Photography of Important Architectural Monuments/Buildings and Groups of Historical Buildings

− Role of the photography of Important Architectural Monuments/Buildings

Irrespective of whether or not the object is buildings, the photography of important architectural monuments/buildings has a role to fulfil in; (i) semi-permanently recording objects in the best photography available at the present time; (ii) storing the images thus taken utilising the method that prevents deterioration and disappearance of them; and, (iii) making the data utilisable for common benefits in posterity as cultural property records. For the storage of films, they should be kept under conditions that maintain the proper temperature and humidity. On the other hand, whenever necessary, digital data should be converted to the file formats that meet the demands of the times.

− Difference from the photography of buried cultural properties (archaeology)

Although the roles and significance are the same between the two types of photography, there are some differences in basic stance and photographing technique as follows:

1. As the shooting of buildings requires low angles in many cases, it often becomes necessary to adjust the shape of objects. With large format cameras, you can correct perspective through the camera movement method which makes the lens side (front plate) rise. With 35mm film cameras, you can use Rise using a shift lens.

2. Determination of the timing of photography (seasons), weather, date (hour). In particular, photographing the appearance of building structures makes difference.

3 In the case of photographing buildings/monuments to be repaired and restored, it often becomes necessary to prepare before-and-after photos. To this end, you should have a clear view of how the building will appear after the repair, and predetermine the shooting angles of the before-and-after photos for contrast prior to the restoration/repair work.

4 The photography of state-designated buildings/monuments requires a report with collotype printed photographs, for which it is further required to prepare monochrome negative films that feature the tones fitted to collotype printing. This process requires that the photographer gain sufficient experience.

5 To shoot the appearance of objects illuminated by the sunlight as the main light source, strobes are additionally used in almost all cases.

Collotype Printing

History

Collotype photo printing was invented in France about 150 years ago, and industrialised by Joseph Albert, a German, in 1867.

This printing method was introduced to Japan as well in about 1889.

The “collo” of the collotype derives from “kolla (glue)” in the Greek language. In Japan, it was referred to as “collodion process”, or as “glass-plate printing” which uses glass plates.

What is collotype printing?

Dichromated gelatine sensitizers produced by adding dichromic acid to gelatine have the property of hardening and becoming non-water absorbing when they are exposed to light. Collotype uses this property. First, this sensitizer is applied to glass plate to be used as the press plate, and dehumidified and dried out. Then, on the glass plate, the collotype-printing original plate (on which a negative contact film is pasted) is placed, and exposed to light. Thus, the dark parts of positive images (e.g. shady parts such as a place under the eaves) is reproduced in pale colour on the negative contact film (printing original plate), where strong light is received, the gelatine hardens. In contrast, the bright parts (e.g. brand new roof tiles or plaster in the sun) is reproduced in a thick colour on the negative contact film, where no strong light is received on the printing plate, the gelatine softens. Hardened gelatine absorbs little water; while softened gelatine absorbs a relatively large amount of water. The ink containing oil repels water. Consequently, not much ink sticks to the soft gelatine containing plenty of moisture, resulting in light colours. On the other hand, much ink sticks to the hard gelatine containing a little water, resulting in dark colours. Thus, chromatic tone is created.

This chromatic tone is the continuous tone that can be seen in a photo, not like that seen in the halftone dots of offset printing. Accordingly, a smooth tone can be achieved, crushed shadows do not appear even on the shady parts, and thereby a soft representation can be made. As collotype printing has no halftone dots, it enables secondary use. The ink used for it is permanent, and the printed matters produced through this method hardly deteriorate. Therefore, this printing method is best suited to cultural-property survey reports that aim at long-term storage as a purpose.

However, the plate making of this method requires techniques for which a wealth of experience is indispensable. Due to factors including high costs, low durability of gelatine plates and the consequent small number of printed copies, production discontinuation or the sharp decrease in the variety of films used for negative contact films, etc., most printing plates for the reports above are now being replaced with new methods such as high-resolution offset printing or FM screen, etc.

- Techniques

1. Fill-in Flash Method

Fill-in flash is a photography technique to synchronise sunlight and artificial light (strobe light). Sunlight is used as the main light source; meanwhile, strobe light is used as a fill light to illuminate dark and obscure parts. As the strobe light is a flash light, regardless of shutter speed, overexposure/underexposure is determined only through the aperture diaphragm (In the case of focal plane shatter, the synchronised area of the shutter speed varies depending on camera type). On the other hand, as sunlight is a continuous light, even shutter speed can adjust light and shade. The fill-in flash technique uses this characteristic.

First, you set the aperture diaphragm. Then, determine the strobe-light intensity suited to the diaphragm. After that, you determine the shutter speed to suit the light intensity.

2. Perspective Correction (Camera Movement)

In most cases, the camera movement method to raise the front plate (lens plane) is used.
The rear plate (focusing-screen plane) is moved (shifted) slightly for some photographic scenes, depending on shooting angle.

3. Depth of Field (DOF)

When a part of an object is optically focused, only the focused portion is sharp and clear, but the front and rear portions look unfocused and blurred. However, if you gradually close the aperture diaphragm, the front and rear portions will become sharper even within the visible spectrum easily recognized by human eyes. The DOF (depth of field) means this spectrum that becomes sharp and clear.

The depth of field varies depending on focus-object distance or the focal distance of the lens to be used, even though the values of aperture diaphragms are the same.

Fill-in flash in practice

Photo (1) is a picture of a street of townhouses with black lattice panels on plaster walls, often seen in traditional Japanese townscapes. The photo was taken on a clear day with a digital single-lens reflex camera in automatic mode.

In this case, although the digital camera tried to represent the colour of the sky by calculating the average exposure between the white colour of the road and the black colour of the lattice windows and the burnt-treated wooden fences, as shown in Photo (1), the road, sky, and the back of the street in the sun have rather blown-out highlights, and the dark lattices and eaves are represented as being too black. Since the necessary visual information is about the houses, the shutter speed should be set one step slower.

Thus, Photo (2) shows the lattice parts that are now clearer, but blown-out highlights appear in the areas of the road and the back of the street (As increasing brightness of a dark photo by opening the aperture diaphragm affects the depth of field, it is desirable that it should be increased by adjusting the shutter speed.).

In Photo (3), the brightness was increased one more step, as an experiment. Flare occurred and wiped off the border between the road and the sky.

Photo (4) was taken on a cloudy day in automatic mode. Despite the improvement wherein the latitude of black and white became narrower compared to the photo taken on the clear day, the area under the eaves is still dark. In Photo (5), the area under eaves was brightened one more step. Although it is quite an improvement, blown-out highlights still occurred on the roof tiles of the first floor. Accordingly, the aperture diaphragm should be slightly closed, and the flash pointed squarely at the house. Finally, Photo (6) was created in which the back of the street has no flare and wherein the appearance of the lattices can be seen clearly.

Photo (1)

Photo (2)

Photo (3)

Photo (4)

Photo (5)

Photo (6)