Illusions Brought by Time

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Abstract—**Nowadays, the connection between photography and digital image technologies has become closer and closer. The pictures we see daily are mostly processed with digital technologies. Therefore, people become more and more familiar with such technologies. Whenever they come across some pictures having miracle images, they will unconsciously link what they see with the digital image technologies. Nevertheless, if we trace the history of photography and study the pictures taken by the pioneers in such field, we may find that the illusions shown in the pictures didn`t originate from digital image technology. Rather, the amazing illusions presented on the pictures are created by the photographic pioneers just by controlling the time of exposure, which let us reexamine the world as well as our inner world.**

Keywords—Digital Image Technology; exposure time; illusion

I. INTRODUCTION

Living in an era where digital technology emerges and develops at a rapid speed, photography has got unprecedented popularity. Meanwhile, all kinds of picture adjustment software keeps popping up. By now, the previously mysterious digital image processing software has lost its advantage with the emergence of photo-processing APPs such as Meitu XiuXiu, Camera 360, Beauty Camera and POCO Camera. Procedures dealing with digital images have been largely simplified and automatized. It becomes much easier to adjust the original images. Technologies such as skin smoothing and whitening, face-lift, Japanese Image style and background shifting have now become layman-friendlily. Besides, Photoshop, the classic image processing software, has been localized in China. Abundant online courses have made the software accessible to more people. In 2013, it bid farewell to its 16th version. (It has 16 versions before Photoshop cc "Creative Cloud", the 16th version, namely, 1.07, 2.0, 2.5, 3.0, 4.0, 5.0, 5.5, 6.0, 7.0, 7.01, cs, cs2, cs3, cs4, cs5, cs6). Photoshop cc has more new functions which can make the illusions more realistic with better technologies. Different kinds of breath-taking pictures depicting women and dreamlike landscapes, which please peoples' visual nerves and cater to their aesthetic taste, are created by ordinary people. As a result, many people mistake that those illusions are just the production of modern photographic technologies and that illusion-making in photographic works originates from the birth of digital technology. On the other hand, through such technologies, fake photos represented by "South China Tiger" which was forged by Zhou Zhenglong, a farmer in Shaanxi Province, kept springing up. Thus the old saying "seeing is believing" becomes questionable. The digital technology, after supplying people with temporary amusement, got widespread criticism from many people inkling some professionals. According to those professionals, creating true photography should avoid the use of digital technologies. What's more worrying, some even advocate that application of digital technologies should be restricted in free artistic field. In their mind, only by keeping distance with digital technologies can the photography be true to life. However, when we look at the history of photography and appreciate the classic works of the masters, we may surprisingly find that the technologies and methods used to create illusions in the modern society are largely related to those used in the classics. The latter ones are, to some extent, inheritance and development of the traditional photography…

As the living space of human kind, cities are naturally the subject of photography. Besides, the mysterious cosmos and unknown fields are also attractive for people especially the artists. Among large amount of photographic works, there are also many which focus on city life and people's inner world. Although those fantasy images are created in this modern city where digital image technologies prevail, the techniques that modern photographers used can be traced to the early ages when photography was developed.

II. INSPIRATION FROM THE ORIGINAL DEFECTS OF PHOTOGRAPHY

Since the Italian Renaissance blossomed, the idealistic way of representing people's spiritual world can no longer adapt to the social and cultural development. As a result, graphic works and paintings which depict real life had a certain place in the cultural field. People craved more eagerly for realistic works which display what they see, the buildings in the cities, natural landscapes and human appearance as they are. In order to depict the reality more exactly, people have applied scenography in paintings since the 15th century. Certain kind of supporting equipment called "camera obscura" has also been applied until 19th century. During this period, a British man named William Hyde Wollaston created "camera-lucida" in 1807, making people drawing figures and sceneries more conveniently than before. Nevertheless, both"camera obscura" and"camera-lucida" could only provide people with a temporary bright image. Painters still have to depict the image on the paper by hand

in order to keep it for a long time. Then people realized that knowledge about optics was not enough to keep the image forever except combined with the chemical ways. Later, researches kept exploring ways to retain images till 1839 when photography occurred. The appearance of photography marked that human kind can finally retain what they see.

However, let's look back to some photographic works which seemed real and amazing in the beginning phase of photography. Maybe you will have doubts when seeing them.

Boulevard du Temple "Fig. 1." is one of the pictures taken by Louis Jacques Mande Daguerre in around 1838 which depicted the then boulevard in Paris. We can see from this picture that Daguerre has restored exactly the proportion, structure and appearance of streets, architectures as well as trees along the boulevard. This approach is far more convenient and simpler than drawing. The result is also more exact. However, when we praise Daguerre and his technology, we should also notice its defects. Due to the time limit of exposure in Daguerre's way (5 minutes to 60 minutes1), the originally crowded boulevard in the French capital, which was named after the Knights of Christ, turned out to be a void place. The noisy crowd as well as vehicles all disappeared in his picture. If we look closely at its lower left corner, we can find the image of one person. But no matter how we enlarge the image, it is still hard to ensure what that person was doing. It can be explained as "a person putting one of his feet on the water pump" or "the customer and shoe-polisher"2. Therefore, the Daguerre photography, at least in this photo, fails to fully meet the peoples' expectation of "exact emersion" and "duplication".

Fig. 1. Boulevard du Temple taken by Louis Jacques Mande Daguerre in about 1838

In the photo taken by Daguerre, the absent people and objects were all strong evidences showing the defects of his photography. They disappeared due to their faster speed compared with the time of exposure. Such fact has all along urged the later photographers to raise the "speed" of

1 [US] Naomi Rosenblum. *A World History of Photography*, Posts and Telecom Press, Beijing; 2012，p17.
2 [UK] Gerry Badger. *The Genius of Photography,* Zhejiang Photography Press，Hangzhou, p15

photosensitive materials. At present, when the condition is favorable, we can easily achieve the speed of 1/1000 second each exposure time with the domestic cameras. The majority of the time, the sensitivity of materials is no longer a problem for photographers. Rather, the defects that occurred in Daguerre's photo was inherited and even improved into a new photographic skill——"slow shut". Such skill helped create a lot of amazing photographic works before the occurrence of digital technology and is still favored by contemporary photographers today.

III. THE EMPTY CITIES

With the growth of population, the urban spaces are getting smaller and smaller nowadays. Our line of sight, therefore, is gradually blocked by the ever more crowded streams of vehicles and people. As a result, we can hardly see the whole picture of city landscapes on a daily basis. Apart from the field of vision, our living space is also being re-divided. Under such circumstance, people crave for space more eagerly than before. Some photographers with sharp sensitivity sought to express their feelings and opinions on such phenomenon.

Lucie & Simon are a couple of artists in Paris. They decided to make the original noisy and crowded city empty and quite. During the process of their creation, they didn't use digital image technology as the main way to create the illusion. To the contrary, they used ND pick glasses to reduce the light transmission so as to lengthen the exposure time to a certain degree where people and some objects can disappear in the photos. (Lucie & Simon were also good at post digital processing. However, the digital image technology was merely applied to perfect the expression of certain ideas. For instance, they may use the skill of photomontage in some photos to express the idea that people's intervention will at once break the silence among the buildings and streets.) "Fig. 2.", "Fig. 3.", "Fig. 4."

Fig. 2. The silent world---Tian'anmen square, taken by duo Lucie & Simon in 2010

Fig. 3. The silent world---ring road in Xizhimen Grate, taken by duo Lucie & Simon in 2010

Fig. 4. A silent world---ring road in Beijing, taken by duo Lucie & Simon in 2010

In their works, the stream of people and vehicles disappear with the longtime of exposure. The scenes presented before us in the photos are both familiar and strange. From those empty urban illusions, we can even tell from those pictures a piece of fear and worry, which urges us to reflect on the meaning of life as well as on our living condition.

IV. MEMORY OF THE CITY

Time is a magic thing, especially in the world of photography. With the control of time in photo-taking, we can eliminate the elements that are originally in the images, just like what Daguerre and Lucie & Simon did in their works. Moreover, we can also keep what we once ignored and rememorize them.

The urban cities provide us with a grand living space as well as a platform carrying our feelings and ideas. At the same time, we are also witnessing the change that happens to our cities. However, it is inevitable that some moments and tiny things will be ignored. Nevertheless, cameras may capture and record all that falls into their lens sight restlessly.

The German photographer Michael Wesley conducted an artistic project named "Open Shutter". He fixed several 4in.*5 in. studio cameras at four different places in New York and Berlin respectively and set them to keep exposing for months or years. As a result, he got a photo that was not overexposed and that kept the time imprinting after longtime of exposure. Though he hasn't revealed any information of how he achieved that, we can still owe it to the inspiration from the defects in Daguerre's photography.

"Fig. 5." and "Fig. 6." are two photos among a series taken by Michael Wesley at the invitation of Museum of Modern Art in New York. The two pictures recorded the process of the museum's reconstruction. One of them even experienced a good three years 'exposure just like an arduous marathon race. Once the exposure began, cameras started to record every moment this city underwent---some of which have been ignored by us. After longtime exposure, mysterious and unbelievable images came into being on the photos, which vividly retell the stories left behind by us.

Fig. 5. Museum of Modern Art in New York, taken by Michael Wesley from 8th September, 2001 to 6th July, 2004

Fig. 6. The Museum of Modern Art, taken by Michael Wesley from 8th July, 2001 to 6th July, 2004

IV. THE UNIVERSE IN MIND

Different from Wesley who utilized photography to compress things in a period in a single photo, another type of photographers may explore what happens in an extremely short time as possible as they can, which showed us another kind of illusion. The Swiss artist Fabian Oefner is one among them. By using stroboscopic lights and sensors, he captured a series of photos revealing the micro world which were not visible to human eyes. For example, his work "black hole" used such technology to present before us the fantastic and stunning universe in his mind "Fig. 7" "Fig. 8".

In fact, during the process, Fabian used a simple physic principle of centrifugal force. He firstly spread the color paints on a metal stick which connected the machines. As soon as the machine operated, he used stroboscopic light and sensor to rapidly capture the moment when paints were swung off the stick. （According to Fabian, the duration of such move was only 1/40000 second） Maybe his works cannot match that of the previous two artists in terms of degree of difficulty and topic selecting. However, just as he has said in the TED Talks: "What I'm trying to do is I'm trying to use these phenomena and show them in a poetic and unseen way, and therefore invite the viewer to pause for a moment and think about all the beauty that is constantly surrounding us." His works, indeed, have brought us to the beauty of the micro world.
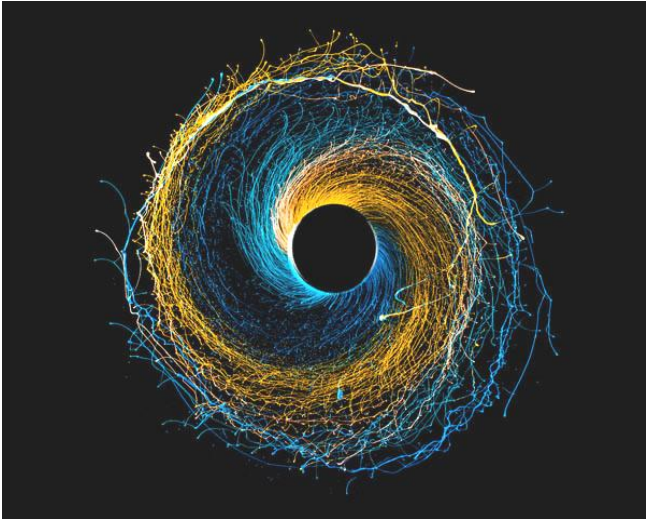

Fig. 7. Black Hole, taken by Fabian Oefner

Fig. 8. Black Hole, taken by Fabian·Oefner

CONCLUSION

In general, we can find a common point among the works of those artists. That is, the technology applied by them to create illusions has much to do with the long exposure time in Daguerre's works. Those illusions, which are presented livingly in the photos but cannot be perceived in the real life, are not created by our familiar Photoshop or other image processing software. Rather, they are created due to photographers' effective control of exposure time, while this inspiration came from the original defects of photography.

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