

Visual Narratives

A History of Art at CERN

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ABSTRACT

This article examines the history of art inspired by the European Organization for Nuclear Research (CERN) in the twentieth and 21st centuries. The article argues that artists can show us radically different narratives about this space than those that are told by the mainstream media, by scientists and by CERN's own public relations structure.

Why have so many artists been inspired by the European Organization for Nuclear Research (CERN)? In this article, I examine the history of art inspired by CERN in the twentieth and 21st centuries. Artists provide narratives about what is often called the most important scientific experiment in the world that differ radically from the stories told by scientists and by the mainstream media. Through observations made onsite and art historical analysis, I focus here on the role of the artist at CERN, using a broad definition of “art” to include all forms of visual and conceptual creative work, including literature, murals, sculpture, architecture, music, TV and films. My intent is to break down the hierarchies found within the art world and to present CERN as a visual culture from many angles. I do not discuss the current art program Arts@CERN here, but instead present some background upon which to understand this new cluster of projects [1]. Toward the end of the article I include a discussion of art that deals in more critical themes connected to CERN, for comparison with the majority of works that celebrate the organization. These examples provide insight into the eclectic “many worlds” of CERN.

MEYRIN AND ITS RUINS

As European countries came together to plan and place CERN in the mid-1950s, they discussed various locations and settled on a site outside of Geneva, on the border of Switzerland and France [2]. Meyrin was a tiny agricultural

village until CERN moved in, bringing with it jobs, buildings and shops. Today many of the laboratory's workers live near or in the village, making it one of the most densely physicist-populated places in the world. However, before the scattered buildings and farms on the outskirts of Switzerland could become host to some of the world's leading scientists and engineers, the ancient ground had to be carefully documented. A team of archaeologists from the Rhone-Alps Regional Archaeology Service, together with the Large Hadron Collider (LHC) authorities, compiled surveys to assess the landscape for archaeological potential. Out of this excavation, two Roman columns were allocated to CERN. The organization described this in text accompanying a photo of the columns as “2000 year old technology transfer” and placed the columns in the central library to be “enjoyed by all” [3]. This is an early example of the organization's interest in composing its own visual and cultural narrative. As I show in this article, visual culture has been a crucial part of CERN's image ever since.

Above the Roman ruins, discussions about CERN's architecture were soon underway. By 1953 Rudolf Steiger was chosen as the architect; that same year he drew up the first preliminary site map of CERN [4]. He was greeted with both urgency and confusion. The budget set aside for aesthetics was minimal. What followed was a process of constant pressures on and from the architect, including discussions about funding and timescale [5]. Steiger lacked anyone at CERN who took an active interest in collaborating with the architect on design issues; this became particularly problematic, as Steiger and his firm were often left to make major decisions of scale and aesthetics on their own. Steiger was the first in a long line of outsiders who would find working with the ambitious international group of scientific men both exciting and challenging. As an architect, Steiger could never quite cross the “Two Cultures” divide of the 1950s—which was seen to pit art against science (but was in fact a more subtle argument), as famously described by C.P. Snow in the 1959 Rede Lectures [6]. Often dismissed as a simplification, Snow's observation that there is a fundamental divide between the arts and sciences is at times visible at CERN.

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Compared with the focus on the arts (and craft) in the design of other high-energy physics laboratories such as Robert Wilson's Fermilab in the United States, aesthetics was not a guiding mission for the young European organization. Whereas Wilson and other American counterparts could spend money on highly visual "grand frontier narratives" and could make time to support visiting artists, their postwar European counterpart had to ensure that their focus was all science, all the time. The infamous artist James Lee Byars's 1972 visit to CERN is a case in point. Self-styled as "the world's most famous unknown artist," Byars's life was an eccentric theatrical display, consisting of events and costume, and his visit to CERN was a part of that performance. Byars writes about his time at CERN in his characteristic complicated style based on abbreviations of language. He visited the laboratory for two weeks and was subsequently put on the cover of the internal magazine *CERN Courier* in September 1972, identified only as "a visitor to CERN." Byars became friends with several scientists, in particular the physicist John Bell, and immersed himself in the intellectual environment onsite. Dressed in gold sunglasses, gold tennis shoes and a Panama hat, he embodied the idea of the outsider. Although his time at CERN gave him inspiration for his art and was "perfect," Byars also recalls that it could have been "more perfect" had he been given an invitation to undertake any art projects onsite. Instead, he was largely left to wander around and snap self-portraits. Thus, only scattered notes and some photographs tell the tale of his visit. Byars called for "opportunities" for artists and for "serious consideration" with some "additional investment on [the lab's] part as to what type of relationship" could exist. He wrote that he was perhaps "asking a very great amount because, already, they have the whole world on their back, without having to consider these luxurious elements of metaphysics" [7]. Some of his suggestions can be seen in the contemporary art program Arts@CERN and the artist-in-residency scheme Collide@CERN today, in particular in their focus on creating conversations between artists and scientists.

SCULPTURES AND PERSONALITIES

CERN's culture, from the fetishization and celebration of large machines to the focus on computer graphics, is visual. The sculptures onsite also tell stories of power and history. The first artwork CERN visitors see is the late Swiss sculptor André Bucher's large abstract stone sculpture *Matiere* (1985) (Fig. 1) [8]. Placed in front of the visitors' entrance, it is a square metal form with its insides carved out in the form of a spiral. In this crucial display in the visitor's first glimpse of CERN, the sculpture provides an aesthetic welcome to the laboratory. The artist, Bucher, loved science and visited CERN several times. The object he created represents matter and antimatter, space and absence. Art at CERN, although not necessarily intended to be a great symbolic gesture, sometimes has the power to provide a meditative space beyond science. While a bit worn down and marked by seagulls, *Matiere* remains a rare piece of nontechnological and abstract art onsite.



Fig. 1. André Bucher, *Matiere*, 1985. (© André Bucher. Photo: Camilla Mørk Røstvik.)

CERN's more traditional sculptures exhibit likenesses of scientists Wolfgang Pauli, Cornelius Jan Bakker, Niels Bohr and Marie Curie, among others, and are (Fig. 2) placed around the site to memorialize their subjects. Pauli and Bakker's busts were unveiled in 1960. The latter was commissioned after Bakker was killed in an air crash during his time as CERN's director general, an event that was traumatic and chaotic for the laboratory. As a focal point for mourning, the object can provide a physical space for sharing memories among staff and visitors. Bohr's bust was given a place at CERN in 1963, commemorating the famous scientist.

The Marie Curie bust (Fig. 2), added in 1974, communicates a story of nationhood and taste. She is placed slightly off center in the foyer of the CERN visitors' center. Among the artworks portraying scientists, Curie is the first the visitor will see. She is placed in a corner and quite weathered. As one of the most famous scientists in the world, Curie communicates international links and success, although she did not have any real-life connection to CERN. She is also, to my best knowledge, the sole example of a woman scientist represented among any of the CERN art onsite. On my last visit our enthusiastic guide explained the presence of this piece by saying that "countries like to give CERN presents because they get something back, like jobs." The bust had been donated by the Polish Deputy Minister of Energy and Nuclear Power and presented to the director general of CERN on behalf of the physicists of Poland in 1974. Although Curie



Fig. 2. Unknown artist, *Bust of Marie Curie*, 1974. (Photo: Camilla Mørk Røstvik)



Fig. 3. Serge Moro, *Cosmic Song*, 1987. (© Serge Moro. Photo: Camilla Mørk Røstvik.)

died 20 years before CERN was founded, her sculpture ties the laboratory to a history of science.

The traditional busts dotted around CERN are reminders of the great personalities of science, as are the CERN streets named after scientists. They also tell stories of decay: Their significance has ebbed and flowed with new discoveries in high-energy physics. These weary sculptures speak of a wish to conserve the memories of a field in which everything can change with the discovery of a new particle. When a workspace seeks to describe, understand and see the very building blocks of the universe, the solid matter of a historical sculpture can bring insight into a lost past.

In the visitors' center (visited in 2014, but currently in a process of change and expansion), guests encounter the late Serge Moro's eclectic floor piece *Cosmic Song* (1987), which covers most of the floor of the foyer (Fig. 3) [9]. Comprising metal, light and abstract shapes, the artwork is impossible to ignore, and is also a cosmic ray detector embedded into the floor. It was made in collaboration with a CERN

workshop in the 1980s and lights up in a range of bright colors with the "constant rain of cosmic particles from outer space." Visitors and staff at CERN seem ever confused and entertained by the object. It remains a surprising centerpiece of the room where laypeople enter the laboratory, illustrating the complex and invisible science being carried out in other spaces of the laboratory. Making meaning at CERN is connected with seeking to understand minute worlds far beyond the human eye's capacity for observation. Moro's piece is in a sense the opposite: larger than life, colorful and bold. Artists who work with the concepts of high-energy physics often play with such contrasts. This can tell us something about the values ascribed to both spheres of activity. Meaning at CERN is tied up with a scientific worldview. Visiting artists are allowed space to explore concepts without the burden of having to discover something new. The freedom of the artist might be interpreted as lacking structure, but within the playful creativity of art there are also outlets for discovery.

Toward the main cafeteria, visitors next encounter Antony Gormley's 2008 sculpture *Feeling Material XXXIV*, an example of art inspired by an artist's visit to the laboratory. It was not displayed when first created and given to the organization in 2008, and was allegedly found later in a cardboard box in the archives. The sculpture was unveiled by the British ambassador to the Swiss Confederation, Sarah Gillett, and the event celebrated a larger re-decoration of the main building, which included a renovated gallery of portraits of CERN's former directors general. The gallery has become a social space for CERN staff and visitors [10], filled with cultural objects; the rediscovery of *Feeling Material XXXIV* in part catalyzed the renovation of the area. The aesthetics focus at CERN alludes to a

wish for spending more time with cultural objects, perhaps as opposed to or in combination with the scientific worldview often seen to dominate high-energy physicists' vision. Perceived to be ignored by scientists, cultural objects such as artworks come with narratives and histories created by a shared culture. The exploration of *Feeling Material XXXIV*'s subatomic structures would not necessarily tell us anything more than the work itself communicates.

MACHINE ART

CERN's powerful machines are celebrated for their beauty as well as their functionality. Particle physicist Carlo Rubbia stated:

Detectors are really the way to express yourself. To say somehow what you have in your guts. In the case of painters, it is painting. In the case of sculptors, it's sculpture. In the case of experimental physics, it's detectors. The detector is the image of the guy who designed it [11].



Fig. 4. Bubble chambers in one of the CERN courtyards in 2014. (Photo: Camilla Mørk Røstvik)

In addition to the Large Hadron Collider (LHC), the built landscape includes several artifacts of past discoveries at CERN. In the courtyard behind the visitors' center and main office buildings, trees and pathways are populated by what look like elevated spaceships (Fig. 4). These are bubble chambers, and they include Gargamelle, a particle detector of major importance during the initial years of high-energy physics in Europe. The CERN outreach website describing the historical significance of the bubble chamber also points out its visual impact, discussing both the machine and its aesthetically arresting output: "Even today, bubble chamber photographs provide the aesthetically most appealing visualization of sub nuclear collisions" [12]. Having both aesthetic and informational purposes, Gargamelle and the other machines also serve the function of filling in gaps, revealing something of those places that the visitor might not be able to visit, in particular CERN's underground areas, which are often closed. This suggests that the machines can be more successful at conveying meaning than either sculptures or people. Another piece goes even further.

In Josef Kristofoletti's large mural *The Atlas Detector*, painted around 2010, the detector below ground is literally brought to the surface (Color Plate C). Painted onto one of the large outside walls of the ATLAS experiment, the mural is situated in close proximity to the object it depicts. The bright, unrealistic colors highlight every facet of the detector, depicting the large machine as a bright and uplifting work

of art [13]. The mural has become a part of the route of the ATLAS visitor tours, delighting passersby and functioning as an illustration of the real machine when the belowground areas are closed off. Visitors snap photographs of the work on their phones, seeking a way to take some part of the mostly off-limits working environment of CERN home with them. An oddity, the mural was welcomed into the creative culture of ATLAS at its creation. Its colorful rendering of a subject some might find dull has made it much loved by CERN visitors. As part of the eclectic onsite art collection, it is one of the key works of art at CERN. The reproduction of CERN's machines in art and on visitors' cell phones alludes to a wish to fix a visual moment in a field of invisible currency. CERN is flooded with data, particles and interpretation; artworks are sometimes the only way things can actually be seen.

A lesser-known and less-visible work of art that also engages directly with the CERN environment is Gianni Motti's performance piece *Walking for Art's Sake* and the accompanying series of photographs *Looking for the Anti-Motti*, from 2005 [14]. Motti visited CERN in 2005 and sought to colonize it with art through a performance in which he "compared himself to a proton" [15]. Descending into the circular tunnel that would soon house the LHC, Motti walked the 27 km "at the average, unaccelerated pace of five kilometres per hour." Throughout his controversial career, which took off when he staged his own death and funeral in 1989, Motti has never been shy of flirting with authority [16]. Instead of simply

illustrating the seductive machines onsite, Motti occupied CERN and, in this fleeting settlement, succeeded in bringing the outsider inside these usually closed spaces.

This small selection of art that engages with CERN's machines gives examples of pieces that attract and sustain the public's interest in the organization. As a draw for tourists, CERN's old machines are exhibited to inform, delight and historicize this hypermodern setting. They also serve to mitigate disappointment for visitors who are not able to go underground at CERN to see the modern machinery at those times when it is closed. A common theme among all the artworks that engage in conversations with CERN's machines is the expression of the mysterious, scientific and complex worlds they inhabit. Visitors want to understand a machine—they want to be able to imagine it and know its scale. Through their experience of the art at CERN, they can.

CRITICAL ART

Not all artists seek to celebrate CERN. Following are some case studies chosen to give broad insight into the controversial topics surrounding CERN that artists working in many media have engaged with. It should be noted that critique of CERN is found mostly in science fiction and in the documentary film genre rather than in "high art." These artworks that critique CERN give insight into the meaning of CERN and, in a few instances, its particular problems.

Crime writers Dan Brown, Robert Harris and Russell T. Davies have been inspired by CERN and have written about its security issues in, respectively, the book *Angels and Demons* (2000), the book *The Fear Index* (2011) and the television series *Torchwood* (2008). *Angels and Demons*, later turned into a Hollywood blockbuster starring Tom Hanks, follows sexy Harvard symbologist Robert Langdon in his efforts to stop the secret society of the Illuminati from destroying Vatican City with antimatter stolen from CERN. Along the way, Langdon goes to Meyrin and meets equally sexy CERN scientist Vittoria, before they set out to stop the end of the world. In *The Fear Index*—also slated for the big screen—former CERN scientist and multibillionaire Alex Hoffman has developed a new form of artificial intelligence that tracks human emotions, making it possible for his machine to predict movements in the stock market. Hoffman's funds are based in Geneva, where he retired from working at CERN after making his first million dollars. In the *Torchwood* episode set at CERN, people are disappearing from the site because of side effects from the LHC's activation.

These three representations of CERN all focus on the dangers of black holes, terrorism and blackmail within a semifictional field of physics. The stories have been openly embraced as a great public relations opportunity for CERN. Head of communications at CERN, James Gillies, wrote about the works:

As one of the leading centers of scientific research, what does CERN do when it finds itself turning up in works of fiction like *Torchwood* or *Angels and Demons*? It has three choices: it can rail at the inaccuracy of the science in the fiction; it can bury its institutional head in a bucket of sand.

Or, it can seize the opportunity to get physics on the public agenda—and this is what CERN has chosen to do [17].

CERN is also involved in the staging of these narratives. On the release of the film *Angels and Demons*, CERN set up a website about the book and the film, with a focus on addressing the science that inspired it [18]. Functioning as a factual check-and-balance, the website explains—in a playful tone—the various ways the book misrepresents the science. CERN was also involved in the production of the *Torchwood* episode set at CERN: Representatives from CERN read the script to check for scientific accuracy. The episode was part of the celebration of the switch-on of the LHC in 2008 and involved in the organization from the scripts to interviews and from documentaries to music [19]. Robert Harris visited CERN to gain inspiration and knowledge about the site crucial to his plot in *The Fear Index*, and he is featured in the contemporary Arts@CERN gallery of projects online [20].

The fact that *Angels and Demons*, *The Fear Index* and *Torchwood* are fiction does not make CERN any less inclined to ensure these stories do not give the public wrong ideas, even if the organization itself had been active in reviewing the *Torchwood* script. In CERN's early years, the young organization spent considerable time reassuring the public that it was not a nuclear bomb-making machine or a military plot. Today the creative license of artists is as uncomfortable for CERN to deal with as the military question used to be, because artists such as Brown, Harris and Davies either invoke exactly those same security concerns or dream up new dangers. The organization's reactions to and involvement with *Angels and Demons*, *Torchwood* and *The Fear Index* are representative of their general attitude toward the importance of correct information and unease toward total creative freedom [21].

THREE FILMS

Recently, documentary and film have increasingly been used to engage critically with CERN. The directors and producers behind the short science-fiction film *Rift* provide an alternative view of CERN's work [22]. Written and directed by Andrew Huang in 2009, the short film centers on the controversial debate a year prior about the possible negative consequences of switching on the LHC. The narrative follows a CERN staff member through one day, spanning breakfast with his family, the announcement of the activation of the LHC and its fictitious cataclysmic consequences: A black hole forms, altering the space and time of the scientist's own life. As the world ends, the scientist sees a rift in the sky: a black hole. He is forced to relive his day and the disaster again and again as a loop of discovery and destruction. An original aspect of *Rift* is that it performs its message in an accessible form—it is available on YouTube for free—and thereby adopts the tropes of Hollywood to communicate to a vast audience. The film thrives on these tropes, but nevertheless remains an alternative narrative compared with most art inspired by CERN.

In the documentary series *CERN People* [23], CERN staff are portrayed wrestling with the uncertainty of their field and their lives after the discovery of the Higgs boson. Fol-

lowing young scientists during the year of the discovery, the documentary lets them voice their worries about competition. “I’m just so tired of looking for the Higgs,” exclaims one young, exhausted man. Another, in one of the CERN subgroups that did not see Higgs-like results in 2012, felt “hated by everybody” because of it. These young men speak about the failures of the CERN community to support one another. The film is a reminder that—beyond the champagne and discoveries—the laboratory is made up of people, not particles. Although not engaged in an outright critique of CERN, the documentary sheds some light on the value of failure and seeks to reveal life in the high-energy physics world to outsiders. Funded by the Science and Technologies Facilities Council of the United Kingdom and the Irish Film Board, the series is in English with no subtitles and is directed by London-based director Liz Mermin.

Finally, Bram Conjaerts’s documentary *The Circle* (2009) provides insight into what CERN’s neighbors think of its work. Tracing the 27 km of the LHC, Conjaerts interviewed locals who live aboveground its circular route. A range of people—from a priest to a farmer, young couples to retired CERN staff—share their thoughts. CERN scientists are present only through sparse audio. This was a choice Conjaerts was eager to employ in order to put the focus on CERN’s neighbors. The locals thus provide most of the commentary, ranging from proud enthusiasm to sadness and even fear. Perhaps no one knows CERN better than these people, the neighbors who deal with visitors, press, sound, radiation and bureaucracy. Unafraid of controversy, Conjaerts also interviewed prominent CERN-dissenter Otto Röessler, asking him too why this particular place has become so fascinating [24,25].

These three films—*Rift*, *CERN People* and *The Circle*—have not reached a large, mainstream audience. Their semicontroversial representations of CERN have, perhaps understandably, not been actively endorsed by the organization; thus the artists have not been able to share their work via the organization’s large public platform online, onsite and by association.

LES HORRIBLES CERNETTES

One of the most surprising critical artistic interpretations of CERN comes from a group of outsiders within the organization itself. The women-led parody pop group Les Horribles Cernettes was founded in 1990 and made up of “Cernoises” (a term for CERN women that originated at the CERN Women’s Club in the 1960s). In their lyrics, the perspectives of the group’s members explore their boundary position as women at CERN [26]. With the aggressive and ironic name Les Horribles Cernettes, the band’s ethos is on display; the band became CERN’s very own feminist conscience. Titles such as “Daddy’s Lab,” “My Sweetheart Is a Nobel Prize” and

“Mr. Higgs” play with the traditional pop themes of love and heartache, inserting scientists into stories of passion and personal affairs. Les Horribles Cernettes maintains a position as one of the few women-led art projects to come out of CERN. CERN has famously been historically dominated by men (although a more active diversity officer and the announcement of the organization’s first woman director general, Fabiola Gianotti, is changing this), and Les Horribles Cernettes sought to highlight the gender dynamics at the laboratory, exemplified in one of their songs, “Collider”:

*You never spend your nights with me
You don’t go out with other girls either
You only love your collider* [27]

Les Horribles Cernettes utilizes all the strategies of the pop-culture-oriented “third-wave” feminist movement; the group’s songs emerge as some of the most critically engaged artworks to come out of CERN, and one of a few to deal with social issues rather than metaphysics. Compared with other artists who engage with CERN, Les Horribles Cernettes knows the organization intimately, and members’ insights are based on actual observation of the human, as well as particle, entities that interact onsite. The group’s texts are additional reminders that CERN’s workspace is made up of people, not particles. Les Horribles Cernettes is much loved within the high-energy physics community, but has been largely ignored in writings about CERN’s culture and in CERN’s new art programs. As the only feminist cultural projects at CERN, Les Horribles Cernettes presents a world that is yet another manifestation of the complexity of this space.

CONCLUSION

The artists who have engaged with CERN throughout its history, from the architect Steiger to Les Horribles Cernettes, create a history that reveals more about CERN than what we think we know. Whether contributing to CERN’s mission or struggling against it, their work ensures that more than the CERN public relations version of history will survive. Nevertheless, even the most controversial artworks to explore CERN have not severely hurt the organization’s reputation. Rather, they create a rich tapestry of opinions that invite a vast array of characters and demographic groups to engage with the organization and its work. Controversy in art has always been essential, ensuring political and social conscience within hierarchies. It is the art that engages with CERN’s more controversial aspects that is most rewarding to watch, listen to and explore. It tells us more than CERN itself can: It collapses the superficial structures of the public relations narrative and explores the deep and varied “many worlds” of CERN.

Acknowledgments

Many thanks to CERN, the artists and the artists’ families for agreeing to the use of the photographs taken at the site.

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- 23 Liz Mermin, *CERN People*, video series posted to YouTube (last updated 16 September 2014): www.youtube.com/playlist?list=PLQTF-10WnPbbXTkPYQG8Ak6OPntnkhqGK (accessed 20 September 2018).
- 24 Otto Rössler is known for criticizing CERN and is dismissed by the organization and much of the wider scientific community as a conspiracy theorist. He disputes this view.
- 25 Bram Conjaerts, interview with Camilla Mørk Røstvik, 18 July 2014.
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Manuscript received 17 July 2015.

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