



Contributions to the Bilbao Congress  
13-17 September 2004

## MODERN ART, NEW MUSEUMS

Edited by  
Ashok Roy and Perry Smith

### Technical Committee

Andreas Burmester	Jim Coddington
Tom Learner	Carol Mancusi-Ungaro
Paul Schwartzbaum	Thea van Oosten
David Bomford (Chair)	

Published by

The International Institute for Conservation  
of Historic and Artistic Works  
6 Buckingham Street, London WC2N 6BA



PLATE 35  
Jean Arp, *Human Concretion*, in the collection of San Francisco Museum of Modern Art. The sculpture is shown in its polished state (p. 73).



PLATE 36  
Jean Arp, *Human Concretion*, in the collection of Darmstadt Museum of Art, with original patina (p. 73).



PLATE 37  
Jean Arp, *Evocation of a Form: Human, Lunar, Spectral*, 1950 (enlarged and cast 1957). Left: before treatment. Right: repatination completed, May 2001 (p. 73).  
*Hirshhorn Museum and Sculpture Garden, Smithsonian Institution, gift of Joseph H. Hirshhorn, 1966.*



# THE CONSERVATION OF ARP'S BRONZES: PRESERVING THE SCULPTURE'S HISTORY OR THE ARTIST'S INTENT?

Martha C. Singer and Valerie Fletcher

## ABSTRACT

The appearance of Jean Arp's bronze and brass cast sculptures varies. Some have no chemical patina: the untreated metal surface is reflective to varying degrees. Other casts have a brown chemical patination. Moreover, different casts of the same sculpture may exist with different finishes. What is the origin of these variations? Were they intended by the artist? These questions, hitherto unanswered, directly affect decisions on how to conserve these artworks. This paper summarizes research into the factors that determined the appearance of Arp's bronzes. By reconstructing the artist's working methods and examining many extant surfaces, it is concluded that only some of them currently present the artist's intent. A number of them result from the aesthetic tastes of certain art dealers and collectors and, to a lesser extent, lack of information during previous restorations. Because these factors are integral to the history of the artworks, the findings present difficult choices for their care and maintenance.

## INTRODUCTION

Bronze and brass sculptures by Jean (Hans) Arp (1886-1966) have a wide variety of appearances. Some are shiny bare metal. Some were polished at one time but have slowly oxidized to a pale honey-brown. Many have brown patinas ranging from luminescent and thinly layered to dark and opaque. Moreover, different casts of the same sculpture may exist with different finishes. For example, the cast of *Human Concretion* (1933) belonging to the San Francisco Museum of Modern Art (SFMOMA) has a mirror-like, polished surface (Plate 35). In contrast, the cast at the Darmstadt Museum of Art has a semi-luminescent, mottled, brown patina (Plate 36). Unlike the smaller bronze versions, *Evocation of a Form: Human Lunar Spectral* (also known as *Giant Torso*) of 1950, belonging to the Hirshhorn Museum and Sculpture Garden (HMSG), had a thick brown patina (Plate 37). Archival documentation at both museums indicates that the sculptures no longer have the artist's original patina. The goal of this paper is to determine the origin of these variations.

Research on Arp's sculptures has been hampered by lack of access to the *catalogue raisonné* records. None of the published catalogues provide casting dates, identify the foundries or give a description of patinas.<sup>1</sup> Further, a number of sculptures have been in storage, unavailable to researchers, as a result of continuing litigation. Our research included visits to the artist's studio in Clamart near Paris, where the indoor sculptures have remained unaltered since the artist's death. We interviewed André Mounier [4-6], Arp's assistant from 1958 to 1966 and responsible until 1986 for posthumous casts authorized by Arp's second wife, Marguerite Hagenbach-Arp. We also interviewed Greta Ströh, Hagenbach-Arp's assistant, and responsible for the artist's studio in Clamart until her death in December 2000. Ströh was well-informed on the different patinas and foundries used by Arp; she provided information by mail [7, 8] and in an interview in Arp's studio in Clamart [9].

## ARP'S WORKING METHODS

According to Mounier and Ströh, Arp typically sculpted a plaster original from which the works were sand-cast at a foundry. During the artist's lifetime, he mainly used the Rudier and Susse foundries, near Paris. Usually the foundry was responsible for

patinating the sculpture, following the artist's advance instructions. Generally, if the sculpture was intended for outdoor display, it would be sent from the foundry to Arp in Clamart; he would then sometimes place it in his garden. Thus, during fabrication, three main factors determined the appearance of the sculptures: alloy composition, casting quality, and patination.

## Alloy composition

The composition of the metal has a major impact on how it reacts to the patination process. This factor alone may account for some variations in the appearance of Arp's works. Although most of Arp's cast sculptures are called bronze (a copper-tin alloy), at least some are brass (a copper-zinc alloy). Few bronzes have been analysed, but *Torso Fruit* (private collection) consists of 85.5% copper, 11.8% zinc and 2.7% tin, that is, brass.<sup>2</sup>

During Arp's lifetime, European foundries determined their own standards regarding alloy composition and usually did not maintain records for each 'pour'. The Susse foundry maintains no records of metal composition; according to the current owner, different casts of the same sculpture may well have marginally different alloy proportions, and casts made in different years could vary more [10, 11].

## Foundries

For the first stage of his career, from 1915 through the 1920s, Arp preferred to work in wood, stone, paint, and paper collages. During the early 1930s he shifted to modeling in plaster for bronze casting. The Depression and World War II limited access to metals (the Germans banned bronze-casting for art in occupied France). Most of Arp's bronzes were made in the 1950s and 1960s. In the beginning, a cast was made whenever there was a ready purchaser [12].

Several foundries made Arp's casts, during his lifetime and posthumously. Arp preferred the casts from the Alexis Rudier foundry, because of the excellent quality of its work. However, that foundry closed when Eugene Rudier died in 1952. His nephew Georges hired many of the staff and opened his own foundry in 1954. Both Rudier foundries were in such high demand from the 1950s until the 1970s that many artists, including Arp, made use of another Parisian foundry, Susse Frères. After purchasing a house in Locarno, Switzerland, in 1959, Arp used foundries in Switzerland and Italy [3].

After the artist's death in 1966, bronzes continued to be produced, first by his widow Hagenbach-Arp and then by one of the foundations, the Stiftung Hans Arp und Sophie Taeuber-Arp (SHASTA) in Rolandseck, Germany. Hagenbach-Arp continued to use the Rudier and Susse foundries and started using the Godard foundry in Paris. Since 1978, SHASTA has made posthumous casts at the Rudier foundry and the Noack foundry in Berlin [3]. The Rudier foundry ceased operations in the late 1980s. The Susse foundry closed in 2003 [13]. The Godard foundry still functions, but does not maintain detailed records [14].

According to Mounier and Ströh, Arp preferred Rudier's work because it had fewer casting flaws. As a result, the patination could be more translucent, with fewer defects to conceal. When Fletcher visited the Clamart studio, Ströh pointed out specific examples: some sculptures clearly had defects in the alloy,

<sup>1</sup> A *catalogue raisonné* published in 1957 [1] and another from 1968 [2] provide the edition number for each sculpture but these data may now be inaccurate, given that posthumous casts continue to be made. According to Walburga Krupp, curator at SHASTA, there are no sources which provide details of Arp's preferred patinas [3].

<sup>2</sup> Analysis in March 1998 for a private collector; our thanks to sculpture conservator Andrew Baxter of Richmond, Virginia, for this information.

ranging from dark inclusions and plugs to random surface pitting. Such imperfections were found in both *Human Concretion* (SFMOMA) and *Evocation of a Form* (HMSG). Rudier's alloy composition also contributed to the appearance of Arp's work in terms of color: according to direct observation of bronzes in the studio, and to Ströh's recollection of Arp's comments, the Rudier foundry tended to produce a copper-rich alloy which consequently was redder and appeared warmer in hue [7, 9].

#### Patination

During Arp's lifetime, most cast copper-alloy sculptures were chemically patinated. During the 1950s and 1960s, cold patination was a common process in which various chemical solutions are applied and left to dry for a day or longer. This process can be slow, painstaking [15], and repeated until the desired effect is obtained. The contemporary approach involves applying chemicals to a heated surface so that colors are built up quickly. Metals can patinate naturally with time through oxidation. Works exhibited in adverse conditions will alter more noticeably, especially sculptures displayed outdoors in urban settings.

Mounier's information about the patination of Arp's late metal sculptures came from first-hand experience. Originally a ceramicist, Mounier's studio was adjacent to the Rudier foundry, where he learned patination techniques. Mounier met Arp through Georges Rudier and became responsible for the constructed sheet-brass sculptures. He patinated them with a uniform technique yielding a clear, pale brown surface, which he described as follows [5]:

After construction, the brass surface received a light abrasion followed by a rinse. Then the surface was cleaned of grease, fingerprints, or other materials that could interfere with the chemical reaction. The patina solution was prepared from a sulfur-containing stone found in the city of Barèges, a small town in the Pyrénées known for its mineral baths. The stone was dissolved in water and the solution diluted until it became a dark brown color. The solution was applied in one pass using a cotton cloth because touching the same area twice would lift off the layer of patina and/or leave marks. Finally, to maintain the patina it was coated with a layer of wax.

Because Mounier learned how to patinate at Rudier's, his patination technique may well have been applied to many of the cast bronze sculptures for which he became responsible after the artist's death. Those, as well as casts made during Arp's lifetime, were patinated at the foundries. Ströh's description of the patination process at Rudier's is generally consistent with Mounier's:

Normally the *patineur*... would cover the bronze with a light, often even transparent patina, especially on small to medium sculptures that remained inside. This can only be done if the surface of the bronze is so perfect that nothing needs to be hidden. [7]

Visual inspection of various bronzes suggests that the patinas vary considerably more than Mounier's description. In Arp's Clamart studio, Ströh pointed out examples that had been cast and patinated by Rudier with variegated patinas of exceptional beauty. These consist of several thinly-applied layers of translucent finishes; by keeping the layers mottled, the hues of the layers can be discerned, notably a rich honey color and various reddish-ocher-copper tints mingled with medium browns. Other bronzes have more opaque patinas tending toward dark brown and almost black. According to Ströh, these patinas were used on Susse casts out of necessity, to hide the imperfections in the alloys and in the surface (which Arp wanted to be absolutely smooth to the touch). Some casts had such a large number of imperfections that the patina was made deliberately dark and thick. The posthumous casts produced at the Godard foundry also have a dark brown,

semi-opaque patina. None of the sculptures at the artist's studio had the mirror-like finishes seen in the works of Brancusi.

Whether the sculptures were to be kept indoors or installed outdoors determined the initial patination. Ströh stated that indoor sculptures received a lighter, more luminescent patina. The sculptures remaining in the garden at Clamart provide no immediate confirmation of this, as they have been subject to atmospheric pollution and almost no maintenance since the late 1970s [16, 17]. Their original appearances can be seen in color photographs taken and published during the last few years of the artist's life [18]: the sculptures then had a diverse range of patinas, including golden, medium brown, reddish to coppery brown, dark brown and possibly black.<sup>3</sup>

Both Ströh and Mounier stated that Arp sometimes placed sculptures in his garden to acquire a natural weathering, but it is uncertain how long they remained outdoors. In Ströh's words, 'Arp preferred his patinas to mature by letting them [be] in the garden, exposed to the elements' [8]. However, Mounier and Ströh both specified that Arp's intention and practice were to stabilize and protect the patinas. According to Ströh, Arp preferred a professional wax from Josef's (Ménilmontant, Paris) for outdoor works and 'Cire d'entretien liquide #9043' made by Bronzes Strassacker, Fonderie d'Art, for indoor bronzes. Sometimes Mounier applied a shoe polish (Kiwi brown or mahogany) [7, 9]. If the sculpture was to be installed outdoors, he coated the metal with oil. The application of these protectants would minimize the amount of natural 'aging' that would occur, especially if they were properly maintained. Ströh affirmed that once Arp had finalized a patina, he wished it to be maintained [9]. Apparently Arp liked some changes through weathering because it suited his fondness for the vagaries and surprises brought about by chance, but he did not intend the weathering to progress to a state of deterioration. Despite the severely weathered surfaces on the sculptures in Clamart, we could discern patinas that were reddish brown, dark brown, and green over dark brown.

Moreover, in response to a question about Arp's preferences regarding the maintenance and appearance of his early painted wood reliefs, Ströh stated categorically that he wanted them to be pristine. When dealers and collectors contacted him about paint losses and cracking in the wood reliefs, he would repaint them himself or advise the owners to have them repainted. Indeed, Ströh mentioned that one of the reasons Arp started making aluminum reliefs in his late years was to avoid problems of maintenance: the aluminum would not corrode or discolor. This would suggest that similarly pristine maintenance standards would apply to bronzes.

#### THE ROLE OF DEALERS AND COLLECTORS

Given the above information about the range of patinations used by Arp during his lifetime, how are we to explain the unpatinated, polished, mirror-like appearance of many of Arp's indoor works? This finish is found on sculptures in numerous collections, particularly in North America, including *Human Concretion* (SFMOMA) and *Alu with Claws* (HMSG).<sup>4</sup> The

<sup>3</sup> For example, a cast of the *Venus of Meudon* (1957) with a reddish/coppery-brown patina [18, no. 108, p. 130] differs markedly from the non-patinated, highly polished appearance of another cast formerly owned by HMSG.

<sup>4</sup> Jean Arp's bronzes, patinated or shiny, can be surveyed on the internet in European and American collections or in many major auction catalogues. Since entering HMSG's collection, *Alu with Claws* has periodically been polished to maintain its Brancusi-like finish, but the curator suspended that practice after seeing another cast in the Ca' Pesaro museum; that cast has a darkish patina (either the original chemical patina or through oxidation in the salt-air environment of Venice). For a color illustration of the patina of a bronze cast during the artist's lifetime at the Georges Rudier foundry in 1959, see [19].

association of this shiny appearance with Arp's aesthetic is so widespread that the *Dictionary of Twentieth-Century Art* declares: 'Arp is naturally compared to Brancusi. They are linked by their love of polished surfaces and sensuous curves' [20]. When asked about this, Mounier stated categorically:

Mr Arp hated shiny sculptures. He hated that. Because if it's shiny, you can't appreciate the forms. It creates reflections.<sup>5</sup>

Ströh concurred: 'Arp abhorred having sculptures that reflected the image of people looking at them' [7]. Yet some of these mirror-finish bronzes and brasses unquestionably date from the artist's lifetime. How did so many of Arp's sculptures come to have this appearance?

Ströh stated that the mirror finish was created by dealers in France and the United States who believed that their clients preferred the more 'modern' look of such surfaces. She identified two dealers, Edouard Loeb and Madeleine Chalette, as having altered or removed the artist's finish:

...sometimes [they] interfered by having the soft, silky patina removed with Brillo [a pad of steel mesh impregnated with cleanser used to scour pots and pans] and make the metal shine like a Brancusi [7]

However, Ströh believed that the Sidney Janis Gallery might not have removed the patinas on a regular basis for American clients. She wrote:

I'm not sure Sidney Janis did the same thing, because right now there are still several bronzes from his collection at the Galerie Beyeler exhibition in Basel (catalog Arp-Miro, summer 1999) — only one of them is outright shining (Idol, 2/3, cat. no. 7)...As you can see, all the others are covered by a light or dark patina. [7]

Moreover, the Sidney Janis Gallery's catalogues do not seem to include shiny bronzes (the gallery's archives are currently unavailable to researchers). Another important art dealer, Denise René, said that some of Arp's sculptures were sold without patination because they would be polished to a high shine anyway [21]. Removing a patina evenly would require effort, usually by trained workers, since progressively finer abrasives must be used. If so many of Arp's works have an untreated, shiny 'mirror finish', it is likely that some left the foundry in this condition. It would have taken much effort for dealers and collectors to remove the chemical patina [22]. However, it is unclear how often this happened, when and why it began, and whether the artist was aware of this practice.

Mounier believed that Arp saw every cast before it was sold:

Mr Arp wanted to see them first.... His general rule was to check all the sculptures which arrived from the foundry and look them over.<sup>6</sup>

However, a 1962 letter from Hagenbach-Arp to a gallery in Basel about the sale of a sculpture is very revealing:

...*Feuille sur cristal* cast #4/5 with a high polish, as your client seems to wish it, which we find atrocious and which Arp has not seen, he would get furious, but François [Arp's brother] wanted to fulfil your wish, and so I close my eyes, because I unfortunately know that other American collectors

themselves destroy our carefully created patinas with a 'mirror' type!...<sup>7</sup>

This brief comment indicates that Arp disapproved of the mirror-like finish and was kept in the dark when unpatinated sculptures were sold. Mounier was adamant that such transactions never occurred (proving only that he was not a party to them). It is possible that Arp remained unaware of such happenings, but someone responsible for the sculptures certainly was aware. For example, an unpatinated, highly polished cast of *Evocation of a Form* (medium-sized version) was exhibited in a French museum in 1960 as having been lent by the artist [24]. On the other hand, so many of Arp's works were being cast at several foundries in the late 1950s and early 1960s to meet a voracious market demand that it would have been easy for the artist himself to lose track and to delegate quality control to others. Normally, when a sculpture is cast in an edition, the sculptor inspects only the first one or two casts; good foundries such as Rudier and Susse usually could be relied on to finish the remaining three or four casts to virtually identical standards. In any event, the practice of selling highly polished, non-patinated casts probably continued after Arp's death.

#### CONCLUSION

Even in normal circumstances, the treatment of bronzes confronts conservators with difficult choices, because most treatment options irreversibly alter the object. Often, it is impossible to respect the artist's intentions while preserving the visual traces of the history of the object. The following is our assessment of key factors that might be taken into account regarding appropriate treatments for Arp's bronze and brass sculptures.

One factor is whether the sculpture was known to have been patinated under the artist's supervision and then suffered egregious harm, such as being stripped of its patination by a third party (as in the case of *Human Concretion* owned by SFMOMA), or having deteriorated through weathering and then been badly 'restored' (as in the case of *Evocation of a Form* owned by HMSG). Another factor is whether the sculpture ever had a chemical patina at all (like the *Feuille sur cristal* criticized but allowed by Hagenbach-Arp in the letter quoted above). In some cases, keeping the work as the original collector intended may be more important than the artist's wishes.

Another relevant criterion is whether adequate photographic documentation exists of a sculpture at an early date, prior to any changes. A conservator may be hesitant to undertake any irreversible treatment, such as repatination, in the absence of definite visual evidence of the artist's intended appearance for the work. However, given the general lack of such photo-documentation, comparison with other casts of the same sculpture may provide the guidance needed. On the broadest level, emulating the best patinas on sculptures known to have been approved by Arp himself may provide justification enough for repatination. The luminous, translucent type of patina and the variegated type of multiple thin layers found on good-quality bronzes in Arp's Clamart studio provide the best visual comparison possible. At some point in the future, the Arp *catalogue raisonné* archives (which have been closed to researchers for years) may provide more information.

#### ACKNOWLEDGEMENTS

Thanks to Michelle Barger, Jill Sterrett, Andrew Baxter, Rainer Hüben, Erika Koesler, Walburga Krupp, Greta Ströh, André Mounier.

<sup>5</sup> M. Arp avait horreur des sculptures brillantes. Il avait horreur de ça. Parce que si c'est brillant, on n'apprécie pas les volumes. Ça fait des reflets. [5]

<sup>6</sup> M. Arp a voulu les voir avant.... Normalement, son intention était de contrôler et de regarder toutes les sculptures qui arrivaient de la fonderie. [5]

<sup>7</sup> Our thanks to Rainer Hüben, curator, Fondazione Marguerite Arp, for this information [23]. The sculpture was cast at the Rudier foundry.

## REFERENCES

- 1 Gideon-Welcker, C., *Jean Arp*, Abrams, New York (1957).
- 2 Trier, E., *Jean Arp: Sculpture, His Last Ten Years*, Abrams, New York (1968).
- 3 Walburga Krupp, e-mail to Singer, 8 May 2001.
- 4 André Mounier, interviewed by Greta Ströh for SFMOMA, March 2000.
- 5 André Mounier, interviewed by Singer via telephone, 15 October 2001.
- 6 André Mounier, interviewed by Singer via telephone, 10 February 2002.
- 7 Greta Ströh, letter to Singer, 11 January 2000.
- 8 Greta Ströh, letter to Singer, 6 March 2000.
- 9 Greta Ströh, interviewed by Fletcher, 2 June 2002, including visual examination of sculptures (summarized in memo in HMSG files).
- 10 Charles Pineles, conversations and correspondence with Fletcher, August-September 1998.
- 11 Charles Pineles, conversation and correspondence with Singer, May and August 2000.
- 12 Walburga Krupp, interviewed by Singer, June 2001.
- 13 Charles Pineles via telephone to Fletcher, August 2003.
- 14 Ludovico de Cristofaro, director of the Fonderie Godard, letter to Fletcher, early 2003.
- 15 Hughes, R., and Rowe, M., *The Colouring, Bronzing and Patination of Metals: A Manual for the Fine Metal Worker and Sculptor*, Crafts Council, London (1983).
- 16 Scott, D., *Copper and Bronze in Art: Corrosion, Colorants and Conservation*, Getty Conservation Institute, Los Angeles (2002).
- 17 Weil, P.D., Gaspar, P., Gulbransen L., Linberg, R., and Zimmerman, D., 'The corrosive deterioration of outdoor bronze sculpture' in *Science and Technology in the Service of Conservation*, IIC, London (1982) 130-134.
- 18 Marchiori, G., *Arp*, Alfieri, Milan (1964) illustrations no. 30, 35, 93, 108 and 111 on pp 44, 50, 113, 128, 130.
- 19 *Impressionist and Modern Paintings, Drawings, and Sculpture, Part 2, Thursday, November 14*, Christie's, New York (1996) lot 220, p. 134.
- 20 *Dictionary of Twentieth-Century Art*, New York, Phaidon (1973) 15.
- 21 Denise René, conversation with Singer, 13 June 2001.
- 22 Andrew Baxter, sculpture conservator, conversation with Fletcher, November 2003.
- 23 Marguerite Hagenbach-Arp, letter to Paul Feigel, Galerie d'Art Moderne (Basel), 12 November 1962
- 24 *Cent sculpteurs de Daumier à nos jours*, Musée d'Art et d'Industrie, Saint-Etienne (1960) no. 70, illus.

## AUTHORS

Martha Singer received a BA from Bard College (1988) and an MA in art history and diploma in conservation from New York University, Conservation Center of the Institute of Fine Arts (1996). She interned in sculpture conservation at the Conservation Centre in Liverpool, England, and practised in Quebec City, Canada. The research described in this paper was conducted during a fellowship at SFMOMA (1999-2001). She is presently working at MoMA in New York City. Address: 155 Mitchell Street, West Orange, NJ 07052, USA. Email: martha\_singer@hotmail.com

Valerie Fletcher earned her MA and PhD degrees from Columbia University in 1978 and 1994, respectively. In 1978 she joined the research staff at the Hirshhorn Museum and Sculpture Garden, where she became curator of sculpture in 1984 and curator of modern sculptures and paintings in 2003. Her main area of expertise is European and American sculpture from the 1880s to the 1960s, with a supplementary interest in contemporary art and the arts of Asia and Latin America. Address: Hirshhorn Museum and Sculpture Garden, Smithsonian Institution, Independence Avenue at Seventh Street SW, Washington, DC 20560-0350, USA. Email: fletcherv@si.edu