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AERIAL ABSTRACTIONS: THE ANALYSIS OF AERIAL PHOTOGRAPHY AS A VISUAL ART FORM

ÖZGE DENİZ ÖZKER, DENİZ HASIRCI

This study analyzes aerial photographs as a visual art form and the role of abstraction in the understanding of aerial photographs. There is a significant amount of literature on the technical aspects of aerial photography and the importance of aerial views in specific fields such as mapping, archaeology, anthropological field research or military. Although this is the case, it is difficult to find sources that deal with it from the artistic point of view or adopt a cultural perspective. Abstraction can be defined as a special artistic representation where particulars are gone and what remains are the essentials. Basic features of natural figures and shapes are shown in a simple way without their details through abstraction. There can be many abstraction levels, but it can be stated that, when there is visual simplification, there is some level of abstraction. Photographs taken from the air create a distance that necessitates the onlooker to adopt a more aesthetic and abstract perspective. As the distance grows further, even if there is a tragedy down below, the subject matter is viewed through a window of abstraction, with the artistic qualities gaining significance over understanding of the content. Through the aerial photograph, what the camera lens sees is artistic and has a communication of its own. Although, the communication is artistic, there is no intervention by the human hand. In this study, first, the sociological and mythological aspects of looking from above, the history of aerial photography, and the use of aerial photography in different fields are investigated. This is followed by a discussion on aerial abstractions, and possible reasons behind the abstraction applied by the onlooker. These reasons mostly depend on the technique, distance, framing, cultural familiarity or perspective, figurative familiarity, and the editing process, and have effects on the artistic result. This is followed by an analysis of selected aerial photographs of one of the authors, Ozker that discuss these reasons, as a visual art form. The photographs will be limited to vertical or near vertical aerial photographs that are taken parallel to the ground as they commonly yield the most abstract images. The study ends with a discussion of abstractions in aerial photography and its effects on the result as well as aesthetic experience of the onlooker.

Keywords: aerial photography, aerial abstraction, looking from above, design principles

Aerial photography

The starting point of this study refers to the notion "Looking From Above". Looking from above to the earth below has been a source for fascination throughout the ages. There are several myths and representations of those myths about flight, natural power and supernatural creatures that show the fascination of human beings with flight and observing the world from above from early times (Cotterell, 2005; Özker, 2012; Rodgers, 1982). The notion can be investigated in many disciplines such as philosophy, sociology and psychology, as it has significance in each (P Dünya Sanatı Dergisi, 2006)

Aerial photography has been practised first in Paris during the mid-nineteenth century. Several sources that investigate the history of aerial photography, cite "Nadar" (Gaspard Félix Tournachon), as the first aerial photographer who successfully used a hot-air balloon to shoot the world from the air (Fraser, 2011). The very first aerial photograph was the view of the French village of Petit-Becetre from 80 meters above the ground in 1858. Prior to this flight, he had patented the idea of using aerial photographs in mapmaking and surveying and had experimented for three years before he finally realized this milestone event (Örmeci, 1988; Professional Aerial Photographers Association). Wilbur Wright took an aerial photograph in 1909 which was the first aerial photograph taken from an airplane. During the First World War, thousands of aerial photographs were taken. Armies soon realised the strength and possibilities of this new weapon utilized by pilots and observers (Stichelbaut, 2005). During 1914, reconnaissance reports were mainly formed by observers' own reports, until the first photographs were taken on the 15th and 23rd of September of the same year. From 1915 onwards, it was apparent that this was a new discipline that was developed and it became widely used by the military air services. It was common practise to attach cameras to rockets and pigeons which brought a whole new perspective. Later, cameras were fixed to bomber planes to record the explosions and check the performance of pilots. It can be stated that, history would be different if not for this invention (Fraser, 2011).

Aerial photography helped the development of both military airplanes and aerial cameras and lenses that were used almost only for military purposes (Reeves, 1936). When Hiroshima was bombed in World War II on 6th of August 1945, one can see in the photographs taken by the bomber, Enola Gay a few seconds later, a cloud like a mushroom distanced from the tragedy below. Looking from above to that moment creates a strong alienation and indifference to reality. Several eye-level photographs on site show us the real tragedy lived in Hiroshima. After the use of aerial photography in military, archaeologists were able to more effectively use the technique to discover and record archaeological sites. Large sites could for the first time be viewed easily by the use of aerial photography (Burkett, 2001). Archaeologists, landscape historians and illustrators had been dreaming to experience the bird's-eye-view of the landscape for centuries. The late nineteenth century is important for both photography and flying to see the effects of new techniques. With the invention of powered flight, the development of aerial reconnaissance became faster and in the twentieth century, millions of aerial photographs were taken for documentation and archaeological purposes (Bewley, 1998; Sesören, 2006; Whittlesey, 1974). Here, the aim is mainly to record. Photojournalism often acts to create awareness by showing the degradation of other people and other lands. The photograph acts to create a distance between others' misery and the photographer as spectator. This distance becomes even longer when there is also a physical distance and shift of usual perspective (Hedgecoe, 2002; Kennedy, 2012; Yaykın, 2009).

According to Gavish, the aerial photograph leads into a 'visual language'. The visual message is universal and direct, with only the intervention of the human with the framing. Historical aerial photography presents information about who people are by clearly depicting how they live. Aerial photographs give clues of a

place in a particular time (Booth, 2005; Bewley, 1998). Since the 1880's, aerial photographs were in use in the field of archaeology but only became fruitful after the development of the planes and cameras, thus after World War I. In topographic mapping, it was quickly realized that aerial photography was useful, which led to the development of photogrammetry. Aerial photography is also a fundamental way to discover the unknown archaeological sites. Aerial photography gives an opportunity to see sites that cannot be seen from the eye-level on earth. The view from above makes it possible to observe changes in colour and texture and evidently see details (Buck-Morss, 2010; Dorrian, 2009; English, 2003; Reeves, 1936).

Although aerial photography is a new discipline, the contributions to other disciplines are obvious. Aerial photography is thus a common discipline in a variety of fields enabling energy and cost efficient work involved in planning, inventorying, estimation and management (Morgan, Gergel and Coops, 2010). As a result, after the first aerial photograph was taken in 1856 with a balloon by Nadar, the field proved very useful during World War I for surveillance, and then in a variety of fields such as archaeology, anthropological researches, mapping and city planning (Amad, 2012; Meixner and Leberl, 2011; Zizek, 2008). Eventually, photography artists begin shooting the earth from sky for aesthetic reasons. Aerial photography having started off as a technological advancement, quickly led to artistic and aesthetic possibilities.

Aesthetics and abstractions of aerial photographs

Abstraction, a technique that artists have used for centuries, can be defined as a special type of 'artistic distortion'. In abstraction, basic features of natural figures, shapes are shown in a simple way without details. The level of abstraction is changeable and it comes into play when simplification is evident (Lauer and Pentak, 2005). Natural forms turn into geometric ones, enabling the onlooker to bring new meanings into the view.

Abstracted views can also be defined as non-objective ones, that is, shapes with no reference to the object. Content and form are critical to discussions on abstract art. While content refers to what needs to be communicated, form refers to how it is communicated. The artist uses her/his tools to send out a message and how s/he realizes this is significantly effective on the end result (Lauer and Pentak, 2005). Apart from technical uses, aerial photography can also be a unique instrument for different feelings as well as a means of beautifying the world's ugly features with the help of distance. The distance diminishes recognisability and thus creates an intangible, two-dimensional reality (Fraser, 2011). As a cultural product, the bird's-eye-view gives the feeling of infinity and spiritual connectivity, by being above and cut-off, yet in control of and attached to the world (Dorrain, 2009). Contrary to what one might think at first, this view actually belongs less to the reality of the world, and creates a view that combines a variety of elements and eliminates level differences, uniting them into whole (Fraser, 2011; Le Corbusier, 2010).

Stieglitz created the first abstract photograph and showed that the photograph, just like an abstract painting, can just as well connote meaning on a deeper level (Winant, 2012 and 2013). Here, there is a continuous race between content and form and the where one begins and the other ends can become unclear (Alvaro, 2012). Of course, abstraction in photography became popular and unpopular at different

times in history. The indexical photographic quality that is first 'informational', may appear 'unmediated', and can act to make the photograph more 'truthful'. Indexical qualities do not change much over time, and nor do they change according to the onlooker. Barthes mentioned a 'physical' connection between signifier and signified. However, the technique, angle, and aim of the photographer to create a particular effect can easily break the indexical quality and increase the distance between the signifier and signified. Semiotic analyses may show varying relationships between the signifier and signified in abstract aerial photographs (Barthes, 1981; Berger, 2009; Biro, Clark, 2004; 2012; Peirce, 1955).

Abstraction, that can be seen in aerial photographs, is mostly supported by the geometric nature of what is being photographed. Juan Laurent and others experimenting with photography in the middle of the nineteenth century, shot several geometric images focusing the onlookers' eyes on the abstract shapes that were formed. Ordinary objects and spaces became uncommon, just like in aerial photography. The 'universal language' created by the geometry enabled the photographs to depict a common view through projection and scaling, yet enable the communication different messages (Berger, 2009; Ginger, 2012).

The photography criticism approach called 'Reading' developed in the 1950's by photographer and photography teacher Minor White, was a reply to the need for discussing the meanings that photographs communicated, the connotations of what was observed (Barrett, 1986). They categorized photographs as, 'documentary', 'pictorial', 'informational', and 'equivalent'. 'Documentary' photographs were for sole recording, 'pictorial' photographs placed emphasis on the photographer's interpretation of what s/he saw, 'informational' photographs were for scientific purposes, and 'Equivalent' photographs were the ones that somehow surpassed their original purpose (Barrett, 1986.p.53). Abstract aerial photographs often yield to numerous readings and can gain this last title. Photographs can also be grouped according to the angle that they are taken, as either vertical or oblique. The view with the lens axis perpendicular to the earth is called 'vertical' (Reeves, 1936. p.104). Vertical photographs are taken with the camera facing downward. However, due to varying conditions in the air, there is almost always some degree of tilt. The tilt actually aids recognition as aerial photographs can be confusing especially if the photograph covers a narrow area, but decreases abstraction (Morgan, Gergel, and Coops, 2010).

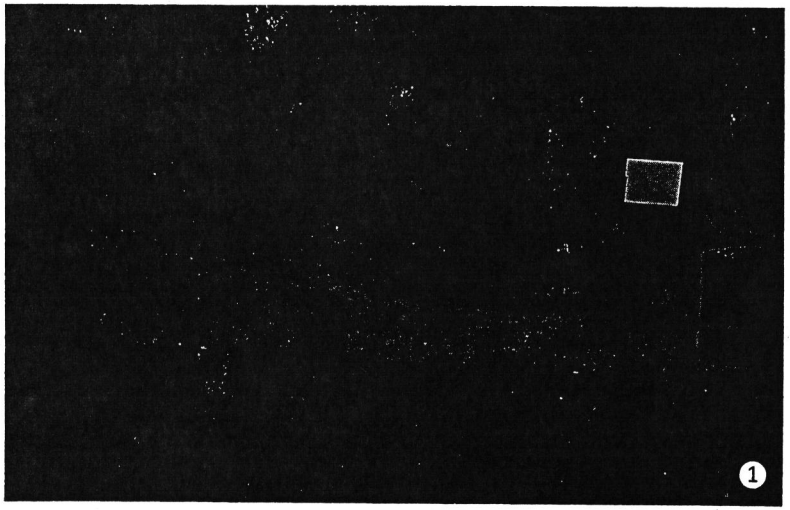
The terms that compose the Design Elements and Principles of Design are identified and classified differently in different sources, however, it is possible to say the definitions and uses of the terminology are essentially the same. This paper defines the Design Elements as, line, color, shape, texture, space, and form, and the Principles of Design as, unity, balance, hierarchy, emphasis, variety, scale, dominance, movement, and similarity – contrast. These Principles of Design are realized from efforts in setting a framework to the organization and arrangement of design elements. The way in which the arrangement is made, has effects on the meaning the work conveys. The concepts act together to form the effect that is necessary for the photograph (Brommer, 2011; Deepak, 2010; Lidwell, Holden and Butler, 2010; Öztuna, 2008). This paper will not attempt to repeat and redefine the Design Elements and Principles of Design, but rather explain how they come to life, how they are "used" in the selected aerial photographs and add to the effect of abstraction.

The photographs

The opportunity of the onlooker to write her/his own story increases as one moves from figurative to abstract. Barthes' suggestion of the reader gaining power as s/he imposes new meanings to the text takes on new meaning in the aerial photograph. The author –the photographer in this case- stands aside as the onlooker rereads the abstract photograph. One ultimate meaning is refused, and the photograph is opened to new interpretations by abstraction. The photograph is liberated from the tyranny of the photographer, and can be explored endlessly for new meanings. The photographer and the photograph itself represent two levels of authority and meaning, but the abstract aerial photograph helps resist them leading to liberation of the onlooker (Barthes, 1978). This is the power of this type of photograph.

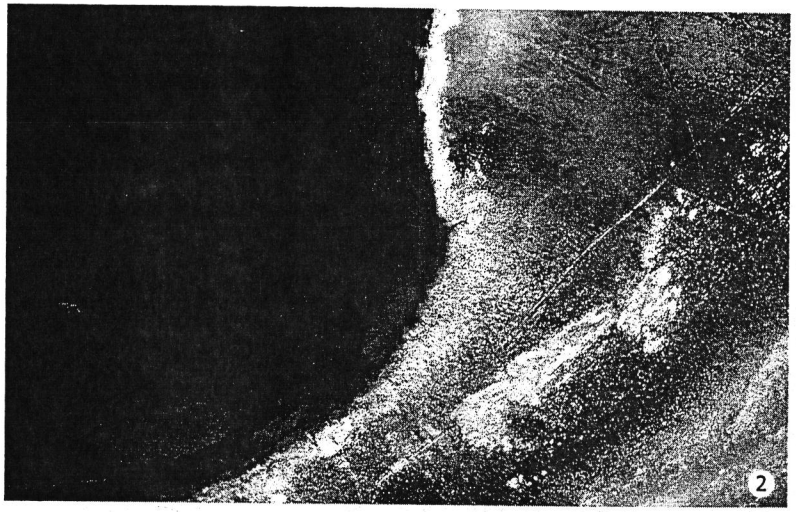
This study focuses on photographs with increased levels of abstraction, and therefore vertical ones. All photographs were taken with a NIKON D2Xs DSLR between the years 2006 and 2007. They were taken at around 1000 feet (approx. 305 m.) high with and angle of 90 degrees. An 18-200mm VR lens was used and the subject was approached closer and further optically. The photographs were taken from a Cessna 172 type one motor airplane travelling at 80 Knots. If the desired frame was not obtained the first time around, the plane went through the same coordinates so that the photographer could get the desired photograph. When the composition was being set, the photographer needed to be extremely quick. The snapshot, diaphragm, resolution and clarity had to be very quickly arranged so that the composition could be set. All photographs are from the Aegean, Mediterranean, Inner and Eastern Anatolia Regions of Turkey.

Photograph 1 was taken on a crude oil pipeline dug and closed after the pipeline was laid. It shows a blue spot (pump station) on a vibrant rusty red background. The colour changes like brush strokes on the field mark a particular grid. The line that passes through the field horizontally from almost half of the plane becomes a strong reference acting as a support that underlines the watch tower. The vertical

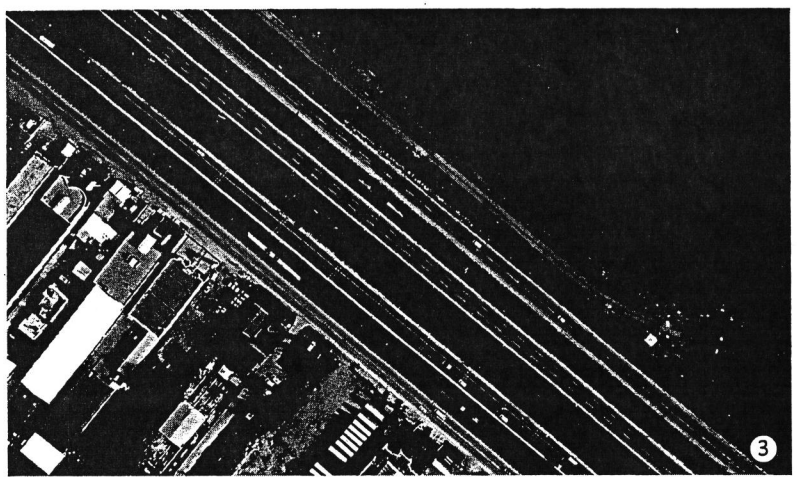


mark that passes from the centre of the field creates a subtle act perpendicular to the horizontal line. The lighter coloured patches that are scattered all over the field are at the same size with the watch tower and help to create a pattern. The contrast in colour is the strongest feature of the photograph, however, the framing and the relationship of elements on the background make it come to life. Figures become unrecognizable, gaining prominence only as abstract shapes on a background. Line, emphasis, contrast, and scale-proportion gain prominence in this photograph.

Photograph 2 was taken close to Meander River and there is low water on the left. The yellowish portion is a reflection from the seaweed. It is a photograph that makes it difficult to recognize what is being photographed. It is the connection of two materials, and two worlds. Land and sea come together in such a way that brings out the stark contrast between the colour hues, textures, and surface qualities, as well as dark and light. The curvilinear line that forms as a result of this joining of two materials, and that divides the plane into two helps strengthen these features. The photograph is framed in such a way that, the sea seems to continue onto the land territory making the eye wander on the connection line from the very top to the very bottom on the left. The abstraction brought on by the vertical angle and distance is at full play in this photograph. Contrast, line, colour, movement, and rhythm are critical in this photograph.

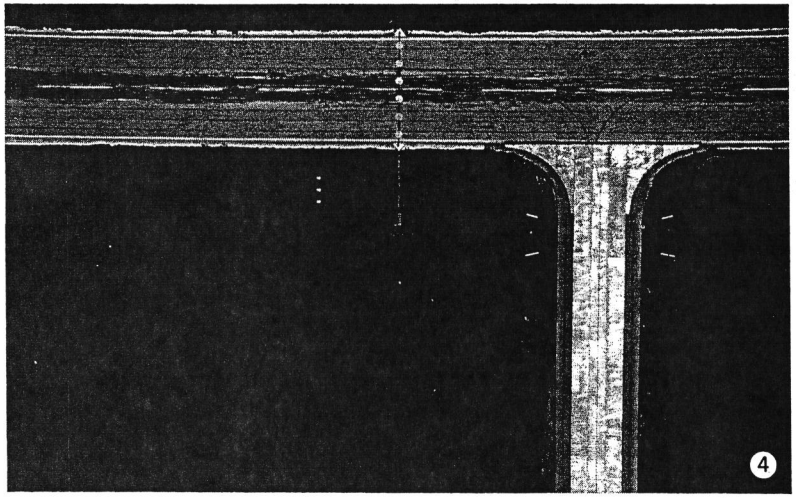


Photograph 3 is from a settlement onlooking a highway. It is more recognizable compared to the previous photographs. Although it is more recognizable, it is still quite abstract due to the angle and the framing of the photograph. The arrangement of the elements on the plane helps to create an artistic effect, as if this were a design pattern. The five roads that cut diagonally through the photograph create a strong contrast and a necessary comparison between a very busy and a very empty region on the plane. While the left part shows a colourful arrangement of buildings as squares and rectangles, the right hand side is an empty field of green. It is a if one part signifies the industrial world and the other the natural. The first four roads



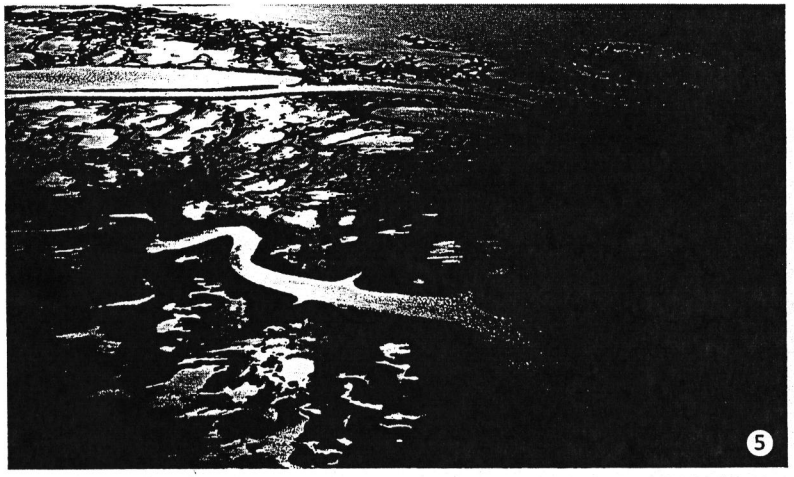
from the left had side are almost of equal width creating a repetition, and the fifth and final road signifies an end and a new beginning with its difference in width and slight change in angle. Cars and buildings are at the border of being recognizable, they help to create a change in texture and the arrangement of buildings that are of equivalent width help to create variation. The colourful buildings speak a similar language with the roads with their parallel arrangement, and the fact that they are perpendicular to the roads creates a contrast. Again, this is an abstract visual that has been achieved through the vertical angle and framing. Contrast, repetition, texture, and shape act to create this effect.

Photograph 4 is again a good example for what seems to be an abstract design arrangement. The track at the top of the photograph running horizontally through the photograph creates a beginning and a title to the arrangement. It passes from



one thirds of the plane, and the vertical part o the track does the same on the right hand section of the plane. The horizontal track also speaks to the plants at the bottom left corner that have almost the same width as the track. The plant unit echoes the borders of the green patch, which otherwise would have seemed empty. The yellow pole with its circular forms helps to create an accent on the whole plane, attracting the eye to itself time and again as it wanders within the borders of the frame. It catches the reference line of the plants and creates an imaginary line that is parallel to the vertical track. This helps to strengthen the line that the vertical track acts as on the plane. The plants are slightly recognizable but grouped together they form a sub-pattern on the plane. Altogether it is an abstract arrangement that could easily be a designed pattern. Proportion-scale, accent-emphasis, and movement enable this effect.

Photograph 5 is slightly different from the previous ones firstly due to its angle. It shows the joining of the river and the sea. It was included in this paper due to its pattern-like nature. The stark contrast between light and dark created by the sunlight is the prominent feature of the photograph. The wide line at the bottom right side of the photograph carries the eye into the photograph to the centre that presents the brightest part of the photograph. The changes in sizes of the grooves create variation and prevent boredom, a result of the repetition of the same feature. The reaching of the calm gray patch -the sea- at the top of the photograph acts as a result rather than a beginning, as the eye finally finds a place to rest. It is an abstract image that is not easily recognizable in terms of its subject. It is as if one is looking at very elaborate lacework. Especially, pattern, contrast, movement, variation, and rhythm are at play in this photograph.



Conclusion

Aerial abstractions are simply an aspect of the process of photographing aerial art. The process is one of selecting that which seems to work and rejecting that which does not. The photographs all have an aspect of reality. The difference is

that of the aim of the photograph, in that, whether the purpose is artistic or for documentation. There is a strong connection between 'looking from above' and aesthetic abstraction. As the level of simplification by means of distance and abstraction increases, the level of meaning increases as well as becoming more varied.

This study analyzes selected aerial photographs as a visual art form that act as abstract artwork. The abstract photographs which were taken from air enable readers to understand how aerial views can be read as a visual art form according to basic design principles. The history of aerial photography, the use of aerial photography in different fields, and the analysis of aerial photography as a visual art form are by according to selected photographs. Aerial photographs give a sense of aesthetic distance. Their being rare compared to everyday photographs and often showing the world from a perspective one has never seen before increases their value. They show objects that become unrecognizable due to being far away. The ugly becomes beautiful and the toxic becomes bewildering.

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