

Case study: Three dimensional representation shown in the <Reclining Nude and Servant Serving Tea> (1916-1917) by Pierre-Auguste Renoir

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Key Words : Late works of Renoir ルノワールの晩年作品; clay works by Renoir ルノワールの塑像作品; X-ray photo reading X線透視写真の解読; outline in painting 絵画の輪郭線; representation of volume by lead white 鉛白をもちいた量感の表現.

1 Forewords: a hypothesis on a copyright of artist

It is well known that Pierre-August Renoir, one of the most famous Impressionist painters, in his latest days between 1913 and 1916, made some of excellent clay works.

Since the late 1880's, the artist was a rheumatic to be worth year by year, and after the early 1890's he had wrong vision on his left eye. However, he continued active works as artist, regardless of his inconvenient diurnal lives. On 1913, while Renoir had required a help by wheel-chair, he wanted to make clay models of figure, and his closer friends, Ambroise Vollart, art-dealer, and Aristide Maillol, sculptor, advised him to engage a young sculptor Richard Guinot, an assistant of Maillol, to help his works. Physical inconveniences of the artists did allow neither to do modelling works by him-self nor even to do preparatory works of clay. Some documents say that Renoir prepared only some basic drawings and that the assistant realized them on a clay model to ask more precise direction from the painter. And also they say that the artist was supervising works of the assistant aside of him. Their collaboration works followed up to the last days of the artist.

In such a case of collaboration works, delicate matters on work sharing between roles of the painter and those of the assistant sculptor might be included. In particular an important point is whether the position of sculptor is an only assistant technician, who make a figure

under supervision of the painter, or co-worker artist, who participate in an artistic creation. In former case, they should be found a similar factor such as artistic cubic figures of stainless steel in today, often called as <order-made artistic figure> or <order-made sculpture>, on which scarcely publish the name of fabrication workshop. Very few numbers of sculptures by Renoir show the name of Guinot, and most of them as a 'work of Renoir'. When the status of Guinot was only an assistant under a labour contract, we can ignore his corroboration. However, another case allows supposing that the sculptor proceeds to prepare a shape up to a certain step and that the painter only approves the works. In any case, contents of indication from the painter will be a key of their collaboration works. This is even a matter of copy-right of artist.

Two better samples to consider this matter, were shown in the exhibition of "Renoir: Tradition and Innovation", held at the National Art Centre, Tokyo (from 20 Jan., to 5 Apr. 2010) and at the National Museum of Art, Osaka (from 17 Apr. to 27 Jun. 2010).

The one is the <Reclining Nude and Servant Serving Tea> (1916-1917), from Pola Museum of Art, Hakone, and the others are the <Venus Victorious> (1914-1915), from a private collection. The former work will be called as "Reclining Nude" and the later as "Venus" hereafter in this paper.

Using these two cases and other referential data, the author wants to inspect three dimensional sensibilities of Renoir as a sculptor.

2 X-ray Photo of "Reclining Nude"

"Reclining Nude" is a work of oil on canvas with fine texture, and the size is 50.3 X 60.0 in oblong (Photol). In the Exhibition Catalogue, Y. Iwasaki says: "represented voluptuous nude recalls us a high influence from that of Rubens. Renoir in his late days talked that he had wanted to make a representation as 'Judgment of Paris' by Rubens (ca.1632-1635; coll. National Gallery, London)" (Iwasaki, p.212).

The exhibition had a special corner to show some numbers of X-ray and Infra-Red photos of exhibited works, in a small room. Scientific photos from "Reclining Nude" were included in this additional display. While other scientific photos were attached with precise text in details, this unfortunate scientific documentation with no text was only exposed to compare with a colour print of the work. Adding this, the exhibition catalogue illustrates all displayed scientific photos and texts, except those of "Reclining Nude". The author supposes that one of the reasons of no reproduction in the catalogue might be found in neither obvious modifications nor additions to the work by the artist himself.

3 General Notion on Radiography Reading

Here is a general principle on X-ray photo reading. To take X-ray photo of oil painting, it requires to contact a surface of painting and X-ray film, which should be perfectly shielded from any type of light, and to be radiated soft X-ray from the backside of the painting. Recent high technology often calls an application of imaging plate, electronic photo sensors for X-ray film, but no principle changes between classic and modern techniques, except more sensible in the modern. According to the condition of paint layers and of support, 30-50kV of X-ray radiation should be required. The radiation, after transmission through a painting, loses energies to reach on a film and to expose. Materials and thickness of radiated layers make a difference in transmission energy ratio of the ray. When we set the radiated ray as X_0 , and transmitted ray as X_1 , the relation between X_0 and X_1 is shown as:

$$X_1 = X_0 \cdot e^{-\mu D};$$

in condition of e : Euler's constant; μ : particular constant to each material; and D : thickness of a layer(s). μ has also closer relation with molecular weight containing in the material. An exposed part of film to higher radiation should make darker image. Therefore, the higher molecular weight or the thicker layer of a material makes the less sensitive to the film to give the whiter image.

The author will show some of practical cases to explain the principle. Silver white or basic lead carbonate ($2\text{PbCO}_3 \cdot \text{Pb}(\text{OH})_2$), which is one of the most important white pigments for oil colours, has about 775 of molecular weight, and zinc white or zinc oxide (ZnO), another main white pigment, has about 81.5. That is the later requires about 9.5, almost 10 times of thickness than the former to get the same density on an X-ray film from these two white pigments, because the product of molecular weight and the thickness should be the same to be the same result. Near to ten times of difference in thickness should be easy to identify even under our naked eyes. When two samples has almost the same thickness, different densities on film will allow us to suggest a difference in chemical formula of an used pigment or a main element containing in it, even when it has a similar appearance in colour. And if they use the same pigment in different places, the density corresponds to the thickness of layer.

Lead white is one of pigments which have the greatest molecular weight within the basic colours used for oil painting. And the white colour is essential one to show brightness or *chiaroscuro*, and white objects. In a case of classic painters, in particular, they often apply lead white to give *brightness* and the X-ray density makes a key image of treatments for representation of volume in a painting.

In a practice of painting, we can find many cases of mixture of white with other colours and a few application of only white. Also after pre-painting with white and other colour(s), thin over-

paints by transparent or semi-transparent colours are often used to get a harmony of the finish. Even if a clear use of white is not observed on an appearance of finished work, existence of lead white in mixed colours is allow to rest a visible white image on a film. And in such a case, our eyes also recognize certainly an existence of white as “brightness” or “clarity” on the part.

When we put two colours side by side, we feel that the brighter and the wider areas go towards the observer, although the darker and the smaller away from him/her. Each colour have their original brightness, however, an additional mixture of black or white is easy to control it. In some cases, dark brown or blue gray will be substituted for black, although few another colours for white. Main white colours used for oil painting are zinc white, silver white and titanium white (Titanium oxide: TiO). Whiteness and brightness of these three follows in this order, that is, the less bright in zinc and the more in titanium. A painter may choose one at need. Few application of titanium white is used to control brightness, because it is too white to make great change in brightness with even a small amount of addition. And adding this, extremely few use of titanium white was found before the first half of twenty centuries.

As a brightness of each colour on a painting is allowed psychologically going forward or backing, painters can apply the characteristic to show a depth of space or a perspective relation. We call a right relation between a brightness of colour and a represented depth, as “*valeur*”.

Adding a brightness of colour, an occupied space of the colour on a spot is also important to define a perspective position of painted object. That is, the brighter and the bigger area of a colour seem to be located in the nearer from an observer, and the less bright and the smaller in the farther. Middle positions are displayed by a control of the size and the brightness.

4 X-ray image from the “Reclining Nude”

Using above principles, we can find three main white areas on the X-ray photo of <Reclining Nude> as follows:

- 1) White bed sheet, on right bottom, which is too bright to be appreciable;
- 2) The upper half body of nude, on left middle, which has mid whiteness in general.
Slightly remarkable over-paint of lead white is observed in highlight parts on arm, pillow, cheek and neck; and
- 3) Standing girl, on left top, which has weak whiteness.

On the area 1) , we can observe very bright and wider brush strokes to enhance highlight of drapes of sheet and to make the most impressive white area.

It is clear that the above three zones from 1) to 3) create a successful effect to show three

plans: front, middle and back ones, and they fully explain visual perspective relations in the represented space.

Adding these, there are two small but very bright spots on jar and breast of standing girl on the X-ray photo. As these spots are glazed with other colours, we tend to ignore the very high whiteness on the finished work and they correspond to the top light spot on a metal jar and a left half part of white shirts front on the girl. These small spots on a diagonal line have an important function to introduce our eyes from nude to standing girl. While these both areas have almost the same whiteness, the spot on jar is practically composed of some of tiny spots and that on the breast single, and the former occupies bigger space than the later. Then we understand that these small white spots act as an introduction arrow from the middle plan to the back one or as an assistance to show a perspective view.

Other slight application of lead white in the work is less impressive and has insufficient function to explain a perspective of the painted space. Then we can say that <Reclining Nude> is basically composed by three main areas to set up front, middle and back plans, while combination and/or glazing with other vivid colours covers skilfully their high contrast of light and shadows to make pictorial effect.

We can understand that the painter uses a preference application of high contrast with simplified or concentrated light and shadows to accentuate a cubic or three dimensional effects on his works.

5 Case of “Venus”, drawing

<Venus Victorious> is made as a *grand-dessin* on a large size of charcoal paper with red (or *saguine*) and white chalk (Photo 3). We call such a drawing in two different colour chalks as “*deux crayons*”, which means ‘two chalks’ in English. But more exactly, a few strokes by brown chalk are added on upper left side of head. The artist draws almost parts of Venus in nude by red chalks and adds white chalk on limited high-light parts only. In this case, high-light parts drawn in white chalk do not always correspond to the most shining part on model as we often find on modern paintings. The artist rather uses white chalk in a classic method to show the most protruded parts on the model. In the other words, he puts it on the nearest parts of the model from the painter or from observers. The left breast of nude and the line of the nose are the examples, on which the high-lights are shown on left hand, although thigh (on right) . abdomen and cheek are rayed from right hand. We have to look here that the artist uses white chalk only on strictly limited protruded spots, which are tops of a volume. Elliptic lines on Photo 3 show parts in which deep traces of white chalk are found. The painter succeeded to express by this method to accentuate an expression of “volume” on the model.

These two cases show that the artist at that time, had stronger interests to represent the volume and that his senses were rather those as a sculptor than as a painter.

6 Some other reference works

The author wants to note other three paintings of the artist, in the collection of Pola Museum, which were made earlier than <Reclining Nude>.

Those two are <Young Woman Bathing> (1888) (Photo 4 and 5) and <La Coiffure> (1888) (Photo 6 and 7). X-ray photos of these two works show some common visual aspects. It might be right because these works were made in the same year. Renoir used here also lead white to show a modelling effect of the main subject and we can observe an image of model with gradation in black and white on the photos. However, these modelling methods are more explanative and show finer gradation in detail than that found on <Reclining Nude>. On the last one, we find only clearer and the clearest part and be so difficult to image a final state of the work. The most important point, which should be never overlooked, is that both works in 1888 are painted with black outlines (*the word “outlines” are not used here for real paintings but for X-ray photos). These black outlines mean that the parts were painted without or with few lead white, that is, to be left early dark line drawing and to be added another part with brighter gradation with white. Respect of outlines just means to be a “picturesque” or “pictorial” intention of the artist himself.

Beside outlines, X-ray photos of the two works reveal rather clear images of objects in back ground, such as furniture and waves.

We can find on a X-ray photo of another work from the same collection, <Girl in a lace hat> (1891), no more clear background, however, still precise outlines on the face of girl, hat and dress (Photo 8 and 9). When we apply the principle of Heinrich Wöllflin, change of painting style from “with outline” to “without outline” corresponds to the 1st principle : “from linear to painterly”. And also change from “precise gradation with varying quantities of white” to “only symbolic addition of white to clearer or the clearest part” corresponds to the 5th principle : “from absolute clarity to relative clarity”.

<Umbrella> (1880-81 and 82-83) is one of the masterpieces of the artist in his middle age and now in the collection of National Gallery, London (Coll. NG3268) (Photo 10 and 11). They say that two girls and a lady in right hand was made in 80-81, and the other part was added on 82-83 after coming back from his Italian trip. X-ray image of this work reveals more exact and dark outlines of represented peoples than those found on the above three works from Pola Museum Collections (Bomford *et al.*, p.192).

7 A conclusion

Auguste Renoir in his youth had an excellent temperament as a painter and he kept it, at least, up to early 1890's. However, in his late days when he made some of clay works, his consciousness to the space changed not to take it as an allocation of form but to do it as a relation to depth. "An allocation of form" means that he arranges various sizes of silhouettes, which were cut from objects, to show a perspective. And "a relation to depth" is to express it as that of visual distance between painter and dominant objects, that is, as a "volume" in the whole space. The later is no more than a basic representative manner of sculptor.

While the author is difficult to reveal from when the artist changed his technical direction because only a few works were allowed to be analysed using X-ray images, it is surely able to say that eyes of old Renoir himself oriented to be a sculptor, and that role of Guinot might be only substitutive hands of the disabled artist, Renoir.

Finally the author acknowledges to the Pola Museum, Hakone, and National Gallery, London, for their kind authorizations to use radiographies and photos of referenced works.

Reference

The National Art Centre, Tokyo, *et al.* (ed.), *Renoir: Tradition and Innovation* (Exhibition Catalogue), 2010.

IWASAKI, Yoko, "Reclining Nude and Servant Serving Tea" in the above Exhibition Catalogue *Renoir*, p.212, (Text in Japanese only).

BOMFORD, David *et al.*, *Art in the Making: Impressionism*, 1991, National Gallery Publication, London.

要旨

画家ルノアールは晩年に、ブールデルの弟子ギノを助手として雇用し、いくつかの優れた彫塑作品を残した。この作品が画家の作品か助手との共同制作かは検討に値する。発注制作とよぶ現代の金属造形では製作工房の名を無視する。作者からの設計図と指示に従い、単純作業として受注するからである。ルノアールは助手の仕事を追認しただけか、相当厳格な指示を与えたかは、画家の感性による。本論では、ポーラ美術館所蔵の作品を中心に、X線写真を利用してこの画家の晩年の空間感覚を検証した。

白色絵具は明暗表現に不可欠であるが、X線写真ではとくに鉛白の使用が顕著に表れる。厚く塗りつぶした個所はより白く、薄く半透明に塗った個所はやや薄い白色像を作る。画像化される

のは鉛白の使用量であって、単独使用か混色かは関係ない。人間の眼は、広く明るい部分は進出し、暗く狭い部分は後退する、と感じる。絵画の奥行きはこの心理効果を利用して表現する。

「休息」(1916/17)は画面左下のシート、右手中央の裸婦上半身、左上の少女立像の3か所に白色使用が集中する。とくにシートでは広幅の壁に厚塗りの白がひととき目立つ。次いで裸婦、少女の順で白の分布範囲が狭まり、また厚塗りの量と個所が減少する。この3か所で前、中、後景が構成され、その他の部分には極めて微かな白色使用しかない。さらに水差しの輝部と少女の胸元にある白シャツ左部に点状の厚塗りの白がある。これらは仕上げの過程で透明色を被覆して白さを抑えているが、その大きさと配置が中・後景を誘導する機能を持っている。X線写真で見ると限り厳密な輪郭線は見当たらない。これは画家の意識が事物の形態より表現空間内での奥行き関係に集中していることを示す。

「勝利のヴィーナス」(個人蔵：1914/15)は赤と白の2色チョークによる素描であるが、この作品でも白チョークの使用はモデルのもっとも突起した部分に限られる。しかも光の入射方向を軽視している。この作品は彫塑の原作であるが、輪郭で切りだすかたちでなく対象の量感表現を重視している。

「髪飾り」「水の中の裸婦」(ともに1888)では、鉛白による量感表現が認められるがそれ以上に塗り残しによる輪郭線表現がめだつ。「レース帽子の少女」(1891)でも輪郭線の存在が重要な位置を占める。この3作品では鉛白を活用した明部の強調表現はあるが、奥行きの強調表現は十分ではない。さらに中期の代表作「雨傘」(ロンドン・ナショナル・ギャラリー、1880-83)ではすべてのかたちがより明確な輪郭線で区切られ、明暗表現は個々の対象に対して行われており、全体を一つの奥行のある空間と捉える態度ではない。これらの表現は量感表現ではなく、かたちの配列を意識した「絵画的」なものである。

筆者が目にしたルノアール作品のX線写真は数ごく限られており、彼の「絵画的」から「彫刻的」への変化がいつ生じたかは未知である。しかし、晩年における関心は「量感＝彫刻的」に集中しているのは確かである。

このことから彼の助手に対する指示は相当の確であり、弟子任せの部分はなかったと考えたい。



Photo 1

Reclining Nude and Servant Serving Tea (1916-1917). 50×60 cm, oil on canvas. Coll. Pola Museum of Art, Hakone.

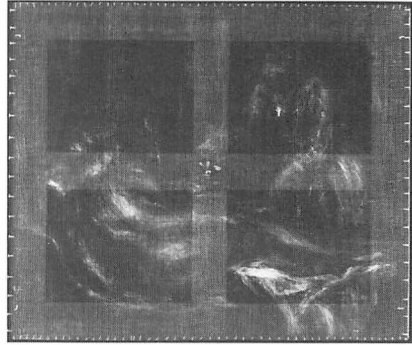


Photo 2

X-ray photo of *Reclining Nude and Servant Serving Tea*



Photo 3

Venus Victorious (1914-1915). 162×104 cm, red, brown and white chalks on paper. Coll. Private. (* Look deep lines of white chalk which are marked with ellipse.)

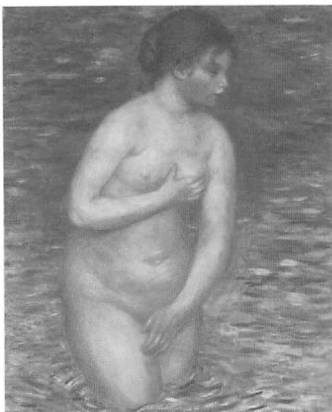


Photo 4

Young Woman Bathing (1888). 81×65 cm, oil on canvas. Coll. Pola Museum of Art, Hakone.



Photo 5

X-ray photo of *Young Woman Bathing*



Photo 6

La Coiffure (1888), 81×57 cm, oil on canvas,
Coll. Pola Museum of Art, Hakone.



Photo 7

X-ray photo of *La Coiffure*



Photo 8

Girl in a lace hat (1891), 55×46 cm, oil on
canvas. Coll. Pola Museum of Art, Hakone.

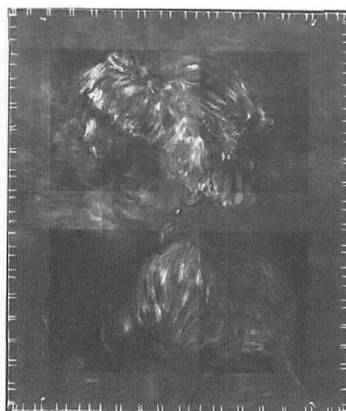


Photo 9

X-ray photo of *Girl in a lace hat*



Photo 10

Umbrella (1880-81 and 82-83), 180×115 cm,
oil on canvas. Coll. National Gallery, London



Photo 11

X-ray photo of *Umbrella*