some expert designers who could provide some feedback.

The very first feedback was provided by Fiona Ross in May 2010 on behalf of my very first outlined characters of Arabic, and before attending the tuition in the Type department at the University of Reading (TDi, 5–9 July 2010). After the tuition, the Arabic was fairly improved. In September 2010 I had my first beta version of Latin-Arabic and designed the type specimen PDF.

I got some feedback from John Hudson commenting that "In terms of your treatment of shapes, I find nothing to fault in the design", he also suggested "to move away from the flat baseline [...], and use contextual variants instead of ligatures" (Hudson, 25 October 2010, personal communication). According to Hudson's suggestions I improved the character connections, although I could not deal with a contextual OpenType feature for my Arabic as he suggested or a bold version of the typeface that could complete the design. These are, certainly challenges for the future.

Mamoun Sakkal kindly took the time to make corrections and provided a list of improvements (Sakkal, 1 October 2010, personal communication) [Fig. 79]. All those remarks were extremely helpful for improving the character set. This was certainly the most remarkable feedback I received.

Titus Nemeth made some brief comments and remarks about some of my drawings, "Overall, I find you did a very good job at designing this Arabic. Please have a look at the Alifs as they are a little unusual with beards in a very strongly Naskh-influenced typeface. Also the Beh-Yeh ligatures seem a little unexpected - they extend quite far right" (Nemeth, 28 September 2010, personal communication). He also agreed with Sakkal that my Alif was not related with the Naskhī style.

I also got feedback from Paco Fernández (Granada Design), a designer quite engaged with the Arabic culture, who commented "To tell you the truth, I believe that I see it working well, text colour is pretty harmonious. I'm sure it will work very well for book design". Also he suggested thinking about including transliteration characters.

The Jordanian designer Rami Kilani commented "Pradell looks very professional" (Kilani, 13 September 2010, personal communication) and made some comments on the PDF. Most of them related to kerning and spacing problems.

According to Huda Smitshuijzen, I reduce the connections between characters a little bit in order to reduce white space on both sides, and also reduced the counter of Kāf medial (Smitshuijzen, September 2011, interview).

The Lebanese designer Lara Captan, solved some character doubts and was very kind by testing Pradell Al-Andalus in some of her designs: "I used it in a poster/ programme and it worked out very well. I will tell you if I see something strange" (Captan, 7 January 2013, personal communication).

The beta version of *Pradell Al-Andalus* was used in all the information and corporate design for the exhibition '35 years of Democracy in Spain. The political posters (1976-2011)', organised by the Cervantes Institute in 2012. The exhibition was hosted in the different centres that the Cervantes Institute has in North Africa, such as Rabat, Marrakech, Tangier, Tetouan and Cairo. The typeface was used in information posters, exhibition panels, invitation card and in the exhibition brochure [Fig. 80].

To summarize, the feedback received helped to improve the final version which is shown in the type specimen (Chapter Seven). The opportunity I had to use *Pradell Al-Andalus* at real work with native Arabic readers has been worthy to test it with the real audience.

6.9 Design characteristics

Pradell Al-Andalus is a multi-script Latin-Arabic typeface which includes an extended set of characters for both Latin and Arabic. It covers all Latin languages and Arabic, Farsi and Urdu. The font includes ligatures (required and discretional) for both scripts and small caps and all sorts of figures for Latin. So, proportional old style figures can be used together with the Arabic. The whole set of characters for both scripts is shown in the type specimen (Chapter Seven).

The main characteristics for the Arabic set in *Pradell Al-Andalus* is its calligraphic flavour based on Naskhī style with long ascenders and descenders and soft contrast (as it happens with the Pradell Latin) to be used for continuous reading.

Vertical upright strokes are a bit slanted to the left following the writing and reading direction, they also appear to have a tiny width modulation from thick on top to thinner at the bottom. This also applies to all vertical strokes. It provides a less rigid appearance in the text.

The connections are short and curved in order to improve *ductus* fluidity and the rhythm between characters. It also makes the connections more natural and closely related to calligraphy. Moreover, the curvilinear connections prevent a straight baseline.

There are diverse descender guidelines, so descending characters do not always have the same depth. This irregularity gives it a more 'freestyle' look. This also happens with the height of the loops and teeth.

The overall text colour of Pradell Arabic has been balanced with the colour of Pradell Latin when they work in the same point size. The contrast and modulation of the strokes follows that of Pradell Latin, getting the same sort of crispy irregular look. This effect gives the Arabic counterpart a more calligraphic flavour, in general.

The Arabic numbers are smaller than normal, so since Arabic has no uppercase they fit better when they are used within the text.

Some comparisons of *Pradell Al-Andalus* together with other Arabic typefaces based on Naskhī style are found below in order to see what this typeface looks like.

6.9.1. *Comparisons*
Pradell Al-Andalus is compared with other multi-script Latin-Arabic typefaces. As comparison criteria, Latin x-height has been balanced in all cases. Leading has been set for optimus reading in each case.

Pradell Al-Andalus 12/18 pt.

Entre los años 711 y 715, los musulmanes ocuparon una parte de la Península Ibérica, aunque sin ningún tipo de dominio efectivo al norte del Sistema Central.

الأندلس التسمية التي تعطى لما يسمى اليوم شبه الجزيرة الايبيريه (جزيرة الأندلس) في الفترة ما بين أعوام 711 و1492 التي حكمها المسلمون. تختلف الأندلس عن أندلسيا التي تضم حاليا ثمانية اقاليم في جنوب إسبانيا • تأسست في البداية كإمارة في ظل الدولة الأموية في الشام، التي بدأت بنجاح من قبل الوليد بن عبد الملك (711–750)، بعدها تولتها دولة بني أمية في الأندلس عبد الرحمن الداخل وبعد سقوط دولة بني أمية تولت الأندلس ممالك غير موحدة عرفوا بملوك الطوائف، ثم وحدها المرابطون والموحدون قبل أن تنقسم إلى ملوك طوائف مرة أخرى وزالت بصورة نهائية بدخول فرناندو الثاني ملك الإسبان مملكة غرناطة في 2 يناير 1492 •

Pradell Al-Andalus 12/18 pt.

Entre los años 711 y 715, los musulmanes ocuparon una parte de la Península Ibérica, aunque sin ningún tipo de dominio efectivo al norte del Sistema Central.

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Pradell Al-Andalus 12/18 pt.

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Scheherazade 16/17 pt.

Entre los años 711 y 715, los musulmanes ocuparon una parte de la Península Ibérica, aunque sin ningún tipo de dominio efectivo.

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Linotype Yakout 13/16 pt.

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Adobe Arabic 16/17 pt.

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Pradell Al-Andalus 12/18 pt.

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Pradell Al-Andalus 12/18 pt.

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Pradell Al-Andalus 12/18 pt.

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Al Bayan 12/14 pt.

Entre los años 711 y 715, los musulmanes ocuparon una parte de la Península Ibérica aunque sin ningún tipo de dominio efectivo al norte del Sistema Central.

الأندلس التسمية التي تعطى لما يسمى اليوم شبه الجزيرة الايبيريه (جزيرة الأندلس) في الفترة ما بين أعوام 711 و1492 التي حكمها المسلمون . تختلف الأندلس عن أندلسيا التي تضم حاليا ثمانية اقاليم في جنوب إسبانيا ● تأسست في البداية كإمارة في ظل الدولة الأموية في الشام، التي بدأت بنجاح من قبل الوليد بن عبد الملك (711—750) ، بعدها تولتها دولة بني أمية في الأندلس عبد الرحمن الداخل وبعد سقوط دولة بني أمية تولت الأندلس ممالك غير موحدة عرفوا بملوك الطوائف، ثم وحدها المرابطون والموحدون قبل أن تنقسم إلى ملوك طوائف مرة أخرى وزالت بصورة نهائية بدخول فرناندو الثاني ملك الإسبان مملكة غرناطة في 2 يناير 1492 ●

Baghdad 12/16 pt.

Entre los años 711 y 715, los musulmanes ocuparon una parte de la Península Ibérica aunque sin ningún tipo de dominio efectivo al norte del Sistema Central.

الأندلس التسمية التي تعطى لما يسمى اليوم شبه الجزيرة الايبيريه (جزيرة الأندلس) في الفترة ما بين أعوام 711 و1492 التي حكمها المسلمون. تختلف الأندلس عن أندلسيا التي تضم حاليا ثمانية اقاليم في جنوب إسبانيا ● تأسست في البداية كإمارة في ظل الدولة الأموية في الشام، التي بدأت بنجاح من قبل الوليد بن عبد الملك (711—750) ، بعدها تولتها دولة بني أمية في الأندلس عبد الرحمن الداخل وبعد سقوط دولة بني أمية تولت الأندلس ممالك غير موحدة عرفوا بملوك الطوائف، ثم وحدها المرابطون والموحدون قبل أن تنقسم إلى ملوك طوائف مرة أخرى وزالت بصورة نهائية بدخول فرناندو الثاني ملك الإسبان مملكة غرناطة في 2 يناير 1492 ●

Karim 12/18 pt.

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الأندلس التسمية التي تعطى لما يسمى اليوم شبه الجزيرة الايبيريه (جزيرة الأندلس) في الفترة ما بين أعوام 711 و1492 التي حكمها المسلمون. تختلف الأندلس عن أندلسيا التي تضم حاليا ثمانية اقاليم في جنوب إسبانيا ● تأسست في البداية كإمارة في ظل الدولة الأموية في الشام، التي بدأت بنجاح من قبل الوليد بن عبد الملك (711—750)، بعدها تولتها دولة بني أمية في الأندلس عبد الرحمن الداخل وبعد سقوط دولة بني أمية تولت الأندلس ممالك غير موحدة عرفوا بملوك الطوائف، ثم وحدها المرابطون والموحدون قبل أن تنقسم إلى ملوك طوائف مرة أخرى وزالت بصورة نهائية بدخول فرناندو الثاني ملك الإسبان مملكة غرناطة في 2 يناير 1492 ●

Pradell Al-Andalus 12/18 pt.

Entre los años 711 y 715, los musulmanes ocuparon una parte de la Península Ibérica, aunque sin ningún tipo de dominio efectivo al norte del Sistema Central.

الأندلس التسمية التي تعطى لما يسمى اليوم شبه الجزيرة الايبيريه (جزيرة الأندلس) في الفترة ما بين أعوام 711 و1492 التي حكمها المسلمون. تختلف الأندلس عن أندلسيا التي تضم حاليا ثمانية اقاليم في جنوب إسبانيا • تأسست في البداية كإمارة في ظل الدولة الأموية في الشام، التي بدأت بنجاح من قبل الوليد بن عبد الملك (711–750)، بعدها تولتها دولة بني أمية في الأندلس عبد الرحمن الداخل وبعد سقوط دولة بني أمية تولت الأندلس ممالك غير موحدة عرفوا بملوك الطوائف، ثم وحدها المرابطون والموحدون قبل أن تنقسم إلى ملوك طوائف مرة أخرى وزالت بصورة نهائية بدخول فرناندو الثاني ملك الإسبان مملكة غرناطة في 2 يناير 1492 •

Pradell Al-Andalus 12/18 pt.

Entre los años 711 y 715, los musulmanes ocuparon una parte de la Península Ibérica, aunque sin ningún tipo de dominio efectivo al norte del Sistema Central.

الأندلس التسمية التي تعطى لما يسمى اليوم شبه الجزيرة الايبيريه (جزيرة الأندلس) في الفترة ما بين أعوام 711 و1492 التي حكمها المسلمون. تختلف الأندلس عن أندلسيا التي تضم حاليا ثمانية اقاليم في جنوب إسبانيا • تأسست في البداية كإمارة في ظل الدولة الأموية في الشام، التي بدأت بنجاح من قبل الوليد بن عبد الملك (711–750)، بعدها تولتها دولة بني أمية في الأندلس عبد الرحمن الداخل وبعد سقوط دولة بني أمية تولت الأندلس ممالك غير موحدة عرفوا بملوك الطوائف، ثم وحدها المرابطون والموحدون قبل أن تنقسم إلى ملوك طوائف مرة أخرى وزالت بصورة نهائية بدخول فرناندو الثاني ملك الإسبان مملكة غرناطة في 2 يناير 1492 •

Nadeem 12/15 pt.

Entre los años 711 y 715, los musulmanes ocuparon una parte de la Península
Ibérica aunque sin ningún tipo de dominio efectivo al norte del Sistema Central.

الأندلس التسمية التي تعطى لما يسمى اليوم شبه الجزيرة الايبيريه (جزيرة الأندلس) في الفترة ما بين أعوام 711
و1492 التي حكمها المسلمون. تختلف الأندلس عن أندلسيا التي تضم حاليا ثمانية اقاليم في جنوب إسبانيا •
تأسست في البداية كإمارة في ظل الدولة الأموية في الشام، التي بدأت بنجاح من قبل الوليد بن عبد الملك (711–
750)، بعدها تولتها دولة بني أمية في الأندلس عبد الرحمن الداخل وبعد سقوط دولة بني أمية تولت الأندلس ممالك
غير موحدة عرفوا بملوك الطوائف، ثم وحدها المرابطون والموحدون قبل أن تنقسم إلى ملوك طوائف مرة أخرى وزالت
بصورة نهائية بدخول فرناندو الثاني ملك الإسبان مملكة غرناطة في 2 يناير 1492 •

DecoType Naskh 12/17 pt.

Entre los años 711 y 715, los musulmanes ocuparon una parte de la Península
Ibérica aunque sin ningún tipo de dominio efectivo al norte del Sistema Central.

الأندلس التسمية التي تعطى لما يسمى اليوم شبه الجزيرة الايبيريه (جزيرة الأندلس) في الفترة ما بين أعوام 711 و1492 التي حكمها المسلمون.
تختلف الأندلس عن أندلسيا التي تضم حاليا ثمانية اقاليم في جنوب إسبانيا • تأسست في البداية كإمارة في ظل الدولة الأموية في الشام، التي بدأت
بنجاح من قبل الوليد بن عبد الملك (711–750) ، بعدها تولتها دولة بني أمية في الأندلس عبد الرحمن الداخل وبعد سقوط دولة بني أمية تولت
الأندلس ممالك غير موحدة عرفوا بملوك الطوائف ، ثم وحدها المرابطون والموحدون قبل أن تنقسم إلى ملوك طوائف مرة أخرى وزالت بصورة نهائية
بدخول فرناندو الثاني ملك الإسبان مملكة غرناطة في 2 يناير 1492 •
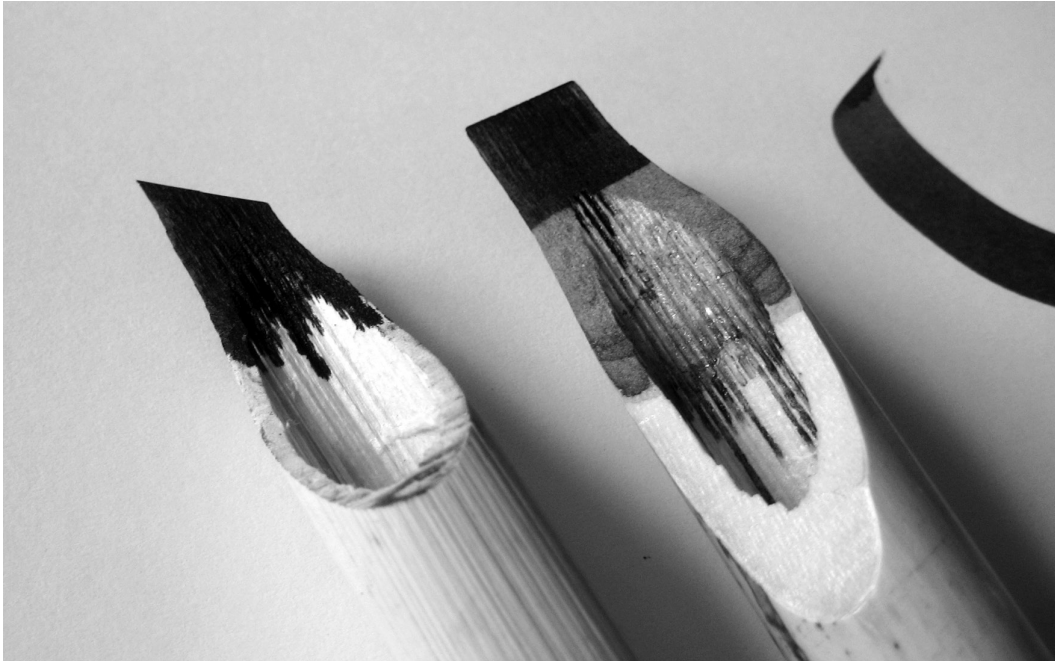
FIG. 72. Reed pen created for practising Arabic calligraphy.
Arabic pen (left) and Foundational hand - Latin pen (right)
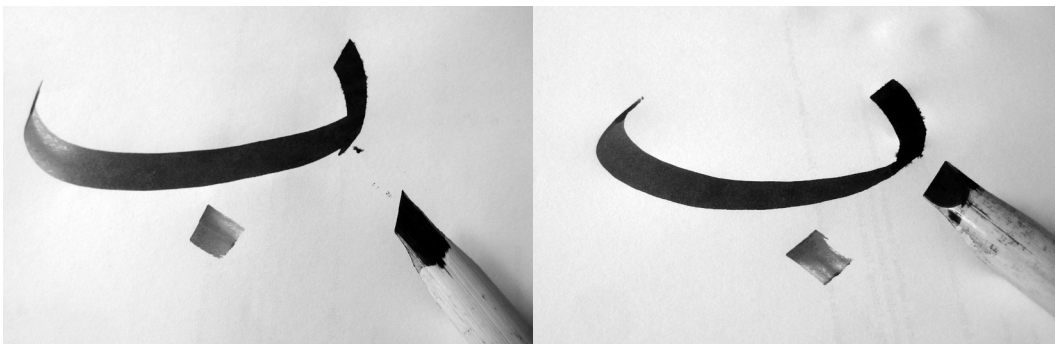

FIG. 73. Results are different because of the angle and handwriting inclination and writing direction. Arabic letter Bā looks completely different when using a Latin pen or an Arabic pen.
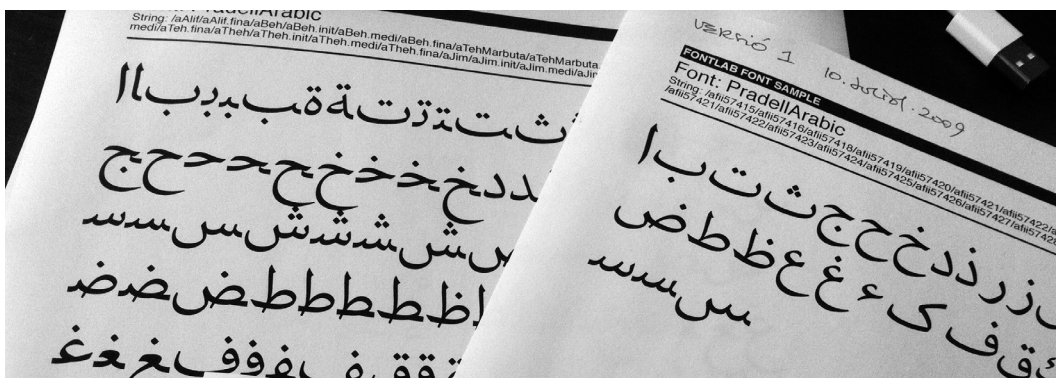
FIG. 74. First outlines designed in the TDi 2009.

لنيل لـنـ يـل لنيل

لنيل لنيل

conection zone

FIG. 75. Connection between letters.

تـا تا تا تا تا تا

يـــولد جميع النـاس أحرارا متساو يــن فــي
الكــرامة والحــقوق، وقــد وهبــوا عقلا وضــميرا
وعليهم أن يعـــــامل بعـضهـم بعـضا بروح الإخـاء ۞

FIG. 76. Stretching with the 'kashida' glyph

Arabic لعربية غ ق

FIG. 77. Counters in both scripts have been balanced to get a more unified colour.
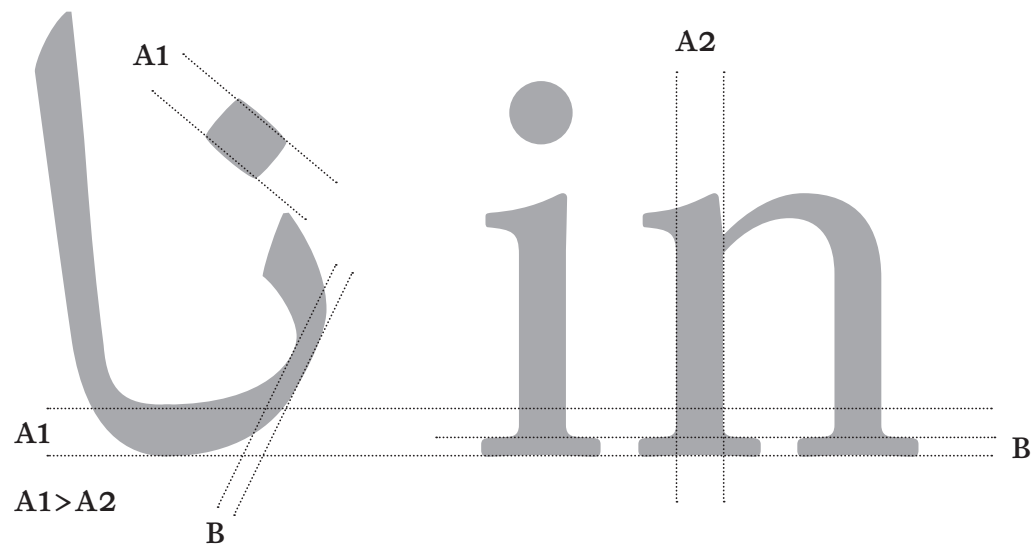
FIG. 78. The differences between thin and thick parts in the characters influences the amount of boldness within the text. Different stroke weight in both scripts. Arabic emphasizes horitzontal strokes.

FIG. 79. Corrections made by Mamoun Sakkal. October, 2010.

FIG. 80. The beta version of Pradell Al-Andalus was used in all the information and corporate design for the exhibition '35 years of Democracy in Spain. The political posters (1976-2011)', organized by the Cervantes Institute in 2012. The exhibition was held in Tanger, Tétouan, Marrakesh, Rabat and Cairo.

35 años de democracia en España:

35 سنة من الديمقراطية في إسبانيا
2011 – 1976
الدعاية السياسية
Publicidad política
(1976-2011)
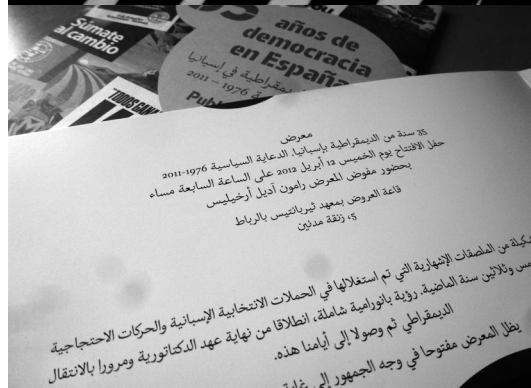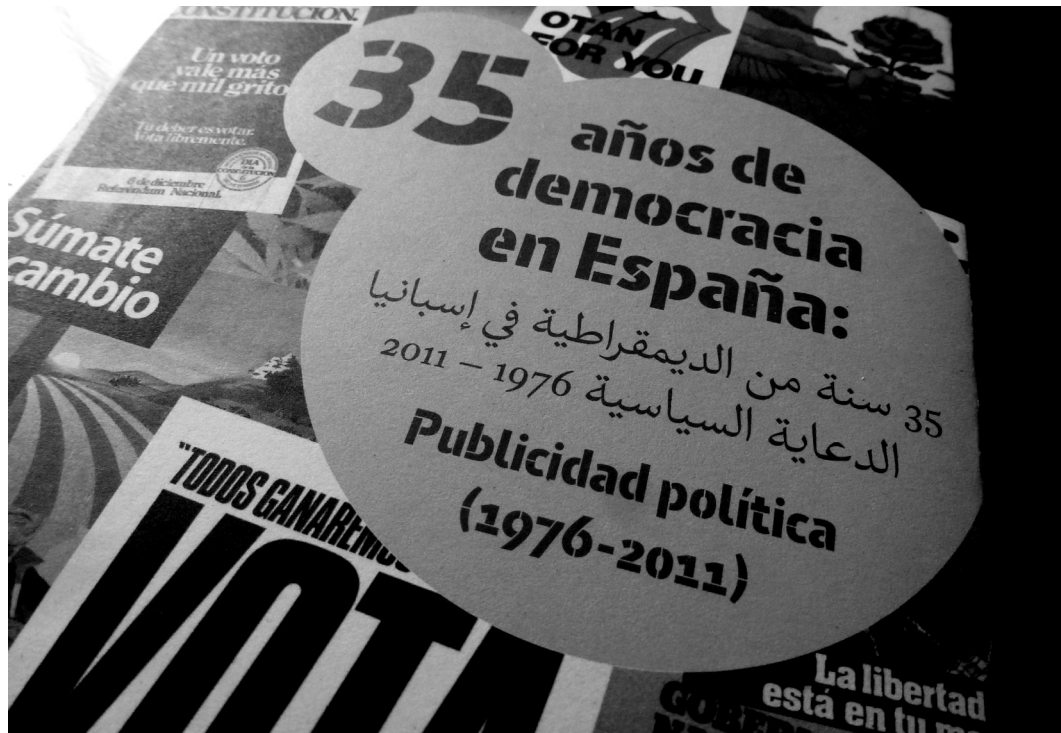
وشخصيات مفسدة. كما نجد فيها أيضا انعكاسا للانتخابات. ففيلم "النائب" (1978) لإلوي دي لا إغليسيا، الذي لعب فيه خوصي ساكريستان دور البطولة، يبين لنا التناقضات اليومية التي يعيشها سياسي لا يريد أن يكشف عن حقيقة كونه مثليا جنسيا. كما يقدم فيلم "صوتوا على غونديسالبو"، (1978) ، مع الممثل أنطونيو فيرانديس، صورة لمرشح لمجلس المستشارين يائس لأن عليه أن

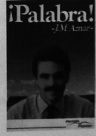Muchos mensajes vienen también inscritos en objetos que se han regalado o se han vendido en los mítines para financiar las campañas. Son los llamados «gadgets o merchandising electoral». Pegatinas, insignias, pines, chapas, calendarios, bonos de ayuda y llaveros sirvieron para otorgar una identidad partidista a los electores. En los años setenta, los objetos que causaban furor eran las cajetillas de cerillas, los mecheros o los ceniceros, muy prácticos por entonces. Más adelante aparecieron un sinfín de objetos, como calendarios, bolígrafos, naipes, discos, casetes, vídeos, yoyós, puzles, botas de vino, linternas, navajas, lápices de colores, tazas, maquinillas de afeitar, cubos de Rubik, etc. En varias vitrinas se muestran ejemplos de la parafernalia electoral omnipresente en las campañas. Al inicio de la transición se produjo también un auge de las películas de cine del género político, en un contexto de creciente interés por la política, amparado en la creciente libertad de expresión y prensa, y al calor del «destape». La recobrada pluralidad política y los comicios electorales tuvieron un indudable impacto en el cine. Por ello, en esta exposición también se dedica un pequeño apartado a carteles y fotocromos con escenas de algunas de esas películas. Se produjeron películas de desigual calidad que mostraban una novedosa democracia llena de caciquismos, tardofranquismos, corruptelas económico-políticas e inmoralidades de los personajes. Las elecciones también se reflejaron en ellas. La película *El diputado* (1978) de Eloy de la Iglesia, protagonizada por José Sacristán, nos muestra las contradicciones vitales de un político que «no sale del armario». Por su parte, el filme *Vota a Gundisalvo* (1978), con Antonio Ferrandis, retrata a un candidato al Senado, desesperado por adaptarse a la democracia, mientras que *Alcalde por elección* (1976) y *El alcalde y la política* (1982), protagonizadas ambas por Alfredo Landa, son las que mejor reflejan, desde el humor, las primeras elecciones municipales. Años más tarde, *El diputado voto del Sr. Cayo* (1986), película basada en la obra de Miguel Delibes y con la actuación de Paco Rabal, nos muestra una visión más reflexiva de las elecciones generales de 1979.

Ramón Adell Argilés
Comisario de la exposición

Ramón Adell Argilés
Comisario de la exposición

7
Conclusion

The aim of this practice-based research has been the designing of a multi-script Latin-Arabic typeface as a way of contributing, from a design point of view, to a multicultural dialogue between cultures. This has been achieved through an understanding of Arabic script so that the result obtained would be respectful of the tradition of Arabic calligraphy.

On the way, throughout the work process, a study on Arabic typefaces created and used in Spain has allowed a link to be established with Spanish typography, and demonstrate that the Arabic legacy, although broken during the first centuries of the Printing press, was revived during the second half of the eighteenth century. This will certainly open new paths to follow for future research. The types cut by Jerónimo Gil did not happen to be what was expected as a possible reference source for my Arabic type, nevertheless it was worth looking through all the typefaces that featured in Spanish type specimens and contextualise them within the revival of Arabism in Spain, and follow the path throughout Spanish type history looking for Arabic types until the digital era.

While there is quite a lot of literature on the subject of Islamic Calligraphy and Arabic script, the references on Arabic typography are few and most of them have been published in recent years. This proves an increasing interest in this subject as much as more type designers are approaching Arabic type design. The literary review indicates some of the references that have been helpful for an overview proposal on Arabic script that has been explored in Chapter Three. As there are already very complete studies of Arabic script, such as the books by Sheila Blair or Yasin H. Safadi and, certainly, this is not intended to be a historical thesis, my overview on Arabic script and typography has been limited to reporting all the information necessary for understanding the Arabic calligraphy tradition while taking into account some of the typographical highlights. So, in Chapter Three I proposed a general overview that would be useful to contextualise my calligraphic approach to Arabic type design.

Through the study of Arabic script development, an interesting point to follow would be the relationship (if any) between the Arabic first script reforms by Ibn Muqlah (ca.900 AD), that resulted in the different calligraphic styles, and the Latin script reform during the Carolingian period (ca. 800 AD) which derived in the Carolingian script style. Although both script reforms happened at different times in history, the need to unify script from the establishment of proportional criteria is something they have in common. I could not find any references on that, if there is any real connection between both scripts, Latin and Arabic, during the period

when the Arabs established their rule within the Iberia Peninsula (711–1492). But, the cultural connections and interchanges between Arabic and European cultures during the Middle Ages are well known. Lasater notes that,

> The Islamic culture of the Near East and that portions of Southern Europe in the Middle Ages influenced the graphic arts of the more traditionally European cultures. Similar influence can be detected in another realm of Art-literature, both oral and written. Like the appropriation of Arabic decorative script, literary borrowings were sometimes inadvertent. (Lasater, 1974)

Although this is out of the scope of this study, script connections could be an interesting point to investigate further. Nevertheless a connection between both languages, Arabic and vulgar Latin, had happened in Spain with the use of the Aljamiado script. It is something interesting to study since it is a symbiosis of both cultures and languages. It would be interesting to research whether there are any specific features in the Aljamiado script that could be referential for future Arabic type designs. Also *Andalusian*, as a true 'Al-Andalus' calligraphic script style could be a referential basis for a future typeface design. Nevertheless I discarded this reference to Andalusian style for my Arabic since I considered Naskhī style more suitable for continuous reading, as discussed in Chapter Six.

Although the history of Arabic script and Arabic typography is not the focus of this research, as already mentioned, this historical approach is supposed to be necessary for my design practice. I consider historical research as a helpful 'tool', a methodological tool to obtain information and visual data, which should help me to make decisions throughout the process. It is not *research about design*, but *research for design*.[1]

The novelties in historical investigation have been those discussed in Chapter Four, where I focus the study on the Arabic types that were designed and in use in Spain until the digital era. As mentioned in the literary review no work has been done on this direction. And this appears to be a clear field of study for future research, both on my part and on the part of type historians.

When considering the Arabic types that were in use in Spain, there are still some questions to answer, according to the origin of some of the fonts that were purchased abroad. Although, in some cases we know the name of the foundry we know nothing about the name of the punchcutter. Anyway, as already mentioned, this was not a historical thesis, but a practice-based research where history was only a part of the study and details such as this were not relevant for the practical result.

Chapters Five and Six are focused on the methodology used when designing a multi-

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1 Relating to these concepts: FRANKEL, L. & RACINE, M. (2010), 'The Complex Field of Research: for Design, through Design, and about Design', http://www.designresearchsociety.org/docs-procs/DRS2010/PDF/043.pdf [Accessed March 2013].

script Latin-Arabic font. Chapter five provides general guidelines for type designers who want to approach a multi-script Latin-Arabic type design looking for a harmonisation of both scripts. I have revised the literature available on this issue, usually articles, practice essays, interviews, and tried to organise and add myself what I considered relevant for the process, and propose a method of work that I put into practice with the designing of *Pradell Al-Andalus*. The latter is discussed in Chapter Six, as an applied methodology process. The result achieved proves that the method proposed here is valid enough.

Pradell Al-Andalus, although not designed as a revival of any Arabic Spanish typeface establishes a link with the Spanish type history in order to build up a bridge between tradition (which departs in eighteenth century Spain) and our contemporary needs.

As mentioned at the end of Chapter Six, *Pradell Al-Andalus* Arabic is based on Naskhī style and has a strong calligraphic approach, even though it has been designed using a typographical methodology. That is, understanding the whole character set as a system and not as a collection of beautiful drawing shapes. The method followed tried to be respectful of the Arabic script tradition so as to get a multi-script typeface that could be functional and useful for native Arabic speakers and for European citizens, too.

The matchmaking method followed aims to demonstrate that harmonising different non-Latin scripts, it is not impossible, although it is challenging. As it has been explained, this is not all original, since other type designers have followed the same path and have demonstrated high skills when designing their multi-script Latin-Arabic typefaces.[2] Nevertheless, I believe my approach is different since I have worked on the basis of the Spanish Arabic tradition. It seems inconceivable that no work like this had been conducted in Spain after more than 800 years of Arabic legacy. With this practice-based research I have connected the Spanish Arabic legacy with our current multicultural Spanish society. Moreover, in this multi-script type design work the idea of multiculturalism has always been present, since *Pradell Al-Andalus* is intended to be useful within a growing multicultural community.

It is possible that designing an Arabic typeface from a European-based culture might lead to us obtaining as a result some sort of 'Euro-Arabic' font. But, we have to admit that when designing multi-script typefaces we have to make 'respectful concessions'[3] (on both sides). I am not designing an Arabic typeface but a multi-script font. That makes a difference. And probably the difference is that I have to think of a different kind of user. A user who is not living in a Muslim country, but in a place where different cultures coexist and relate to each other.

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2   I would like to refer here the Arabic type designs done by Nadine Chahine and Titus Nemeth.

3   With 'respectful concessions' I understand, harmonising without distorting any of the scripts or compromising the cultural legacy.

Pradell Al-Andalus is a typeface intended to be used in a multicultural environment, where both Arabic and Latin cultures coexist, wherever the country is. The personality of *Pradell Al-Andalus* Arabic is linked to tradition since the purpose is to be used for literary continuous reading text. This was one of the goals to be achieved. It provides a new voice to the non-Latin spectrum of voices: a Latin-Arabic voice in its whole sense. Latin, since it has been designed within a Mediterranean Spanish culture; and Arabic because it follows the paths of the calligraphic tradition. Both cultures have been respected.

Arabic type design is going through a crucial moment as can be understood from Zoghbi's comment in an interview which appeared in *Étapes* magazine:

> It's about learning the arcane and traditional writing but designing it in a modern way so as to make it look new but still legible. It consists, in short, to create typefaces that are more 'idiomatic' and less dependent from the simplified Arabic types which were the only ones available before. (Stones, 2011)

He states that technical problems have currently been reduced and now the problem is a creative one: "how to get not stuck into the original forms, which rest essentially on traditional Ottoman or calligraphic forms" (Stones, 2011).

From what has been explained in this study, I believe there are different approaches to Arabic type design, and not necessarily in any particular order or hierarchy: there is an approach to Arabic type where traditional awareness and cultural script knowledge goes hand in hand when designing a typeface, even if this typeface matches a Latin counterpart. This path results in very legible typefaces which are intended for reading purposes and are quite close to a calligraphic flavour. Within this path I include my *Pradell Al-Andalus* typeface.

There is another approach when designing Arabic for multi-script purposes more closely related to the Latin tradition. In this case, we get typefaces with a simpler and more regular aspect. Some sort of 'sans serif' Arabic style is quite frequent in this case. We could say that the Western cultural influence is more evident in this case.

Of course, there is no black and white. There are typefaces that could fit in the middle and others that go further to the extremes, as intended by simplifying Arabic script.

The so called 'Euro-Arabic' flavour can appear in both cases (although they can be more evident in the second case); it depends on how far the typeface goes from the calligraphic tradition and the Arabic grammar script. But as I argued before, designing a multi-script typeface means making concessions on both sides. In the end, with enough knowledge, awareness and respect, we can get successful results.

Arabic typography is at a crossroad where different points of view converge. Digital technology made some sort of Arabic typography renaissance possible since font editors and the technology available does support Arabic type design and typography more widely. At this point we find different approaches, for example

those from DecoType where tradition and technology meet, those supported by the Khatt Foundation and the typographic matchmaking more committed to a modernisation of Arabic type design (from a European-Dutch perspective) and those lead by Reading University MA students that deal with a more respectful academic approach. There is room for all those views and others from independent practitioners, in a growing Middle Eastern market. In the end, designers and users will have the last word. Typography, as a tool to represent language, just as any other conventional tool is at the service of society and, as society itself, it is continuously moving.

In this study, I have positioned myself in a respectful academic approach, looking at my multi-script Latin-Arabic type design as a functional font for text purposes.

The methodology proposed to achieve a result like the one that is presented with this practice-based research does not claim to be the only one, but suggests a path to follow that might be applied by other practitioners or, at least, be an issue to be discussed (or a proposal to discuss). There are parts of this study that are open to be continued. Some of them, although interesting enough, were beyond the scope of my work; others can be new opportunities for future research and more practical work to be done.

8
Type specimen

كيلومتر

بها

الموافق

PRADELL AL-ANDALUS

TYPE SPECIMEN

ALHAMBRA — قصر الحمراء

الأندلس Pradell

Al-Andalus (in Arabic: الأندلس) was the Arabic name given to a nation in the parts of the Iberian Peninsula and Septimania governed by Muslims, at various times in the period between 711 and 1492 ✿

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الأندلس التسمية التي تعطى لما يسمى اليوم شبه الجزيرة الايبيريه (جزيرة الأندلس) في الفترة ما بين أعوام 711 و1492 التي حكمها المسلمون. تختلف الأندلس عن أندلسيا التي تضم حاليا ثمانية اقاليم في جنوب إسبانيا ✿ تأسست في البداية كإمارة في ظل الدولة الأموية في الشام، التي بدأت بنجاح من قبل الوليد بن عبد الملك (711–750)، بعدها تولتها دولة بني أمية في الأندلس عبد الرحمن الداخل وبعد سقوط دولة بني أمية تولت الأندلس ممالك غير موحدة عرفوا بملوك الطوائف، ثم وحدها المرابطون والموحدون قبل أن تنقسم إلى ملوك طوائف مرة أخرى وزالت بصورة نهائية بدخول فرناندو الثاني ملك الإسبان مملكة غرناطة في 2 يناير 1492 ✿

Alhambra (*in Arabic:* قصر الحمراء) is a palace and fortress complex located in Granada, Andalusia, Spain. It was originally constructed as a fortress in 889, and was converted into a royal palace in 1333 by Yusuf I, Sultan of Granada. The Alhambra's Islamic palaces were built for the last Muslim

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برشلونة هي مدينة كاملة من الضوء والفرح

الحروف ينقل الفكر
AL-ANDALUS

Pradell Al-Andalus is a multi-script typeface for multilingual purposes
Latin extended font for multilingual text composition, including SMALL CAPS and many figures

الخط العربي هو واحد من أرقى فنون

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ليست كل حركة الرقص

Provided with all the styles of Pradell family: *Italics*, **SemiBold** & **Bold**

قصر الحمراء

نجد الجمال في كل الأشياء التي تحيط بنا والتي هي جزء من الكون

BARCELONA

تُعد المواظبة على ممارسة رياضة المشي الشمالي «Nordic Walking»، التي تقوم على استخدام عصي المشي أثناء المشي، مفيدة لمرضى القلب. وأوضح رئيس الرابطة الألمانية لأطباء القلب بمدينة ميونيخ نوربرت سميتاك، أن الدراسات الحديثة أثبتت أن

المشي الشمالي مفيد لمرضى القلب

المشي الشمالي يُزيد قوة تحمل الجسم لدى مرضى القلب أكثر من المشي العادي من دون استخدام العصي. وأوضــح طبيب القلب الألـمـاني مميزات المشي الشمالي، بقوله «أثناء ممارسة رياضة المشي الشمالي لا يتم

تدريب الساقين فحسب، وإنما عضلات الجزء العلوي من الجسم والذراعين أيضا»، مشيراً إلى أن ممارسة رياضة المشي الشمالي على نحو بطيء تعود بالفائدة أيضاً على مرضى القلب. وأكّد سميتاك ضرورة استشارة طبيب قلب مختص قبل البدء في ممارسة المشي الشمالي بالنسبة لمرضى القلب، حيث يُمكن للطبيب تحديد جدول

PRADELL AL-ANDALUS 34/44 pt. • PRADELL AL-ANDALUS 14/22 pt.

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PRADELL AL-ANDALUS 10/16 pt.

S E CONOCE como *Al-Ándalus* al territorio de la Península Ibérica y de la Septimania bajo poder musulmán durante la Edad Media, entre los años 711 y 1492. Entre los años 711 y 715, los musulmanes ocuparon una parte de la Península Ibérica, aunque sin ningún tipo de dominio efectivo al norte del Sistema Central. La invasión y ulterior ocupación del sur peninsular se sostuvo manu militari. La parte mediterránea y la más meridional sufrieron un desbordamiento demográfico de las poblaciones locales, que se adaptaron a la nueva situación. ✒

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PRADELL AL-ANDALUS 12/16 pt.

Al-Andalus (الأندلس) was the Arabic name given to those parts of the Iberian Peninsula and Septimania governed by Arab Muslims, at various times in the period between 711 and 1492. As a political domain or domains, it successively constituted a province of the Umayyad Caliphate, initiated by the Caliph Al-Walid I (711-750); the Emirate of Córdoba (c. 750-929); the Caliphate of Córdoba (929-1031); and the Caliphate of Córdoba's taifa (successor) kingdoms. In succeeding centuries, al-Andalus became a province of the Berber dynasties of the Almoravids and Almohads, subsequently fragmenting into a number of minor states, most notably the Emirate of Granada ❧

مرّة جديدة، يتبيّن أن آثار مدينة طرابلس القديمة لا تزال مدفونة تحت أديم الميناء، وهي تحتاج إلى أعمال حفر علميّة لاستخراجها على غرار ما يحصل في بقية المدن الساحلية، بدءاً من جبيل وصولًا الى صور. فقد أعلنت الحملة المدنية لإنقاذ آثار وتراث طرابلس، اكتشاف أعمدة أثرية في موقع يتوسّط الطريق الدولية عند التقاطع المؤدّي إلى سنترال الميناء من جهة وإلى مدخل الميناء من جهة أخرى. عثر على تلك الأعمدة خلال أعمال حفر أساسات الجسر الذي سيشّيد ضمن مشروع الأوتوستراد الدولي، وظهرت فيها آثار التكسير والخدوش التي أصيبت بها من جرّاء الحفر بالجرافات، ولا يزال الموقع

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واعتبر رئيس لجنة الآثار في بلدية طرابلس خالد عمر تدمري، أن ما رصد هو عبارة "عن و أقسام لأعمدة حجرية دائريّة موزعة بشكل متناسق، وتشير إلى وجود معبد في هذا الموقع. لذلك، ينبغي الحفر علمياً أكثر في العمق وعلى امتداد مساحة الأرض، كي يظهر الارتفاع الحقيقي هذه الأعمدة التي يتجاوز عرضها المتر، وتالياً معرفة حجم الموقع الأثري وماهيته".

وأشار الى أن الأعمدة هي من نوع الغرانيت الذي كان يأتي من مصر عبر التبادل التجاري الذي كان قائماً مع الفينيقيين، إلا أنه قد يكون أعيد استخدامها في بناء معبد يوناني أو روماني، لذا لا نستطيع التثبت من

معبد أثري لا يزال مطموراً عند مدخل مدينة الميناء

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AÁÂÄÀÅÃĀĄĂĂÆǼBCĆĈÇĊČDĎĐEÉÊËÈ
ÉĒĘĚĖÉFGĜĞŐĠĢHĤĦIÍÎÏÌĪĪĮİIJJĴKĶLĹĽ
ĻĿŁMNŃŅŇÑŊOÓÔÖÒŐŌŎŐØǾŒPQRŔ
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‹ © ® › ™ « » ; : . , . '' " * " " . • … - — _ _

PRADELL AL-ANDALUS

ARABIC BASIC SET

ا أ إ آ انا أنا إنا آ نآ ب بب بـ ت تتت تـ ثـ ث ثث ج جـ جج ح

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ص صصص ض ضضض طـ ططط ظـ ظظظ عـ ععع غـ

غغغ فـ ففف ق ققق كـ ككك ل للل مـ ممم ن ننن هـ ههه

و نو ؤ نؤ لا لأ لإ لآ نلا نلأ نلإ نلآ ي يـ يي يـ نى ى نى ئـ نئ ئ ء

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LIGATURES

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نصي ضى نضى ضي نضي بى بي نى نى تى نى تى تي نى ثي فى ئ

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FIGURES

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DIACRITICAL MARKS

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PUNCTUATION + SPECIALS

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APPENDIX 2
Transliteration of Arabic

DIN 31635 (1982) – ISO 233 (1984)

ARABIC
Arabic script*

No.	iso	ini	med	fin		DIN 31635 1982[1.0]	ISO 233 1984[2.0]	ISO/R 233 1961[3.0]	UN 1972[4.0]	ALA-LC 1997[5.0]	EI 1960[6.0]
Consonants											
01	ا			ا		ā	ꜣ	___ (3.1)(3.2)	___ (4.1)	___	___
02	ء		ٔ,ٕ		A	ʾ	¹,₁ (2.1)	___, ʾ (3.3)	ʾ,___ (4.2)	___,ʾ (5.1)	ʾ
03	ب	ب	ب	ب		b	b	b	b	b	b
04	ت	ت	ت	ت		t	t	t	t	t	t
05	ث	ث	ث	ث		ṯ	ṯ	ṯ	th	th	th
06	ج	ج	ج	ج		ǧ	ǧ	ǧ	j	j	dj
07	ح	ح	ح	ح		ḥ	ḥ	ḥ	ḥ	ḥ	ḥ
08	خ	خ	خ	خ		ḫ	ḫ	ḫ	kh	kh	kh
09	د			د		d	d	d	d	d	d
10	ذ			ذ		ḏ	ḏ	ḏ	dh	dh	dh
11	ر			ر		r	r	r	r	r	r
12	ز			ز		z	z	z	z	z	z
13	س	س	س	س		s	s	s	s	s	s
14	ش	ش	ش	ش		š	š	š	sh	sh	sh
15	ص	ص	ص	ص		ṣ	ṣ	ṣ	ṣ	ṣ	ṣ
16	ض	ض	ض	ض		ḍ	ḍ	ḍ	ḍ	ḍ	ḍ
17	ط	ط	ط	ط		ṭ	ṭ	ṭ	ṭ	ṭ	ṭ
18	ظ	ظ	ظ	ظ		ẓ	ẓ	ẓ	ẓ	ẓ	ẓ
19	ع	ع	ع	ع		ʿ	ʿ	ʿ	ʿ	ʿ	ʿ
20	غ	غ	غ	غ		ġ	ġ	ḡ	gh	gh	gh
21	ف	ف	ف	ف		f	f	f	f	f	f
22	ق	ق	ق	ق		q	q	q	q	q	ḳ
23	ك	ك	ك	ك		k	k	k	k	k	k
24	ل	ل	ل	ل		l	l	l	l	l	l
25	م	م	م	م		m	m	m	m	m	m
26	ن	ن	ن	ن		n	n	n	n	n	n
27	ه	ه	ه	ه		h	h	h	h	h	h
28	ة			ة	B	h, t (1.1)	ẗ	h, t (3.4)	h, t (4.3)	h, t (5.2)	a, at (6.1)
29	و			و		w	w	w	w	w	w
30	ي	ي	ي	ي		y	y	y	y	y	y
31	ى			ى		ā	ỳ	—	y	y	ā
32	لا			لا		lā	lāʾ	lā	lā	lā	lā
33	ال				C	al- (1.2)	ʾlal (2.2)	al- (3.5)	al- (4.4)	al- (5.3)	al-, ʾl- (6.2)

iso	ini	med	fin		DIN 31635 1982[(1.0)]	ISO 233 1984[(2.0)]	ISO/R 233 1961[(3.0)]	UN 1972[(4.0)]	ALA-LC 1997[(5.0)]	EI 1960[(6.0)]

Vowels and diphthongs

#	iso	ini	med	fin		DIN 31635	ISO 233	ISO/R 233	UN	ALA-LC	EI
34	آ			آ	D	ʾā	ʾâ	ā, ʾā [(3.6)]	ā	ā, ʾā [(5.4)]	ā
35	َ					a	a	a	a	a	a
36	ُ					u	u	u	u	u	u
37	ِ					i	i	i	i	i	i
38	اَ		اَ			ā	aʾ	ā	ā	ā	ā
39	ٰ					ā	ā	—	ā	ā	ā
40	َى					ā	aỳ	à	á	á	ā
41	ىٰ					ā	āỳ	à	—	—	—
42	ُو		ُو			ū	uw	ū	ū	ū	ū
43	ِي		ِي			ī	iy	ī	ī	ī	ī
44	اً, ً				E	an	áʾ, á	an	a[n]	an[(5.5)]	—
45	ًى				E	an	áỳ	—	—	—	—
46	ٌ				E	un	ú	un	u[n]	un[(5.5)]	—
47	ٍ				E	in	í	in	i[n]	in[(5.5)]	—
48	َو	َو				aw	aw°	aw	aw	aw	aw
49	َي	َي				ay	ay°	ay	ay	ay	ay
50	ُو					uww	uw̄	uww, ū [(3.7)]	uww	ūw[(5.6)]	uww, ū [(6.3)]
51	ِي					iyy	iȳ	iyy, ī [(3.8)]	iyy	īy, ī [(5.7)]	iyy, ī [(6.4)]

Other signs

#	iso					DIN 31635	ISO 233	ISO/R 233	UN	ALA-LC	EI
52	ْ				E	[(1.3)]	◌°	— [(3.9)]	[(4.5)]	—	—
52	ّ				F	[(1.4)]	◌̄	[(3.10)]	[(4.6)]	[(5.8)]	[(5.5)]
54	ٱ				G	◌ʾ	◌²	[(3.11)]	ʾ	[(5.9)]	◌ʾ

Additional characters[H]

#	iso	ini	med	fin		DIN 31635	ISO 233	ISO/R 233	UN	ALA-LC	EI
55	پ	ﭙ	ﭙ	ﭗ		p	—	p	—	p	p
56	چ	ﭼ	ﭽ	ﭻ		č	—	č	—	ch, zh	č
57	ژ			ﮊ		ž	—	ž	—	zh	<u>zh</u>
58	ڤ	ﭫ	ﭭ	ﭪ		v	—	v	—	v	—
59	پ	ﭙ	ﭙ	ﭗ		v	—	v	—	v	—
60	ڨ	ﭯ	ﭮ	ﭬ		q	q	q	—	f	—
61	ب	ﺑ	ﺒ	ﺐ		f	f	f	—	q	—
62	گ	ﻚ	ﻜ	ﻛ		g	—	g	—	g	g
63	ڭ	ﻚ	ﻜ	ﻛ		g	—	g	—	g	g
64	ۏ			ﯠ		v	—	v	—	v	—

Rev. 2.2, 2008-02-25

Punctuation

65	،	,
66	؛	;
67	؟	?

Numbers

68	٠	0
69	١	1
70	٢	2
71	٣	3
72	٤	4
73	٥	5
74	٦	6
75	٧	7
76	٨	8
77	٩	9

Notes

*   Character forms: *iso* isolated form, *ini* initial form, *med* medial form, *fin* final form.

A   *hamˢzaï̈ (hamzaʰ)*.

B   *taˀ, marˢbuwṭaï̈ (tāʾ marbūṭaʰ)*.

C   The definite article. Se individual notes.

D   *maḏaï̈ (maddaʰ)*.

E   *sukuwn (sukūn)*.

F   *šaḏaï̈ (šaddaʰ)*.

G   *hamˢzaï̈ ˀalˢwaṣˢl (hamzaᵗ al-waṣl)*.

H   Characters used in various Arabic-speaking countries to represent sounds not found in standard Arabic. Not all transliteration systems have a complete list of these characters.

1.0   *DIN (Deutsches Institut für Normung) 31635: Umschrift des arabischen Alphabets* as referenced in Klaus Lagally: ArabTeX – a System for Typesetting Arabic.

    General notes:

    i. Hyphen is used to separate grammatically differing elements within single units of Arabic script, notably the noun from the article and/or from the particles *wa-, fa-, ta-, bi-, li-, ka-, la-, sa-* and *a-*.

1.1   As *t* in the construct state.

1.2   The definite article is assimilated with the following "sun" letter (ت, ث, د, ذ, ر, ز, س, ش, ص, ض, ط, ظ, ل, ن).

1.3   *Sukūn* is not transliterated.

1.4   The consonant is written twice.

2.0   *International Standards Organisation. (http://www.iso.ch).*

    General notes:

    i. If the Arabic text supplies vowels, it will be entirely transliterated; if the Arabic text does not supply vowels, only those characters appearing in the text will be transliterated.

2.1   With bearer (أ ؤ ئ): ', without bearer: ˏ. E.g. رُؤُس *ruwʹusú (ruwʹus)*; سَاءَلَ *saˀala*.

2.2   The definite article is always joined to the next word without a hyphen, e.g. ٱلشَّمْس *ʾalšamˢsu*.

3.0   *International Standards Organization.* This standard was withdrawn and replaced by ISO 233:1984. Nevertheless, this version of ISO 233 can still be found in various publications.

    General notes:

    i. The standard distinguishes between transliteration with and without *iʿrāb* (case endings):

	With *iʿrāb*	Without *iʿrāb*
بَيْتُ	*baytᵘ*	*bayt*
بَيْتٌ	*baytuᵘⁿ*	*bayt*
مَعْنًى	*maʿnàⁿ*	*maʿnà*
مصرين	*miṣriyyīnᵃ*	*miṣriyyīn*

    ii. Hyphen is used in transliteration to separate grammatically differing elements, especially the noun from the article and/or from the particles *wa-, fa-, ta-, bi-, li-, ka-, la-, sa-* and *a-*.

    iii. ابن and ين in transliteration without *iʿrāb*: always transliterated *ibn*.

3.1   See entry under the section "Vowels and diphthongs" and note 3.2.

3.2   Special condition for ا, ئ and و: The base letter is not transliterated, e.g. رَأى *raʾà*, لئَم *liʾam*, سُؤَال *suʾāl*.

3.3 *Hamza*[h] is not transliterated initially, elsewhere by ʾ.

3.4 With *iʿrāb*: ʾ, e.g. المَدِينَةَ *al-madīna*[tu]; without *iʿrāb* in the absolute state: [h], e.g. المدينة *al-madīna*[h]; without *iʿrāb* in the construct state: ʾ, e.g. المدينة النبي *madīna*[t] *an-nabī*.

3.5 The *l* in the definite article is assimilated with "sun" letters: ت, ث, د, ذ, ر, ز, س, ش, ص, ض, ط, ظ, ل, and ن. E.g. الشَّمْسُ *aš-šams*[u].

3.6 *ā* is used initially, *ʾā* elsewhere.

3.7 *ū* used in final position.

3.8 *ī* used in final position.

3.9 *Sukūn* is ignored in transliteration.

3.10 *Šadda*[h] is rendered by doubling the consonant.

3.11 *Hamza*[t] *al-waṣl (alif waṣla*[h]): With *iʿrāb* transliterated by its original vowel with a breve, indicating that the vowel is not pronounced, e.g. بِأَهتِمام *bi-ĭhtimām*ʾ, بَيتُ اَلمَلِكِ *bayt*[u] *ăl-malik*ʾ; without *iʿrāb* after a vowel as with *iʿrāb*, e.g. بِأَهتِمام *bi-ĭhtimām*; without *iʿrāb* after a consonant without the breve, e.g. الملك بيت *bayt al-malik*.

4.0 *United Nations Group of Experts on Geographical Names (UNGEGN). (http://www.eki.ee/wgrs).*

4.1 Not romanized in itself. Se "Vowels and diphthongs" section for other uses.

4.2 Not romanized in initial position. E.g.: أَخَذَ *akhadha*, بِئر *bi'r*, سُؤَال *su'āl*, رَئِس *ra'īs*, سُئِلَ *su'ila*, بِنَاءَات *binā'āt*, قَرَأ *qara'a*, قُرِئَ *quri'a*.

4.3 *Tā' marbūṭah* is romanized *h*, except in the construct form of feminine nouns, where it is romanized *t* instead.

4.4 The *l* of the definite article *al* is assimilated with the following "sun letters" (*t, th, d, dh, r, z, s, sh, s, d, t, z, l, n*). E.g.: الشارقة *ash-Shāriqah*.

4.5 Marks absence of the vowel and is not romanized.

4.6 Marks doubling of the consonant.

5.0 *American Library Association/Library of Congress.*

General notes:

i. Hyphen is used to connect the definite article *al* with the following word; between an inseparable prefix and the following word; between *bin* and the following word in personal names when they are written in Arabic as a single word.

ii. Prime (ʹ) is used to resolve disambiguity, e.g. ادهم *Ad'ham*, أكرمتها *akramat'hā*; to mark the use of a letter in its final form when it occurs in the middle of a word, e.g. قلعتجى *Qal'ah'jī*, شيخ زده *Shaykh'zādah*.

iii. بن and ابن are both romanized *ibn*, except in modern names, typically North African, in which بن is romanized *bin*.

5.1 *Hamzah* in initial position is not romanized; when medial or final it is romanized ʾ, e.g. مسألة *mas'alah*, خطئ *khaṭi'a*.

5.2 *Tā' marbūṭah*: In a word in the construct state: *t*, e.g. وزارة التربية *Wizārat al-Tarbīyah*; in an indefinite noun or adjective or proceeded by the definite article: *h*, e.g. صلاة *ṣalāh*, الرسالة البهية *al-Risālah al-bahīyah*.

5.3 The definite article is always romanized *al-*, whether is it followed by a "sun letter" or not. An exception is the preposition ل followed by the article: *lil-*, e.g. للشربيني *lil-Shirbīnī*.

5.4 Initial آ is romanized *ā*; medial آ is romanized *ʾā* when it represents the phonetic combination, e.g. تأليف *ta'ālīf*; otherwise آ is not romanized different from ا, e.g. خلفاء *khulafā'*.

5.5 *Tanwīn* is not normally romanized. For exceptions see *ALA-LC Romanization Tables*.

5.6 ﻮُۏ representing the combination of long vowel plus consonant, is romanized *ūw.*

5.7 Medial ﻲۡ representing the combination of long vowel plus consonant, is romanized *īy*; final ﻲۡ is romanized *ī,* e.g. اﻟﻤﺼﺮﻯ *al-Miṣrī,* اﻟﻤﺼﺮﻳﺔ *al-Miṣrīyah.*

5.8 *Shaddah* or *tashdīd* is romanized by doubling the letter.

5.9 ﺍ *(waṣlah),* is not romanized. When *alif* with *waṣlah* is part of the article اﻟ, the initial vowel of the article is romanized *a.* In other words beginning with *hamzat al-waṣl,* the initial vowel is romanized *i.* E.g. ﺑﺄﻫﺘﻤﺎم ﻋﺒﺪ اﻟﻤﺠﻴﺪ *bi-ihtimām ʿAbd al-Majīd.*

6.0 *The Encyclopedia of Islam. New Edition.*

6.1 *at* is used in construct state.

6.2 Always *al-* and *ʼl-.*

6.3 Final position *ū.*

6.4 Final position *ī.*

6.5 Doubles the consonant.

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UNESCO transliteration list

INDEX TRANSLATIONUM

Tabla de transliteración

ÁRABE

golpe glotal	ʾ
أ	**a**
ب	**b**
ت	**t**
ث	**th**
ج	**j**
ح	**ḥ**
خ	**kh**
د	**d**
ذ	**dh**
ر	**r**
ز	**z**
س	**s**
ش	**sh**
ص	**ṣ**
ض	**ḍ**
ط	**ṭ**
ظ	**ẓ**
ع	**ʿ**
غ	**gh**
ف	**f**
ق	**q**
ك	**k**
ل	**l**
م	**m**
ن	**n**
ه	**h**
و	**w**
ي	**y**
vocal larga **a**	**ā**
vocal larga **i**	**ī**
vocal larga **u**	**ū**

DMG (Deutsche Morgenländische Gesellschaft) rules.

Brill's simple Arabic transliteration system
Version 1.0, 14 December 2010 / By Pim Rietbroek

Instructions for Authors

B R I L L

1) A general-purpose system of transliterating Arabic for scholars

The Arabic transliteration system we present here is meant as a system for general scholarly use. It does not pretend to represent all orthographic details of the original script: for instance, initial *hamza* is not transliterated, and no distinction is made between *ā* from *alif*, from *alif maqṣūra*, or from *tāʾ marbūṭa*. It is also simple in the sense that one Arabic letter (consonant) is transliterated with one roman letter, and in this it follows the *Deutsche Morgenländische Gesellschaft* rules.

In the table below, many transliteration characters in the 'sAts' column carry diacritics, either above or below. Until recently, common computer operating systems had few fonts which supported all of them: Times New Roman, for instance, lacked some until it was updated with the introduction of MS Windows Vista. In such cases, the Gentium and Charis SIL families have proved useful: as before, you are free to use those if you prefer, or any other Unicode font.

The 'Unicode' column lists the hexadecimal values of all characters which cannot be keyed directly on an ordinary 'western' keyboard like a US keyboard. A method to use these values for input is described in Section 2, the Input section of this document.

Arabic	sAts	Unicode	Arabic	sAts	Unicode	Arabic	sAts	Unicode
ا	a, ā	0101	ط	ṭ	1E6D	ى	ā	0101
ب	b		ظ	ẓ	1E93	ي	ī	012B
ت	t		ع	ʿ	02BF	و	ū	016B
ث	ṯ	1E6F	غ	ġ	0121	◌	a	
ج	ǧ	01E7	ف	f		◌	i	
ح	ḥ	1E25	ق	q		◌	u	
خ	ḫ	1E2B	ك	k		◌	ai	
د	d		ل	l		◌	au	
ذ	ḏ	1E0F	م	m		◌	īy	012B
ر	r		ن	n		◌	ūw	016B
ز	z		ه	h		ة	a, ah, āh, at, āt	0101
س	s		و	w, ū	016B			
ش	š	0161	ي	y, ī	012B			
ص	ṣ	1E63	ء	ʾ	02BE			
ض	ḍ	1E0D						

Unicode hexadecimal values of uppercase transliteration characters													
Ā	Ḏ	Ḍ	Ǧ	Ġ	Ḥ	Ḫ	Ī	Š	Ṣ	Ṯ	Ṭ	Ū	Ẓ
0100	1E0E	1E0C	01E6	0120	1E24	1E2A	012A	0160	1E62	1E6E	1E6C	016A	1E92

2) Input

You can input characters carrying diacritics in several ways:

2.1) Users of MS Office Word (**Windows**) may choose the 'Insert Symbol' command and pick the character in the Symbol palette, but this is a cumbersome method.

Mac OS X provides the similar Character Palette, which works in all text applications; this Character Palette can be switched on via System Preferences… → International (Snow Leopard: Language & Text) → Input Menu (Snow Leopard: Input Sources). If it was not active before, a keyboard menu appears in the menu bar towards the right.

2.2) In the MS Office suite of programs (**Windows**, versions 2003, 2007, 2010), the Unicode hexadecimal value can be used for input. To get, *e.g.*, 'ḥ', one types '1e25' (without the quotes; it does not matter whether you use a lowercase or an uppercase 'e') and then immediately Alt X: the code is replaced by the character. Typing Alt X again will toggle it back to the code.

Mac OS X allows you to input hexadecimal values directly with the Unicode Hex keyboard layout. It can be activated in the same way as the Character Palette mentioned above. To use it, first choose the Unicode Hex keyboard from the keyboard menu in the menu bar, near the right; then press down the 'Option' key (sometimes called 'Alt') and key the four-character hexadecimal code, and let go of the 'Option' key: the character appears.

2.3) The easiest way to key the transliteration characters is to use a dedicated keyboard for Arabic transliteration. One of the best, and available for both MS Windows and Mac OS X at no cost, is **Alt-Latin**. It can be downloaded from The University of Chicago Library site, where you can also find clear documentation.

APPENDIX 3
Arabic Keyboard

Persian Keyboard

Arabic Unicode Ranges

Available online from the Unicode website:

Arabic
http://www.unicode.org/charts/PDF/U0600.pdf

Arabic Supplement
http://www.unicode.org/charts/PDF/U0750.pdf

Arabic Extended-A
http://www.unicode.org/charts/PDF/U08A0.pdf

Arabic Presentation forms-A
http://www.unicode.org/charts/PDF/UFB50.pdf

Arabic Presentation forms-B
http://www.unicode.org/charts/PDF/UFE70.pdf

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