INFLUENCE OF ART ON THE CAMOUFLAGE DESIGN

Abstract: Research is focused on the impact of artistic styles and evolution of XX-th century art upon main formal characteristic of older and modern camouflage patterns. In the beginning of the period (1915-1918), the main principles that have been used are those of boundery and simultaneous contrast, targeting at an effect of relief and non-homogeneity and decomposition. The first stage in camouflage evolution was the attempt to "dazzle" and confuse enemy by creating a false form characteristic. It was used for big military objects –ships, planes. Armies hired a lot of artists with the task to design camouflage schemes. Due to the trend for entrenchment in World War I the first approaches for camouflage most visual parts of the soldiers body are made. Logically, these efforts follow the same principles of visual illusion developed and modified in style, close to the one which was used for the larger objects. The German army prefers geometrical styles while Great Britain and French armed forces choose more expressionistic manner for their camouflage patterns. For the creation of the camouflage patterns, several optic principles and visual illusion are being used. The target is to create a visual illusion for complexity and shape sharpness by breaking down the silhouette unity until visual illusion of merge with the nature.

Key words: design concepts, style, contrast, art, camouflage;

1. INTRODUCTION

In the beginning of the World War I (WWI) several basic colors have been introduced for the uniforms of the belligerents. However, their color effectiveness proves insufficient for the improved optical equipments for search and neutralization of targets of longer distance as well as for the newly implemented source of intelligence - the aviation. Hence, start experiments with multicolour patterns for mantles, costumes, etc. At this point the birth of camouflage as concept and principles of effect is credited to artists. The ideas by which they are developed reflect the art styles of that period. And in the second half of the XIXth and the beginning of the XXth century representation of spatial environment and nature are subject to revolutionary experimentation and artistic concepts. A popular French caricature of the WWI period (1916) called "The fourtith Camoufleurs" from Imperial War Museum [1] and attributed to Drevill ironically depicts artist's experiments for the army through painting by hand unique camouflages for each soldier and separately for the divisions with special purposes (intelligence, artillery watch, etc). A beginning rather naïve from present time perspective but imminent for the XXth century given the available resources and the demanding military tasks set to artists. A beginning that leads to a whole new world of knowledge and experiments across the world.

2. MODERNISTIC ART AND BIRTH OF THE CAMOUFLAGE

2.1. Thesis. Our thesis will be that the design of camouflage patterns does not only reflects but directly follows modernistic art movements and that there is a strong connection between styles and concepts incorporated in camouflage patterns and artistic

movements in the first half of XXth century. Such truly interesting creative link is a topic neglected by most researchers of this unique creative phenomenon. That is why it is an important basement for a whole visual theory of camouflage.

2.2 Deceptive optical ilussions for big visual objects. Some of the first attempts for developing visual illusions and optical deceits in the army are targeted at concealing large volumes of ships, bunkers, firing points, tanks and aircrafts. The camouflage pattern, applied mainly on ships, is named after the English expression "dazzle" which stands for "blinding", "shining" or "reflecting brilliantly".



Fig.1 Harlequin – dazzle: Mauritania, WWI, Great Britain [2].

As it has proven impossible to develop effective means to hide ships in all weathers and day-times, the Allied navies decide to disrupt the visual range finders used for naval artillery by making it difficult to estimate a target's range, speed and heading, consequently making

Influence of art on the camouflage design

it a matter of difficulty for a submarine to decide on the exact course of the vessel to be attacked [3].

The author Norman Wilkinson directly follows the cubist technique and develops several variations based on broken net of dark and light sizes. Given its rather strange look, the technique becomes known as "Harlequin".



Fig. 2 "Dazzle ships in Drydock at Liverpool"- Edward Wadsworth, 1919 [4].



Fig. 3 Illustration of the effect of camouflage of ship Tirpits, WWII, Germany [5].

2.3 Awareness of the real potential of camouflage.

Gradually the interest for adopting such methods for masking evolves to using it for concealing single soldiers. At first, due to the enraged "trench" war on the Western front, the experiments done are targeted at hiding the most visible body part – the head, which at that point is already equipped with metal helmet. Naturally, these attempts follow the same principles for visual illusions, developed in style and technique similar to the one used for larger objects. It is arguable if abstractionism or its conceptual predecessor – cubism are the starting points for the geometric camouflage manner. However, the analogy between the artistic techniques of cubists such as Andre Derein (Fig. 4) popular in the last pre-war years of 1913th and the first German "multicolour helmets" (Fig. 5) is strong enough.



Fig. 4 "Landscape", Andre Derein, 1913 [6].



Fig 5 German helmets M16 with three-colour camouflage and irregular black linear net – a prototype for the later implemented textile model from 1931[11].

According to the instructions approved by the headquarters of the German army [7], the paints should be applied on the helmet in irregular geometric shapes divided by dark lines as wide as human finger. Due to the hand application of paint, some helmets prove to have a more amorphous form . This method results in an extraordinary "net" of irregular geometric figures, defined by a black line (Fig. 5). Seemingly a strange choice but if taken into consideration the contemporary for those times tendencies in arts – the approach becomes more understandable.

The impact of arts and the new form - the artisticallyprojected design - is very obvious. With the formation of impressionism and later with the rest modernistic movements, artists experiment by using new means to recreate reality. This is the search for unconventional techniques and artistic methods that can achieve optical impression of spatial structures, volumes and landscapes. Some of the most striking and exciting streams being Cubism and Futurism [8]. Authors such as Cezanne, Dyolone, Mettsinger, Derein, Boccioni, Picasso [9] create new artistic system and establish novel expressions to recreate the environment [10]. On the other hand, the constructive movement "De style" and Mondrian as one of its inspirers with the colourful compositions split by dark lines - are also a serious candidate for the title of conceptual predecessor for the camouflage principle chosen for the German helmets from the WWI. Subsequently, Russian modernists and in particular the supermatism of Malevich further develop the visual language of the abstract-geometric concept.

Hence, it is not a coincidence that the discussed attempts for developing optical illusions for the large objects such as ships, bunkers of the WWI are projected by the belligerents in purely cubistic manner.

Further, in the 1930s in Germany several experiments have been undertaken and as a result for the first time a permanent camouflage canvas is implemented (a garmet - tent "zeltbahn")[12]. It is designed on the principle of geometric camouflage evaluated to the direction of edgy patterns with no curves or ovals – a trend typical for the WWI. Naturally, the pattern demonstrates improvement of the concept with several innovations and few changes. Officially, the start of the geometric camouflage is launched in 1931 with its introduction in the German army and is popular as: Reichwehr 31; Splittermuster 31; Heeressplittermuster 31. The camouflage model is based on the already familiar principle of the decomposition through geometric spots which is typical for the WWI. However, there is a remarkable improvement - in addition to the asymmetric geometric forms a striped raster in introduced. Its main purpose is to help for partial merge of figures at certain areas and to reduce the border contrast. The striped raster is a simplified image of grass stems and leaves. The areas with raster are also in geometric forms and covered as background as well as the fragments.



Fig. 6 Splittermuster 31- basic camouflage pattern of the German army 1931-1945 - detail (collection M. Tachev).

When analyzed in detail it can be concluded that the form of the streaks is not exactly linear. In fact, each streak is thickened in the middle while all of them are of different length. Deliberately they are not aligned symmetrically or in a correctly shaped net. Obviously, the aim is to seek the illusion of uniformity. Thickening in the middle of the grid probably aims to create a visual illusion of relief (volume) bulge. The raster objects are of different colour from the bulk geometric objects and are aligned on the spots as well as on the background in order to create effect for nuance for all three tons. This approach is much relevant to the Cubism and the related art techniques of that time. For example Picasso in the "La Danse auxvoiles"- 1907 [9] depicts human figures as a combination of summarized geometric objects, marked with colour spots and the shades are marked symbolically with large perpendicular strokes indicating linear raster.

3. POANTALISTIC AND EXPRESSIONISTIC TRENDS

In the evening of the WWII the German government orders a new camouflage design for its elite divisions (SS). These revolutionary models introduced for the special-purpose parts and stand aside from everything done until this period of time and even long after that. They become basis for the further development of variations and serve as a ground for changes until the end war. The models "Platanenmuster"; of the "Eichenlaubmuster", и "Erbsen muster" convey direct poantalistic and postimpressionistic discoveries and practices (Fig. 7) such as: raster, optical mix and shade diffusion, colour contras - simultaneous, nonsimultaneous, unambiguous induction.



Fig. 7 Petty camouflage spots. A - Intersection and diffusion of colours in different tones of the army camouflages for the SS units, - World War II Museum, Moscow, Russia (picture is property of the author); B – detail from the impressionist painting of Franz Korwan, (Private collection M. Tachev)

Influence of art on the camouflage design

The breaking down the tone spot colour dispersion is achieved successfully creation the illusion of shades and sparkles reflected by heterogeneous surface of leaves. It is a difficult task to decompose a volumetric figure into minimum two different dimensions – of the earth and leaves in the background for the camouflage designer. Depending on the background, if colours are chosen correctly, the effect achieved is impressive. A human silhouette literally dissolves in the surrounding environment.

In the period of the WWII Her Majesty's army (Great Britain) introduces for the parachute and the other special army parts a camouflage with certain "expressionistic" design style of multicolour spots. The impression is for irregular, oval spots and bold large brushstrokes with large brush in monochrome basis. Immediately after the end of the war this technique has been acquired by other armies as well (Fig.8). Further comes an effective resolution based on this technique in Great Britain "DPM" - Disruptive Pattern Material (Fig. 8.c). Apart from the large decomposing colour spots, it uses miniature spotted graphic raster fields between each form. Hence, border contrast and transfusion of chromatic values is achieved. The model is an enhanced version of the "Brushstroke". This technique is used for the Bulgarian uniforms M 2004 and for the Romanian ones.





Fig. 8 A - Detail from painting, beginning XX century. The energetic expressive smears are drawn so that to form areas of darker and lighter parts creating an impression for different density of leafs (Pushkin's Museum, Moscow, author's archive). Analogical effect is searched through the Brush stroke camouflage technique - 1951, Belgium (B) and the DPM (C) disruptive pattern material - Great Britain (collection M.Tachev).

4. CONCLUSION:

70

As proven, the artistic approaches of impressionism, pointillism, fauvism, futurism (Bala, Boccioni) [13] rediscovered by expressionism and extended by the clear geometry of the De style, the abstract and minimalistic movement[14] in the beginning of the XX century are in the core of design and optical illusion implemented in the camouflage design of the 1930s and 1940s. This thesis can hardly be proven documentary due to the scarce specialized written data from that period but the visual material from museums and galleries proves foursquarely that the findings and the artists' experiments have impacted directly the development of the various camouflage principles and variations in the beginning of the XX century. Modernistic art movements gives answers to the problems of creating efficient patterns for creating visual illusion for breaking down the human silhouette unity until visual illusion of merge with the nature. The very same approach still affects the design of the modern camouflage patterns, enriched with the modern computer technologies and hi-tech discoveries of the present days.

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