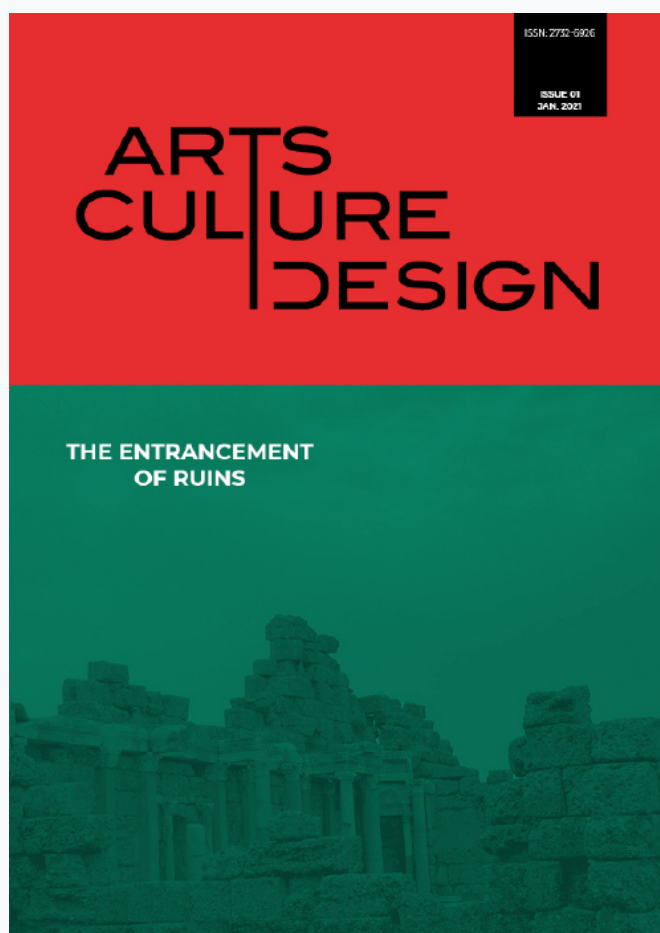


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# MODERN GRAPHIC DESIGN PROMOTING ARCHAEOLOGICAL ARTIFACTS AND SCIENTIFIC TEXTS

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## ABSTRACT

One of the most demanding and intriguing duties of the art of graphic design is the promotion of not only archaeological artifacts but scientific texts, as well. The skills and cognitive dexterities of the stakeholders involved in these projects exceed by far the common process of graphic designing. A most essential prerequisite is the experience which is based on a deep insight of Typography, Photography, Color Management, Graphic Design, good aesthetics, history and the perception to distinguish and pinpoint the unique artistic value of each and every artifact.

So far, the study of archaeological artifacts appeared to be the exclusive right solely of archaeologists, but it is of utter importance that graphic designers, illustrators and photographers follow suit, since the promotion and the design process of a book or an application, is their field of study, as well.

The entire process presupposes the ability to combine and unify modern typography, design elements, high quality photographs with newly-discovered artifacts that carry thousands of years of history. The daily process and collaboration with archaeologists is of most vital in order for the project to be successful. The parameters to be considered for just a single artifact, or a brief scientific paper referring to a brief historical period or a timeline are countless, some of which being the historical era, the civilization, the script style, language, religion, religious references and the like.

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### Keywords:

Graphic design, artifact, Scientific text, Archaeology, layout

## 1. PREFACE

One of the hardest and most intriguing workouts of graphic design is to promote archaeological artifacts and scientific texts. It requires the ability to pair and unify modern typography and design elements with fresh-discovered artifacts that carry thousands of years of history. The whole process may seem easy, but it is a mind consuming procedure that requires daily workout, years of expertise, daily collaboration with archaeologists and continuous contact with the job. The elements under consideration are countless, e.g. the historical era, the civilization, the script style, the language, the religion, religious references and many other factors referring always to a single artifact. Imagine having to manage more than 300 or even more artifacts in a book, or for a video footage in an application, or even having to demonstrate a whole museum in a catalog. The whole Graphic Design process requires expert skills because the artistic and historical value of these objects is enormous in all civilizations, hence, their graphic elaboration must not only reflect the designer's choices but also promote the archaeological artifacts in the most efficient way along with the scientific texts that usually accompany them.

## 2. ORGANIZATION AND WORKFLOW

Before kicking off, it is of great importance for the designer to have all the materials required for the production. The production process slightly differs between a printed book and a digital application; however, the workflow setting remains almost the same for both at a great deal. Team-work on a given project is the most vital part of the workflow. The art director, the general editor, the general supervisor must have an essential relationship and cooperation for a project to go forward. The graphic designer must initially study the material, examine the pictures and the designs, talk with the author, and figure out a general picture for the project. Text reading is of minor importance in this stage, since this can take place during the workflow, not to mention that for most designers, text serves only as the "grey volume" of a layout's composition. Lastly, the group of a project's decorative elements forms its

personality and due to this the designer must use them wisely during a project's elaboration.

## 3. CHOOSING FONT TYPE AND TITLE AND TEXT SIZE

The body of the text is the prime element of any project. When dealing with scientific texts the issue becomes complicated. The implementation of Serif fonts is usually preferred, not just for scientific editions. This particular font type was the first to be created for books. The reason for this font's selection is usually its readability, but there is no particular scientific research supporting this opinion. Therefore, it may be time to reconsider and evaluate a font's selection relying more on other factors, primarily graphic ones. Nevertheless, a sans serif font might look good if we choose to promote specific archaeological artifacts along with an overall enhanced aesthetic view of the edition. These controversies, imply that a more accurate definition of readability or legibility is required. The focus in defining readability should lay, therefore, more in the defining conditions rather than the explanations by words. The readers must identify words and they must decode their meaning and the easiness of this process renders reading automatic and accurate. This is what readability is all about after all.

The wise font's selection is essential not only for easy reading but allows also for the edition's best outlook. Serif fonts maintain a classical look, sans serif fonts attain to a more modern sensation. The Web may sound as the most suitable place for sans serif fonts but typography constantly refers to them as a smooth and clean option. Designers must also pay attention to the psychology that fonts usually evoke, since this factor could cause a project to benefit or collapse. At least the designer must be familiar with the psychology that popular fonts, such as serif, and sans serif are associated with.

Choosing a font for a book referring to archaeological artifacts may involve many different options. One major aspect to examine is the dating of the finds to be illustrated, since for each historical period different graphic considerations should be taken into account. For example, for

an edition dealing with a single historical period, particular parameters should be considered. First of all, the writing style of the era, if available. In the Archaic or Hellenistic periods, we have a sans serif type of writing. The lines are strict and round letters are circular. Due to the materials (e.g. stone, plaster, clay, etc.) and the tools used in these particular eras, calligraphic writing is totally absent.

Roman is a serif breakthrough period, with the emergence of Times font. Even though the materials used was the exact same as in the previous periods, it was the first time a type font became so common. In the Byzantine period along with the prevalence of the Pergamene and the Indian ink, a very hard to read curved serif font prevailed. Other civilizations have adopted different writing styles, which became a characteristic of their culture. When referring to many different historical periods or many different cultures the font choice needs to confront the whole variety of parameters, as sketched above. But when dealing with a single project, a main type of font must be selected.

Except from font size, font-weight is also of great importance. Commonly used Regular fonts are of the same weight, but light-weighted fonts give a more elegant look. Recent typography technology has reached high sophistication of printing level such as hairline typefaces. Technological accomplishments such as this enable more versatile approaches with regard to font using within various text elements like picture text, footnotes, titles, reference notes, and other text variables. Serif fonts due to their design do not yield so many options, since they are restricted to regular, italics, bold, and in some cases extra bold.

When thinking of the text sizes of the various elements, things get simplified but in some scientific texts the issue becomes complicated. It is common for some authors to use many titles, subtitles, minor titles, minor subtitles, etc. In these cases, sizes offer some additional choices but type fonts with many styles can lay a more distinct way of separating text gravity. In this case, selecting a sans serif font might be the most suitable choice.

#### **4. CHOOSING PAGE SIZE, THINKING ABOUT LAYOUT**

The size of the book, beyond typography limitations, depends on the sizes of the available pictures and their frames (horizontal or vertical), the footnotes, the reference, the text titling, the body, etc. All the aforementioned elements should be taken into consideration when the layout setting is at the decision-making stage. For example, a book or an application having the majority of its illustrations in landscape seems to fit better in square layouts.

Usually, the scientific texts have footnotes and references, the number and the volume of which can be extremely large. Of course, these have an impact on the general layout, especially in cases, when they have to remain necessarily under or near the text reference. In some cases, footnotes can be placed left or right of the text but long references should be placed under the text or at the end (endnotes). Despite the fact that it is more suitable for the design process to place them at the end of the text (endnotes), this is not always available as an option.

The category of the book (scientific, catalog, guide) plays a significant role. For example, it is not possible to “shrink” the book’s size when working with scientific texts, whereas more horizontal and vertical space is needed for expedition catalogs, by contrast to the small but versatile size which must be applied for guides of archaeological sites. The number of columns and their size depends also on the type of the project. Catalogs and guides have a large number of pictures that might warp the text. So, as it seems, the most important factor determining the book’s size is the size of its illustrations. If the artifacts are artistically interesting, then it is necessary to promote them with any graphical means available.

##### **Color palette**

As already mentioned, the historical period with which each project deals with plays a significant role also in selecting the color palette. As in modern times, when each nation represents itself by the colors used in flags, in the ancient world color had a major impact in a civilization’s culture. Ancient Egypt used primarily blue, red and yellow pigments in the temples. Ancient Greeks had colorful statues and temples and other civilizations used colors as well. Color also got to symbolize a particular status, like purple in ancient Rome, Egypt, and the Persian empire. In antiquity the production of that particu-

lar dye pigment required a significant amount of bolimus branders sea snail (murex brandaris and murex trunculus) with the relevant figures being about 250.000 sea snails for 30grams of color.

In ancient Greece, vivid colors were used to decorate the statues and the temples. But despite this, ancient Greek conceptualized the color palette in terms of four basic colors: black, red, yellow, and white. Black and white were taken as primal colors. Greek pottery is the most prominent example of color use. But color use and selection also referred to the philosophical approaches of the era. It is important to note that the ancient vocabulary in Greek and other civilizations lacks the word for blue. This might indicate the difficulties in manufacturing this particular color and somehow explains the lack of skies, rivers, or sea in ancient paintings. Even though blue was important, it was described as “kyanon” and it was rarely used before the 6th c. BC.

The Roman empire was characterized by the red colors of the military. In Byzantium color assumed a relative and absolute role. Purple had been raised significantly, as a metaphor of imperial power, authority, and rule. Byzantine artists made extended use of gold, Bordeaux and green.

As highlighted above, color in ancient times was a sign of importance. The difficulties and high cost of some colors raised them in high levels in the consciousness of individuals. From the red dyes of Greek ceramics to the purple of the Byzantine era we can notice a lack of blue shades. Nowadays, Greece is characterized by the blue and white colors of her flag, but blue as a color option for escorting layouts for archaeological artifacts of ancient historical periods, seems to be out context and historical awareness.

## 5. CHOOSING AND EDITING PICTURES

The most demanding and rewarding part of editing layouts with archaeological artifacts is the photo and illustration editing and management. An archaeological artifact is the most demanding model. Not only the photograph must capture and display all the details, but it must also promote the aesthetic, the art, the historical value, and the scientific interest. Fortunately, digital imaging, color

management and editing has developed in such an outstanding degree, that provides designers and photographers with amazing new tools to produce great visual products.

The detail and the sharpness of the photo must be at the highest possible level. Even the slightest blurring might cause a detail's miss and this is a factor diminishing quality. One of the best practices is to take pictures without any blur even by using a macro lens with the largest aperture giving best sharpness. The reader-observer must have a clear and high definition view of the artifact.

True color must also be as accurate as possible. After almost 2.000 years of inactivity, most ancient artifacts have been buried in the ground or underwater. This caused them to alternate their color partially or fully, eradicate their surface, or destroy them partially. Even materials get damaged, especially copper or iron artifacts. When using photos in printed or digital media it is the present state of preservation that is important instead of their original status. Even the best-preserved artifacts must have a high accuracy in color. Even if we have high-quality images, bad or slightly different color values can cause an alternated material. A slightly more red marble might change the impression of a clay figure. A dark photo of a green copper statue could turn it into iron. Yellow lightning on a clay object could cause it to get an orange view and change the historical value or denote a different place of origin instead of the original.

In many editions, the designer encounters the problem of bad color correction or bad white balanced photos. Green copper artifacts appear red or even black due to bad conditions, when the picture was taken in the first place. Color management techniques and high precision equipment is required to have the best result. In most cases, pictures are taken in a low light environment, behind glass, with a high ISO option. That is one major problem with photographs of archaeological material. It is very difficult or almost impossible to shoot them in photography studios. Not every museum has a photo studio and what is more, it is impossible to take any artifact out of a Museum.

The position of the artifact is of great importance. It is essential to promote all the values inherent in it and gain a better understanding of the model. In some cases



where there is full illustration around the object, or it has details of importance, the designer must shoot more than one picture or even an unwrap view of the model. When dealing with a large number of images, taken in different shots, it is common to have multiple backgrounds. By removing the background, the project layout becomes unified and the viewer focuses better on the artifact. Besides that, dark color background can be used to promote better some artifacts, in case that the photo can support this background change.

Another interesting approach is to treat statues as models and use special lighting in a studio. Especially classical statues where the pose and anatomy are very realistic, this approach attains to a very elegant look, as long as texts are written in such a way to enhance it. In scientific books, pictures are normally not of great quality, since they mostly refer to finds from excavations and the photographic equipment there is not usually professional. Lastly, some finds, even without any restoration process are appealing and of great historical value. There is no optional way to manage pictures of them and any process relies on the designer's skills and knowledge.

## 6. OUTPUT MEDIA

The output media is a factor that should have been referred to earlier. So far, the preferred ones were printing media such as books, guides, brochures. Evolution of mobile devices has given designers other ways of impression with the availability of using, besides text and pictures, also animation, video, interactivity, means that improve drastically the visual result. Modern high-resolution displays and powerful processor units, gave the ability to add high resolution graphics, import 3D models, collaborate with other apps and offer very good expression ways to the readers.

When referring to tablet or mobile phone apps or digital books, a non-controllable factor is color precision of the final users' screen. The plethora of devices makes impossible any control level of the color accuracy at a user's end. Also, the majority of screen resolutions adds some restrictions and lack of complexity in the final layout. These factors can cause digital media inaccessibility to users with low

end devices, especially with regard to expensive and demanding app production. But besides all the flows, the digital media has the ability to offer sound recordings and motion graphics, in a way that informative animation can promote the overall look and aesthetic of any project to a higher level.

Typography has also evolved to give also high-resolution prints using new revolutionary rasters, improved inks, better and contrast full papers. Typography has achieved a level where hairline letter can be imprinted even on white or dark background. Images with 400 or even 600 dpi is the ideal resolution for printed media, especially for this type of books. Color matching is more precise and easier to achieve than ever, even in low budget projects or older printing press. Referring to color correction and color matching, this maybe the most important factor along with the image sharpness for a seamless visual result.

Both digital and printing media nowadays can satisfy any reader with the overall quality of the device or the output. In addition, the process to achieve high quality results is more demanding for the designers. The workflow is more complex and the quality control needs to be more precise. It might seem easier for small teams to produce better results with fewer equipment, but the requirements for promoting archaeological artifacts and scientific texts have added the need for more expert stuff, demanding workflow, high end devices, better raw imagery, video or sound. Especially when referring to color accuracy, high end color calibrated monitors, cameras and printers are required. Also, collaboration with the post press industry is very essential to achieve the best results.

Projects with scientific texts are preferable in printed format and not in digital one, due to the extensive text and their particular target group. Pictures are often printed in grayscale not due to their quality but to reduce costs, since archaeological scientific books aren't merely commercial products.

## 7. SUMMING UP

The design process is the most demanding and rewarding of all. It is a constant dialog with elements in constant conflict. For archaeological artifacts with

scientific texts, this dialog will have a lot of arguments until the setting of its final layout. Images will always be an essential part of this discussion. The color accuracy, the perspective, the quality, the sharpness, the selected font, the titles, letter sizes, colors, illustration and layout elements, paper size must co-exist in collaborating with each other in order to form a well-organized design group. All the elements must collaborate in a way that artifacts and texts work seamlessly to offer the best understanding and visual sense. Extreme design elements might seem visually impressive, but the result might lead to a loss of interest in the main subject.

Exploring every project, the idea of a unified design must prevail. This might seem a banal idea but when a designer develops a large project with many different elements, not every piece of image or text is always similar or compatible to the others within the project. It is essential to have a general sense of the elements before proceeding and plan the design process. In some cases, the management of a new photographic shooting could solve a lot of problems, but this is not always available as an option.

In a museum guide, artifacts are made from different material such as gold, bronze, copper, marble, clay, glass, having many different sizes. Some exhibits

besides their damaged or ruined appearance, are of major archaeological significance.

The collaboration with a leading and experienced archaeologist is essential for the holistic management of all those aspects. Some artifacts with great illustration or craftsmanship might look better when enlarged, but comparing them to others in the book they might seem overestimated.

It also very attractive to develop projects for museums. Almost all pictures are referring to appealing artifacts and the picture quality can easily be impressive.

Scientific texts do not always contain appealing artifacts or archaeological sites. Mostly they refer to excavation finds and they normally illustrate them before any restoration process takes place. Texts are usually lengthy, containing many footnotes. Pictures are not in good quality and usually in grayscale. In some cases, they derive from old archival collections, positive film or even printed photos. Commonly authors will provide the designer with many architectural designs, from the excavation. The designer's job in this case is very difficult because any layout (for print or digital), must promote the scientific texts and become as attractive as it can be. Distinct use of Design elements is preferred in most cases.

## CONCLUSIONS

When designing a book or an application there is no need to have any specific knowledge of history, or of any of the aspects described above. A talented designer could also create a very good design and an acceptable aesthetic result. There are no specific rules on graphic design, besides the bleed and margin options. Experience is the only requirement in every project. Designers without any experience cannot process all the available info and create the proper design layout and art. Maybe a team could achieve better results, but the team's leader must be an expert in all aspects mentioned above.

The Photos have a major impact in all projects. Nowadays the photographic equipment and color correcting means are of high quality with accuracy and color depth delivering high end photos. Especially photos taken with the right light equipment yield astonishing results. Unfortunately, the cost of professional quality photos is high and not every publisher is willing to add it to the production. Besides this, even with minor effort with the minimal required editing the result is acceptable and can impress the viewer not by the quality of the photos, but simply by imprinting the details imposed by each artifact.

Art has evolved but the remains of ancient civilizations are highly valuable pieces of art. The primary tools that were used to create fascinating art elevates their value. As pieces of art they represent the early steps of modern civilization. Every artifact carries history and prestige of thousands of years and it deserves to be treated accordingly. Even without full knowledge of history, the designer has to pay respect to every artifact placed in the layout, not just to deal with it as another job to be paid for; on the contrary, he should deal the artifacts as pieces of history and culture of civilizations long gone, as a tribute to their creators that left a piece of art worth mentioning behind, as his footprint for next generations. An app could remain dozens of years in a cloud server. A book could remain in a museum's library, literally, for centuries after its designer's death.

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