Multi-lingual Design for a Global Culture.

1. Introduction.

Contemporary discourse about globalisation has triggered the notion that a world culture is a concept born of the 21st century. This may be the result of an ever-increasing awareness of other cultures, which is to be expected in this age of information. In terms of typographic design and writing however, this notion is as old as civilisation itself. Since the Sumerian writing system was first invented, firstly scripts, and later type have been disseminated throughout geographically and linguistically diverse civilisations in much the same way as the new digital media. Multi-lingual typography has been a common practice throughout the ages (i.e. the Rosetta stone), however only recently, with the advent of the World Wide Web, has it become an issue for universal concern—hence standardisation (i.e. the Unicode Consortium). There is no disputing that multi-cultural communication is essential. It is inevitable, therefore, that multi-scriptural typography become mandatory for qualitative visual communication and design education in the future.

1.1. Globalisation; threat or opportunity?
What does globalisation represent for the masses today? To some, it represents a threat, to others, an opportunity. It embodies a conflict between autonomy and unity, between the struggle to preserve a national identity and the desire to take an active part in a greater world culture. Even within the European community, this struggle can be felt at varying degrees of intensity. There is a general sense of imbalance in these times, a feeling of unfair exchange between the affluent western nations and their underdeveloped eastern counterparts. Even on the individual level, globalisation is perceived as the exploitation of the poor by the richer multinational companies in pursuit of the latter's own economic interests. It would seem that there is a monopoly by a rich elite on wealth, knowledge and power that inevitably serves to dictate the fate of the world. Globalisation has become a fact of life—the same tools and machines are used everywhere; people interact globally for varying purposes; and we all share the responsibility of ensuring the survival of our very same planet. Therefore, the question we need to address is not whether or not to resist globalisation, but rather how to transform it into a tool for the consolidation of our efforts in order to achieve our common goals.

1.2. Taking stock of historical events.
Designers of the 21st century would do well to take stock of historical events with the aim of creating a more responsible involvement through design. Though history has not been repeated in its entirety, there have been, nevertheless, certain reoccurring patterns that could well be the result of human ignorance. Historically, the collision of civilisations resulted in both great wars, as well as in an exchange of wealth, cultural enlightenment and technological advances. It goes without saying, therefore, that interaction among cultures and reciprocal influences are legacies that need to be preserved. In this day and age we live in an age of unprecedented speed, the like of which Futurists could only dream. This rate of speed has had an overwhelming effect on all aspects of life—wars have become an accelerated form of efficient massive destruction; travel (whether for work or leisure) has become a perpetual state of hyper-movement around the globe; fast-paced audio-visual and digital communications have become intrusively ubiquitous and integral to our daily activities; and our ability and need to interact at whim with each other regardless of location, has become of the essence. Such speed has instigated accelerated change that many are either ill prepared or ill equipped to deal with. At worst, the change is rejected by a culture that
insulates itself in ever more conservative ideals and rigid life style. At best, the change is embraced by a society who develops techniques to negotiate a way of life that takes advantage of the opportunities at hand. It is the responsibility of affluent societies to help the lesser well off participate actively in this new global culture.

1.3. The role of designers.
We, as designers, have the power to influence people’s perceptions and the way they perceive the world and themselves within it. We all share the same world and the same responsibility to preserve life in all its richness and diversity. With such a common goal, forging a global culture based on mutual trust and cooperation, as opposed to xenophobic attitudes and hostility towards everything foreign, is essential. Design can play a crucial role in such a global society. It can raise awareness and improve the quality of our global, visual culture and its various scripts. Since the invention of the first alphabet, the role of the early scribes (and later the typographers) has been at the base of influential, cultural advancements that have shaped contemporary culture. Writing gives historical insight into the ideas and the spiritual and technological developments of a human civilisation. This is inherent not only in the meaning carried by the words, but also in its visual aspects, in its style and craft, its production techniques and in the materials used. Therefore, tracing the history of typography and the key points of its evolution, specifically the alphabetic writing systems, can provide a background to our shared past as well as answers to questions regarding our common future.

2. The Birth of the Alphabet (c. 1000 BCE); Cultural Exchange and Conflict.

21. The Phoenician alphabet.
The alphabet originated with the Phoenician civilisation that was strategically situated at a crossroad between the two powerful civilisations of Mesopotamia and Egypt, the two super-powers of the ancient world. These two civilisations had a history of war and struggle over supreme power. Their struggle resulted in constant invasion from the East, (Mesopotamia) and the West, (Egypt) of the territory in between, which was the land of the Semitic people, of which the Phoenicians were a prominent group. This set the stage for the historically
significant cultural exchange, a fusion of both these civilisations’ scripts, which culminated in the invention of the ancestor of all alphabetic writing systems — the Phoenician alphabet.

2.2. The birth of alphabetic scripts.

The Phoenician alphabet underwent a series of developments before it spread in opposite directions. It was carried west via the Greeks, marking the beginning of writing in Europe. Similarly, it was transported east via the Arameans and was adapted to the Semitic and Indic languages. As the ancestor of all alphabetic scripts, the Phoenician alphabet stands as testament to the shared origin of the most basic element of our means of communication—the alphabetic scripts used by the majority of people around the world. This new invention eventually created a new profession, that of the scribe. The profession of scribe has been regarded for many centuries (and still is in certain cultures) as an honourable profession that combined wisdom and knowledge with art and spirituality. The early scribes played an important role in beautifying and improving the written scripts, and in producing books and valuable documents for the propagation of knowledge and ethics.

2.3. Coexistence of the Western and Eastern alphabets.

After World War II, the colonisation of parts of the Middle East by European countries created another type of conflict between the Western and Eastern cultures. It also brought many cultural and political developments. This cultural exchange created a modern society that had formerly been dormant for centuries under the oppressive reign of the Ottoman Empire. In addition, it brought to the Middle East a new visual culture embodied in the use of bi-lingual typography in all aspects of communication. In this instance, the alphabet that had divided and developed into two opposite strings of representation was re-unified in the form of a hybrid bi-scriptural visual culture, at the point of origin of both alphabets. This can be seen as the beginning of a coexistence between the two conflicting Western and Eastern civilisations. The ramifications of this conflict are felt to this day, with a mutual distrust between the Christian and Muslim world, each symbolically represented by its emblematic script, the Latin and the Arabic scripts respectively.
3. The Birth of Typography (15th century); Cultural Exchange and Conflict.

3.1. What is typography?
Typography: (typos, fr. Gk., printing) style, arrangement, or appearance of typeset and printed letterforms. Typography is the art of styling, composing and producing letterforms for the mass-produced or printed visual communication media. Typography originates from the invention of movable type in 15th century Europe, a time also known as ‘the incunabula’ or the cradle of the printing arts. This invention was not an isolated point in history; it was influenced by many other professions and crafts of its time, as well as by influences from foreign cultures.

3.2. The Renaissance and the invention of movable type.
In the late 14th and early 15th centuries, the spirit of the times was adventurous, in an attempt to rid itself of the oppressive medieval social values. Europe looked east to ancient Greece's scientific and philosophical works, preserved and elaborated upon by the Arab scholars. It was a time of revivalism and intellectual inspiration. This was the backdrop in front of which the Renaissance was played out. The need to spread knowledge to a wider audience became more urgent with the spread of literacy. The need to reproduce multiple copies of original texts grew alongside it. Woodblock and engraved metal plate printing were employed to this end, having been made possible by the use of paper. Both techniques (woodblock printing and paper making) were invented in China (c. 600 AD and 200 AD respectively), and were brought into Europe by the Arabs. The printed book was thus born and printing techniques developed along a more economically viable and logical path. This development eventually led to the invention of movable type by Johannes Gutenberg of Mainz, in 1450. Though movable type was developed in the 11th century (c. 1045 AD) in China, there is no evidence of any connection between the two inventions. Furthermore, there was a considerable difference between the two—the Chinese used a mixture of clay and glue for their type, an impractical solution since the material was brittle and therefore less durable.

The invention of movable type consisted of the convergence of various crafts that were employed in metalsmithing and other fields. It created the most economic way of reproducing text in large quantities and at a relatively faster speed than earlier methods. This invention marked the birth of typography. After Gutenberg, the production of printing types became an independent profession, concentrated in the skillful hands of the punchcutters—the first true type designers in history. This invention also marked the division of labour in the various tasks that were needed for the production of printed books—a process which had been previously concentrated solely in the hands of the scribes that laboriously wrote, designed and created the final artifact.

3.3. The typographic book.
The printed typographic book became a medium for the wide dissemination of knowledge, ideologies and political propaganda. It helped spread not only literacy and knowledge, but also conflicts between various religious and political groups within and outside of Europe (between Protestants and Catholics, Christians and Muslims). Though printing technology originated and spread west from the Middle East, it was never highly regarded there and was prohibited by law. At the beginning of the 17th century, diplomatic relations between Europe and the Ottoman Empire were established after the failure and ultimate end of the Crusades. The end of the hostility marked the beginning of commercial relations between Europe and the Levant. During the 17th century, Germany and England joined Italy, Holland and France in the production of Arabic printing types. Nevertheless, it took about 300 years...
before printing was reintroduced, as a European invention, in the Ottoman dominated Middle East. It was finally accepted following a decree in 1726, by Sultan Ahmed III, which allowed the use of Arabic fonts solely for the printing of secular texts. The introduction of the printing press and the proliferation of printed matter in the Middle East eventually led to the Arab cultural renaissance, known as Al-Nahda. This movement was influential in reforming and modernising the Arab culture, its intellectual heritage, and even the visual representation of the Arabic script. It created a dynamic culture that struggled to catch up with the advances taking place in the western world.

4. Industrialisation and Technological Developments (19th - 20th century); Global Exchange.

From this point onward, technological advances have been mostly western inventions, adapted the world over for each nation's specific communication needs. The industrial revolution of the 19th century initiated a new, modern way of life with ramifications that can be felt today. It set in motion mass production through mechanised speed, defying time, lowering costs, and making goods available to a larger group of consumers. It helped create an affluent middle class that has only grown in number and power since. A further legacy of the industrial revolution is the notion of a global culture. Such a notion was born of the commercial, scientific and cultural exchange that took place as a direct result of the growing ease of mobility.

The Industrial Revolution also modified the printing industry by mechanising a major part of type production. Complex machines that automated the production and setting of type in a faster and more economic way were developed. They boosted the volume of publications and daily newspapers. Awareness of the world as a singular entity was in its embryonic state, later to come to maturation by the audio-visual and digital media of the 20th century. The type production tools that we use today have evolved from a mechanised typesetting process to a photographic process, before reaching the digital processes developed in the late 20th century. The collaboration between science and design to achieve faster production and higher quality of text has been at the base of these developments.

4.1. Tools for mechanical type production and typesetting.

In 1896, the German company, Linotype, invented a typesetting machine that cast and set whole lines at once. It was called the metal slug-casting Linotype setter. Shortly afterwards, in 1897, the English company, Monotype, invented a new typesetting machine, The Monotype Typecaster, that had the advantage of setting individual characters. This allowed for typographic refinements such as adjustable kerning, most needed for setting Italic and Arabic type. Along with these highly professional machines, a smaller office version, the first mechanical typewriter, the Remington No.1, was invented by P. Remington and put into production in 1876. The typewriter underwent further development from the faster and more elegant model of Camillo Olivetti (1910), to the Selectric electrical model by IBM (1961). This latter typewriter had a unique ability to offer a variety of typefaces that came embossed on interchangeable metal golf balls. As the low-end of the industrialised typesetting technology, the typewriter moved part of typesetting from the specialised printing house to the office space. The typewriter took over the function of handwritten correspondence, allowing for copies to be made instantaneously. Soon it invaded all office spaces. It was later used as a model for the now all too familiar personal desktop computer.

The mechanisation of type production led to the disappearance of the punchcutters and their replacement by a new professional discipline, that of
type design. It gave birth to standardised complex type metrics, which played an important role in the design of fonts, which were often adapted from earlier lead type and adjusted to work on the new machines.

4.2. Tools for photographic type production and typesetting: a transitional period between the mechanical and digital eras.

The progress in photographic technology left its mark on typography and design. The cost of design and production of new fonts was dramatically reduced with this new typesetting technology. Only one set of matrices was required to produce all type sizes. Type production became partially immaterial; the letters could be composed out of parts that are superimposed; and leading and word spacing became more flexible and easily modifiable by the typesetter. During the same period, research was carried out for composing traditional calligraphic Arabic scripts. This entailed using the composite letters system that phototypesetting allowed for, in order to create fluid letter connections. This technology boosted the development of previously unheard-of quantities of new font designs. In 1965, the German company Hell invented a new CRT (Cathode Ray Tube) exposure system for photographic paper. This invention was an important step towards the new digital era. It marked the beginning of storing type as digitised data called bitmaps. Typefaces and images could be incorporated in the same exposure of the film since both became rasterised (halftone) images. This invention marked the end of mechanical supremacy and the beginning of digital type production.

4.3. Tools for digital type production and typesetting.

The digital revolution marked a new era in visual communication and production technologies. The tools became invisible electrical signals and the whole physical aspect of typographical material came to pass. The tool, the support and the type itself merged into one and the same digital medium. Office machines were changing dramatically in terms of their function and the range of tasks they could perform. The gap between professional and office equipment narrowed, and the quality of text output became almost identical.

In 1984, the American company, Apple, released a new generation of computers with refined graphical user interface (GUI), which was a revolutionary way of giving instructions to a computer. It consisted of simple pictographic drawings called icons, and a pointer device called the mouse, which the user could move around the screen clicking on the icons to initiate specific instructions. The computer screen became WYSIWYG (what you see is what you get), which meant that the image on the screen was a close representation of the printed end result. The combination of this GUI and WYSIWYG screens made the new machines accessible and easy to use for everybody. The role played by the in-house graphic design office at Apple was to change the way people interacted with their machines. It further liberated design from the monopoly of the professionals and caused an explosion in both poor and highly sophisticated visual communication. Computer developments came cascading after this, improving the quality of type design and output by way of various software developments for both the computer and the output devices. Moreover, during the industrial revolution, production equipment became cheaper than their predecessors but a considerable capital investment was still needed to set production facilities. With digital equipment, this initial cost was a small fraction of what it used to be. Still, computers continue to grow cheaper, more efficient, and more diversified in the range of tasks they can perform. The success of this invention brought phototypesetting to a grinding halt and replaced the office typewriters for good. Typesetting offices were no longer a professional discipline requiring specialist personnel; their skills were being
replaced by computer software that put type production directly in the hands of the designers.

Following these developments and within a short period of time, type production underwent a major change. The investment to develop a new font was reduced to an investment of design time on the part of the type designer. All other costs of producing matrices, storage and distribution had completely disappeared. A font had inadvertently turned into a collection of numerical instructions and mathematical formulas that can fit on any computer disk. The font became entirely immaterial and was not confined to specific typesetting machines. The perception of fonts as everyday commonplace commodities has been largely influenced by the fact that every computer owner has tens of fonts imbedded in his/her machine. Furthermore, a wide selection of thousands of fonts (in different styles and scripts) could be ordered from a range of large to small type foundries in digital formats, on CDs, or via the Internet. In the past 15 years, far more typefaces have been designed and produced than in the entire preceding 500 years of type production. All the paraphernalia of type production facilities has been stripped away. Type designers working in their studios behind their personal desktop computers have full control over their fonts from design inception to production and even distribution. This has led to an explosion in the type design field. Moreover, being free of technical constraints, formal experimentation has run wild.

The way the design profession is practiced today is comparable to that of the early scribes. We are again in the privileged position of foreseeing the production of our work from design concept all the way to finished product, using one and the same machine for the whole process. With the advent of the World Wide Web, we have produced machines that have allowed diverse cultures to communicate through a shared channel. Nevertheless, we neither use the same language nor the same scripts, and this inevitably pushes us to find design solutions that make all these scripts compatible with this digital channel. Because of this development, many scripts may come to disappear if they are not considered by the manufacturers as commercially viable. As designers, we should focus our attention on using the technological possibilities in order to support global diversity and preserve cultural identities.

5. Design Trends Beyond Technology (20th - 21st centuries); Cross-Cultural Dialogue.

The latest widespread communication media have empowered many people around the globe, giving voice to smaller, marginal communities. At little financial investment, and greater professional flexibility, consultancy work has become possible regardless of the conventional geographic or national barriers. The rapid and efficient exchange of ideas and products at low cost and high speed has created a fluid global society.

With the worldwide spread of the Internet computer network, textual information has regained its front-row importance, and the boundaries of type representation have widened towards uncharted territories. Type in print is henceforth no longer more important than type on the screen; it may even be argued that the reverse is true. Manipulation of type and our constant interaction with textual information have become commonplace. We read or see type in a static and/or animated form, on the Internet, film, Satellite TV, wireless telephony, or other communication media. Type can be seen everywhere around us, moving, changing colour or shape, giving feedback and instructions... etc. The potential of its communication power has grown exponentially with the recent technological advancements and has come to
represent our modern 21st century global culture. The last 15 years have seen many design ideologies and trends that have been inspired by the growing awareness of the new global culture in which we live.

5.1. Revivalism: culturally sensitive typography.
A growing interest in preserving national identities and local culture has led some designers to revive certain old scripts and traditional typefaces. For example, Pierre diSculio’s font *Tifinar* for the Tuareg people of the Sahara desert, the revival of traditional Arabic Naskh calligraphy by the Dutch company DecoType, and many other Latin type design revivals of fonts considered a national design emblem.

5.2. Globalism: multi-lingual typography.
Another important trend has developed for multi-lingual type design. Large font families are designed in order to include many of the world’s most commonly used scripts. This idea stemmed from the need on one hand to democratise the Internet, and on the other, to make computer equipment available to the largest possible number of people the world over. The Unicode consortium has led to the creation of multi-lingual software where many scripts can coexist. This has resulted in a tremendously large character set (with the capacity to include 1,114,111 characters) that comprises most of the world’s written scripts in use today.

5.3. Formal experiments: hybrid typography.
The number of stylistic experiments (namely in the beginning of the 1990s) has taken the design world by storm, shaking up conventions and questioning the common practice. They have left their imprint on the global trends of visual communication. For instance, the number of stylistic variations on the traditional font family has gone beyond the different weight and proportional variations to include illustrative or unusual hybrid variations, as well as idiosyncratic ligatures and letter combinations.

5.4. Technological novelty in type design.
The territories of barely exploited, or yet unexploited, luring technological possibilities are vast. Instructions can (and have been) built into fonts to induce change of character shapes (sometimes needed for setting scripts like Arabic), or random change of shapes in order to mimic handwriting, or indeed to animate the letters when they appear on the screen, or to accommodate the visual ability of the user...etc. Here we tread a field still in the process of continuous exploration, under the pioneering zeal of a few type designers/programmers, such as the team of Letterror. It is a new type design field where character shapes are no longer precisely defined as form but rather as more generic mathematical formulas that materialise only under certain circumstances and instructions. Multiple Master fonts and MetaFonts have been some of the more ambitious experiments in this direction, though their success and practicality are still questionable for daily design use.
We have become so dependent on each other in many respects that it is fair to believe that the global population will only grow closer, sharing more resources and exchanging information and various skills. Moreover, we have reached a point in our history where the technological advancements we have created are so powerful that we are capable of destroying our own planet. Therefore, for better or for worse, we do share the same future and what we create has often far-reaching ramifications that will impact on people's lives and the planet as a whole. As designers, we have both the moral obligation to produce socially responsible work and the potential to achieve it. Design can play a practical role in unifying nations in this new global culture that remains divided on political issues and regional power struggles. By being proactive in the development of higher quality type in under-developed cultures, we can help bridge cultural gaps and unnecessarily adverse perceptions of other nations.

This can take the form of the founding of a non-governmental organisation dedicated to typographic research, that supports visual culture initiatives worldwide, with goals such as:
—creating a specialised virtual community that shares and exchanges knowledge that arises from practice and experience, across design disciplines, cultures and national boundaries.
—building national pride in under-developed societies.
—supporting educational exchange and community service programs.
—facilitating an open-minded dialogue between cultures, that promotes tolerance, and eradicates destructive misconceptions.

As outlined in this paper, globalisation is a 'fait-accompli' and one that is at the very core of human civilisation. Though it has gained negative connotations of late, it should be perceived as an opportunity to work towards a unified world, where stability and wealth is shared and enjoyed by all. It is the duty of designers to take charge of promoting and upholding such a positive perception of the future. Through exchange, collaboration, and mutual respect, the end goal can be achieved. Typography is a field that, by virtue of its internationalism and the breadth of its tradition, can play a vital role in this process.
Notes.

1. More detailed information about the Unicode Standard can be found at the Unicode Consortium's website: http://www.unicode.org
5. Idem.

Selected Bibliography.