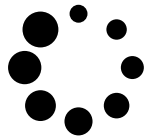


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by Élise Jouhannet

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Techniques and Poetics of the Submarine in Film: A Pretext for an Archeology of Immersion



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Abstract

Water, whether surface or depths, recurrently appears in cinema as a motif and a material. The great symbolic importance this recurrence of the aquatic bears within film leads to calling its different uses into question, especially when it comes to the subaquatic. Addressing the question of the submarine allows going beyond water as a simple surface, and thus to move towards a real habitability of water. Making a history of underwater cinema that includes precinematic devices such as the public aquariums of the late 19th century enables the identification of an aesthetic community, as well as that of a common desire to stage a totalizing perceptive experience of the aquatic element and, in that way, of the image materiality. In line with the various cinematic underwater devices conceived to that end during the 20th century, virtual reality, as a total experience generator, also resorts to the subaquatic as a pretext to immerse the user in the work of art. The recurring fascination for the subaquatic throughout the ages, even more so with the rise of new media, demonstrates how water is a central feature to better define and archeologize the concept of immersion.

Keywords

[Water](#)

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Taking the Plunge

The true eye of the earth is water.¹

In *Water and Dreams*, Gaston Bachelard tries to define this element that is so hard to catch due to its fluid nature. It takes so many shapes, colors and movements that describing water with human words seems pointless. Therefore, to talk about water, language and imagination must borrow its properties. To Bachelard, a true imagination is always in motion; like a fluid, it is always “without images,” or, at least, “beyond images.”² “The world is an immense Narcissus thinking itself”³ and to get to the essence of things, the true poet must dive through the surface of images, through the mirror, to find themselves in the deep blue and finally feel things from the inside, as they really are.

Water is described by Bachelard as an optical device. The aqueous eye “looks back at us”⁴ but, like a screen, it is also a surface creating moving images. According to Erkki Huhtamo, the first written mentions of the word “screen” in English can be found during the Renaissance period, describing objects supposed to protect from the heat of a fireplace. Those screens were made of translucent materials that allowed the viewer to perceive the movement of the flames. The flames, their physicality and their movement were as important as the screen itself because they create moving images, either abstract or figurative⁵.

1 G. Bachelard, *L'eau et les rêves, essai sur l'imagination de la matière* (Paris: José Corti, 1942): 45 [my translation].

2 G. Bachelard, *L'air et les songes, essai sur l'imagination du mouvement* (Paris: José Corti, 1943): 8 [my translation].

3 J. Gasquet, *Narcisse* (Paris: Librairie de France, 1931): 45 quoted by G. Bachelard in *L'eau et ses rêves*: 36.

4 G. Didi-Huberman, *Ce que nous voyons, ce qui nous regarde* (Paris: Minuit, 1992) [my translation].

5 E. Huhtamo, “Elements of Screenology: Toward an Archeology of the Screen,” *Navigationen-Zeitschrift für Medien-und Kulturwissenschaften* 6, no. 2 (2006): 35, <https://doi.org/10.25969/mediarep/1958>.

They gave depth and substance to what would otherwise be a simple surface.

Moving images and the screen are co-dependent. Together, they act as “a threshold, barrier, reflector, membrane, interface, or vehicle for light and sound, thus joining, separating, or reconfiguring the spaces in front of and behind it.”⁶ This definition can be extended to natural elements – like fire or water – allowing for an expanded reconsideration of the screen. Doing a “screenology”⁷ makes it possible to understand that the screen cannot be reduced to a technical apparatus but can be found everywhere, including in nature. This “environmentalization”⁸ of the screen is in accordance with the concept of *immersion* in art which advocates for a genuine habitability of the image by constantly challenging the limits of the screen.

Defining immersive art is not an easy task. It is also difficult to delineate historically. Duncan White, in his attempt to map expanded cinema (one of the various manifestations of what we consider immersive art), demonstrates the tentacular complexity of such a genealogy, the beginning of which he situates in the 19th century.⁹ Extending the definition of the screen and immersivity to nature highlights the porosity between the history of the arts and their apparatuses with the wider history of the relations between humans and ecosystems.

Natural elements must be reconsidered as the raw material of immersion and as fundamental immersive mediums, the various qualities of which inspired our modern devices. Therefore, water can be considered a “natural

6 A. Rogers, “Taking the Plunge: The New Immersive Screens,” in C. Buckley, R. Campe, F. Casetti, eds., *Screen Genealogies: from Optical Devices to Environmental Medium* (Amsterdam: Amsterdam University Press, 2019): 135-158, 140.

7 E. Huhtamo, “Elements of Screenology”: 32.

8 A. Pinotti, “Towards An-Iconology: The Image as Environment,” *Screen* 61, no. 4 (2020): 594-603, 594, <https://doi.org/10.1093/screen/hjaa060>.

9 D. White, “Mapping Expanded Cinema,” *Vertigo* 4, no. 2 (2009), https://www.closeupfilmcentre.com/vertigo_magazine/volume-4-issue-2-winter-spring-20091/expanded-cinema/, accessed February 28, 2023.

screen” that allows the viewer to fulfill the old fantasy of physically going through the screen. The poet described by Bachelard experiences the literal definition of “immersion” by crossing the surface of water. The etymology of immersion comes from Latin *mergere* which means “bury” or “dive in,”¹⁰ and is defined as “the act of putting somebody or something into a liquid, especially so that they, or it, are completely covered.”¹¹ As a concept and in its artistic applications, immersion is deeply linked to submarine liquidity, continuously reenacting this fundamental experience of being submerged in water.

Let’s describe this situation: underwater, beneath the surface, the diver is the only interface. Their body is changing environment and this change deeply affects their relationships to their surroundings. While the air on earth was an invisible substance in which they could breathe and move freely, in water the whole environment is visible, heavy, tactile, and unpredictable. At a certain depth, the submarine is a deadly environment. The amount of pressure on the body compresses the organism, giving a sensation described by divers as a sea “embrace,” “a true oceanic feeling.”¹²

Although this opposition between air and water is interesting phenomenologically, it is a bit binary. Indeed, even if invisible, if you concentrate enough on your breathing, you can feel there is no distance between your body and the air either. Also, the elements in our ecosystem are not so radically divided. To the hydrofeminist Astrida Neimanis, everything is made *by* and *of* water¹³ and this community of bodies questions the seemingly obvious

10 “Immerger,” Portail Lexical du Centre National de Ressources Textuelles et Lexicales, <https://www.cnrtl.fr/etymologie/immerger>, accessed July 25, 2023.

11 “Immerse,” Oxford Learner’s Dictionary, <https://www.oxfordlearnersdictionaries.com/definition/english/immerse>, accessed July 25, 2023.

12 M. Jue, *Wild Blue Media: Thinking Through Seawater* (Durham-London, Duke University Press, 2020): 65.

13 “Astrida Neimanis ‘We Are All at Sea’,” RIBOCA channel on YouTube, https://www.youtube.com/watch?v=Hp1wo1irkQA&ab_channel=RIBOCA, accessed July 31, 2023.

oppositions between natural elements. Nevertheless, by being historically situated, these binary oppositions are helpful in understanding how watery imaginary has been built in western culture and how, according to this imaginary, devices were made to confront rather than adapt to water.

Water and Screen Materiality

There is a great community of thoughts and images between water and immersive devices, and, more generally, between water and the visual arts. This collaboration can even be traced back to Antiquity. The Roman era provides one of the biggest testimonies: the *Mosaic of Maritime Life* (c. 100 BCE) decorating the floor of the Faun's House in Pompei, representing water as rather flat and still despite the extreme realism of some animals.

All the potentialities of the surface of watery elements were explored at the Renaissance, with painting experiments on the reflective qualities of transparent mediums such as mirror, glass and of course, water. Those experiments were theorized in the 18th century by Isaac Newton in *Opticks* (1704) which explores the reflection and refraction of light based on the various milieux it passes through, including water. The study of the surface of water is indeed indissociable from light. The laws edited by Newton must help to “neutraliz[e]” “the distorting power of a medium” and to avoid exploiting its joyful deformations.¹⁴ Therefore, the water typically represented in 18th century paintings appears domesticated (Fig. 1).

14 J. Crary, *Techniques of the Observer: On Vision and Modernity in the Nineteenth Century* (Cambridge MA: MIT Press, 1990): 64.



Fig. 1. Jean Simeon Chardin, *Water Glass and Jug*, ca. 1760, Pittsburgh, Carnegie Museum of Art.

The mastery of light is also the prerogative of cinema. However, contrary to 18th century painting which had a tendency to freeze water and insist on its reflective qualities, early cinema displays a fascination with its movements, especially if they appear to be out of control. In the Lumière's films, water is either discreet and playful as shown in the famous *Sprinkler Sprinkled* (1895) or, on the contrary, taking up the entire surface of the screen, merging the film roll and the sea in a single materiality like in *View no 11: The Sea* (1895). Later, in filmic history, Teresa Weenberg and Suzanne Nessim continue to play with the graphic properties and cinematic potentialities of the surface of water. In *Swimmer* (1978), the rectangular frame of the screen is doubled by the artificial frame of the pool as a way of controlling the volatility of elements, whether water or electronic snow. The editing alternates between wide shots of the water in which we observe the swimmer moving, and close-ups filled with splashes and focus on aquatic material often superimposed with openings of the swimmer's body presented in strange and affected poses.

The focus on the turquoise water highlights its luminous diversity and ever-changing aspect as a perfect metaphor for the materiality of the screen's images.¹⁵ Thanks to water, the video screen as well as the swimmer's body become less rigid, less impenetrable. By blurring oppositions and distances, water enables the transgression of boundaries, including that of the screen's/skin's limits. This way, the screen gets closer to a "natural medium,"¹⁶ a watery one, enhanced by the technological.

Through this use of water, Wennberg and Nes-sim (as well as the Lumière brothers) implemented what Jeffrey Wall called the "liquid intelligence" of photography¹⁷ which can also be applied to moving images as "liquid cinema"¹⁸ or "vidé-eau."¹⁹ It is the idea that photography and cinema take from water in their way of being and of representing reality, adopting liquid properties such as transparency, reflection, fluidity, expansion and permeability. To Jeff Wall, water is an "archaism," a "prehistoric image" of photography²⁰ and thus, of cinema. Therefore, to address water is indeed to consider this element as a historical medium, a naturally cinematic one that can be archaeologized, and which, through its liquidity, inspired a good number of images, whether moving or not.

Liquid Cinema: Filming Through the Aquarium

The history of cinema and water begins way earlier than cinema itself, in nature and other visual arts.

15 F. Parfait, *Vidéo: un art contemporain* (Paris: Éditions du Regard, 2001): 96-100.

16 H. Vaughan, "Toward a Natural Screen Philosophy," in C. Rawls, D. Neiva, S. S. Gouveia, eds., *Philosophy and Film* (London-New York: Routledge, 2019).

17 J. Wall, "Photographie et intelligence liquide," in *Essais et entretiens. 1984-2001* (Paris: École des Beaux-Arts, 2001): 175-178 [my translation].

18 P.-A. Michaud, "Aquarium ou le cinéma liquide," in F. Bovier, A. Mey, eds., *Cinéma exposé* (Lausanne: les Auteurs, 2014): 55-65 [my translation].

19 F. Parfait, *Vidéo: un art contemporain*: 118-120.

20 J. Wall, "Photographie et intelligence liquide": 176 [my translation].

Nevertheless, the aforementioned Lumière's first movies give water a central role. The passion of the two brothers for means of transportation encouraged them to film not only trains but also boats, whether battleships like the *Fürst-Bismarck* (*View no 785: Kiel: The Launch of the Fürst-Bismarck*, 1897) or smaller boats such as in the bucolic *Boat Leaving the Port* (1897). It is the same fascination for marine equipment that led French filmmaker Jean Vigo to make a barge sailing to Paris the main character of his movie *L'Atalante* (1933). If the landscapes passed by on the banks and reflected into water transform the *Atalante's* journey into a real *mise en abyme* of the movie's progress, the movie is interesting for its famous underwater sequences. During one of the key moments of the film, the captain of the boat throws himself overboard. This is followed by a 2-minutes underwater scene where he whirls around in front of the camera with the superimposed image of his lost wife in her wedding dress, floating in the depths of the river (Fig. 2).



Fig. 2. Jean Vigo, *L'Atalante*, 1934, still from film.

Subaquatic sequences being quite rare at the time, this scene is a technical achievement. The first underwater photograph was taken in 1856 by William Thompson. It is a wet collodion photograph that managed to capture the few beams of underwater light, creating a rather

abstract image of the ocean's depths. Another photograph, maybe more crucial, was taken in 1893 by Louis Boutan. This time the bottom of the sea appears clearly, giving the very first vision of an underwater world.²¹

Before putting a movie camera underwater, observations of the wonders of seascapes were made possible by aquariums. An engraving published in 1890 in the journal *La Nature*, shows the inventor of photochronography, Étienne-Jules Marey, taking shots of an aquarium that he installed in one of the walls of his house in Posillipo, facing the sea.²² Five to six years later,²³ one of the Lumière brothers, Louis, collaborator of the same journal, was making a film named *The Aquarium*, which describes a tiny aquarium filled with frogs and fishes, the iron frame of which almost perfectly matches a projection screen “like an image inside an image,” a medium inside a medium.²⁴

This technique of first filming the submarine through aquariums of varying sizes was then taken up by the filmmakers of the 1920s. Among the most famous is French filmmaker Jean Painlevé who not only wanted to scientifically document aquatic fauna, but also to create an artistic, playful and aesthetic object.²⁵ Painlevé was filming aquariums and his friend, Jean Vigo, borrowed his techniques to film underwater scenes through the portholes of a pool.²⁶ This is how the sequences of *L'Atalante* were made, as well as some of the scenes of the short film *Taris*,

21 A. Martinez, “‘A Souvenir of Undersea Landscapes’: Underwater Photography and the Limits of Photographic Visibility, 1890-1910,” *História Ciências Saúde-Manguinhos* 3 (2014): 2-3, <https://doi.org/10.1590/S0104-59702014000300013>.

22 É.-J. Marey, “Locomotion in Water As Studied through Photochronography,” *La Nature* (1890) quoted in H.R. Shell, “Things Under Water: Etienne-Jules Marey’s Aquarium Laboratory and Cinema’s Assembly,” in B. Latour, P. Weibel, eds., *Dingpolitik: Atmospheres of Democracy* (Cambridge MA: MIT Press, 2005): 327-331.

23 We have found two different dates in G. Le Gall, *Aquariorama: histoire d’un dispositif* (Paris: Mimesis, 2022): 301 and P.-A. Michaud, “Aquarium ou le cinéma liquide”: 59, 1895 for the first and 1896 for the second.

24 P.-A. Michaud, “Aquarium ou le cinéma liquide”: 58-59.

25 P. Roubaix, “Le milieu subaquatique et le cinéma scientifique français,” in A. Martinet, ed., *Le cinéma et la science* (Paris: CNRS, 1994): 150.

26 L. Vigo, *Jean Vigo, une vie engagée dans le cinéma* (Paris: Cahiers du cinéma, 2002): 89.

roi de l'eau, which observes the underwater movements of swimming champion Jean Taris, three years earlier.

The French cinema of the 1920s is closely related to water. Due to economic constraint and a willingness to work independently from official studios, French filmmakers were drawn to film French landscapes, including coastlines. The constraint induced creativity, birthing a French fascination for water and seascapes, turning them into a frequent protagonist of the films of this period.²⁷ The experimentations of Vigo and Painlevé are very relevant to understand the specific technicity surrounding the aquatic medium, which led to technical and aesthetic innovations inspired by the material qualities of water. The use of superimposition, fluid transitions, slow motion, combined with the surrealism and astonishment produced by underwater images all lead to a greater sense of immersion. Indeed, the use of water and liquid images narrows the frontier between viewer and screen. The closer the filmic apparatus gets to water, the greater the sense of immersiveness.

Cinematic Immersion in the 19th Century

Shared history between aquariums and cinema does not begin with Marey and Louis Lumière. By shooting a fish tank they were not only making scientific observations on the movement of undersea fauna, but also following a great tradition of displaying the submarine by means of aquariums, which began in the 19th century. With their camera, Marey and after him Louis Lumière, Painlevé and Vigo, are in line with a way of staging a “desire to see”²⁸

27 See on this subject: E. Thouvenel, *Les images de l'eau dans le cinéma français des années 20* (Rennes: Presses Universitaires de Rennes, 2010).

28 G. Le Gall, *Aquariorama*:15.

the marine depths, usually inaccessible to the human eye, and this “through”²⁹ the aquarium glass.

It was Marey’s visit to Naples’ aquarium, which remains one of Europe’s oldest aquariums today, that first gave him the idea to install one at home.³⁰ Conceived in 1872, it was greatly inspired by the first monumental aquarium made for the Paris Jardin d’Acclimatation in 1861: it consists in a single room equipped with large aquariums along the walls, which are punctuated with columns differentiating the many tanks that operate like a “painting gallery”³¹ in motion. The Paris aquarium (Fig. 3) is considerably larger. The aquarium’s entire architecture can be understood as a large “optical machine”³² fully engineered to bring light inside the tanks primarily via zenithal openings. Light has a crucial role to play since it can be used to create different ambiances and illuminate marine creatures in the most optimal way.³³ The necessity of light in the functioning of aquariums also compares to cinema. The many windows created by the architecture constitute real glass “screens”³⁴ lit from the inside, offering a frame to moving images staged to give a certain vision, a fantasy, of the bottom of the sea. Meanwhile, motion within the aquariums is reinforced by the outer movements of the visitors who watch images unfold like film reels as they walk alongside the tanks. Additionally, similarly to movie theaters, the building is submerged in obscurity to emphasize the liquid images.

A few years later during the 1867 Paris World’s Fair, two aquariums were built, one marine and the other for freshwater, both designed like underwater caves. The

29 Ibid.: 38.

30 H.R. Shell, “Things Under Water”: 328.

31 G. Le Gall, “Dioramas aquatiques: Théophile Gauthier visite l’aquarium du jardin d’Acclimatation,” *Culture & Musées* 32 (2018): 85, <https://doi.org/10.4000/culturemusees.2370>.

32 C. Lorenzi, “L’engouement pour l’aquarium en France (1855-1870),” *Sociétés & Représentations* 2, no. 28 (2009): 263, <https://doi.org/10.3917/sr.028.0253>.

33 G. Le Gall, *Aquariorama*: 68-62.

34 G. Le Gall, “Dioramas aquatiques”: 99.

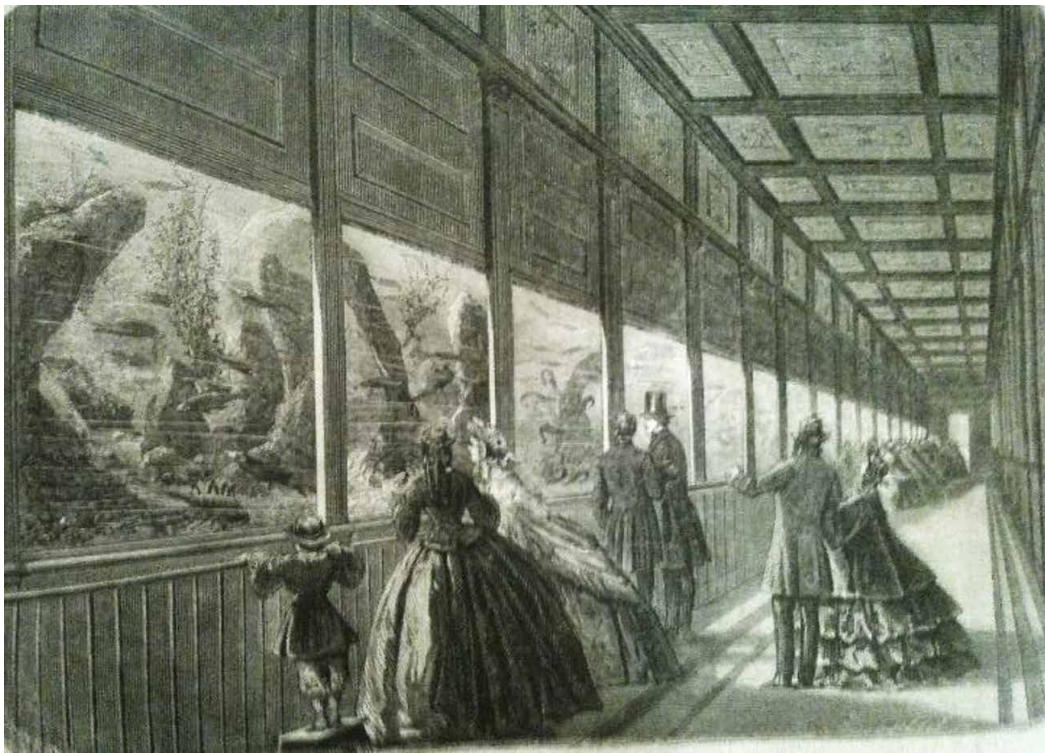


Fig. 3. Bertrand, *The aquarium of the Jardin d'Acclimatation*, in "Le Monde Illustré," January 10, 1863.

marine aquarium is particularly interesting because it featured reservoirs not only on the sides, but also on the ceiling of the cave, which gave visitors the vivid impression of being both under the earth and under the sea, a sensation strengthened by the *mise en scène* of the space bathed in silent obscurity and covered by stalactites such as those found in coast caves. The idea was to experience new physical sensations by immersing the body in a peculiar environment, to disconnect visitors from their usual reality and have them *dive in* an environment they would otherwise never have access to.³⁵ Not only was this aquarium a cinematic experience, a moving light image experiment, it was also in itself an installation in the most contemporary meaning of the word: an all-encompassing environment.

Although less known, this last aquarium is the one that inspired Jules Verne in his description of the *Nautilus* in *Twenty Leagues under the Sea*, which was published a few years after the World's Fair (1869-70).³⁶ It is also this

35 C. Lorenzi, "L'engouement pour l'aquarium en France": 261-264.

36 M.-P. Demarck, D. Frémond, eds., *Jules Verne, le roman de la mer* (Paris: Seuil, 2005): 82.

very book that inspired American filmmaker John Ernest Williamson to make the first underwater film in 1914.

Inventing the Sea: Underwater Films

Williamson's film is interesting from many perspectives. From a media archeology viewpoint, the apparatus he invented is highly symptomatic of the constraints inherent to the submarine milieu (Fig. 4).

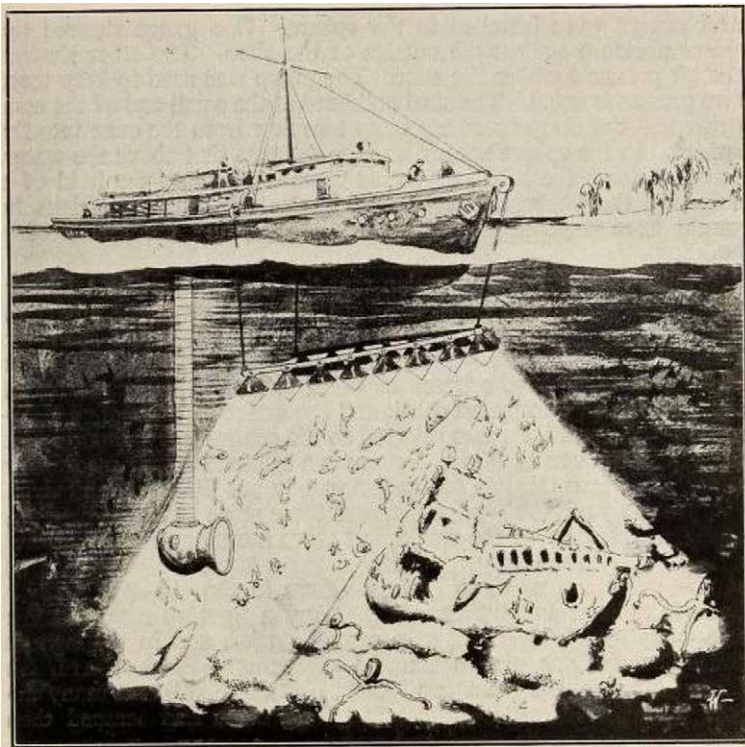


Fig. 4. *How Submarine Movies are Made*, in "Transactions of the Society of Motion Pictures Engineers," New York: Society of Motion Pictures Engineers 153 (1921), Washington DC, Library of Congress.

Thirty Leagues under the Sea is a silent short film showing sights of the Bahamas and its marine fauna, at first fished and brought to the surface by force, then staged in a 5-minutes underwater scene. The Bahamas was chosen for its clear transparent waters which compensated for the lack of undersea light, one of the major issues with underwater filming.³⁷ To counter the obscurity of the depths, Williamson conceived a complementary lighting system using a large spotlight hanging from the ship that

37 B. Taves, "A Pioneer Under the Sea," *Library of Congress Information Bulletin* 55, no. 15 (1996), <https://www.loc.gov/loc/lcib/9615/sea.html>, accessed by 06/01/2022.

would illuminate the sub-seascape. Since analog cameras could not be used underwater, Williamson used a folding tube underneath the boat, leading to a “photosphere,” a spheric observational chamber equipped with a cone that resembles the objective of a camera,³⁸ shaped like a porthole which circles the lens. That way, Williamson would be able, from the boat, to go down the tube into the photosphere, providing a dry space to film various scenes of marine life. Williamson’s apparatus shows that diving underwater requires adjustments, devices and shapes that differ from preexisting ones used on land. In the context of a “surrounding medium”³⁹ such as the aquatic, spheres, globes, and bubbles are better adapted to immersion than for instance a cube, however easier to manufacture. Indeed, just as in space, roundness is suited to withstanding underwater pressure.⁴⁰ That is why underwater exploration equipment will systematically be spherical following Williamson.

The story of underwater exploration is also a story of cinema, all underwater devices also being used to capture moving images. One thinks for example of the *Bathysphere* (Fig. 5) designed by Otis Barton and William Beebe in 1930, a sphere equipped with three portholes and connected to a ship by a cable that allows deeper and deeper descent into the depths of the ocean, sometimes with a camera. Like the aquariums, the photosphere and the *Bathysphere* allow the immersion of their inhabitants at the very heart of the sea and circularize the relationship to the environment. More than simple observatories, they allow the whole body to come as close as possible to the substance of water and, therefore, as close as possible to

38 J.E. Williamson, C. L. Gregory, “Submarine Photography,” *Transactions of the Society of Motion Pictures Engineers* (New York: Society of Motion Pictures Engineers, 1921): 153.

39 A. Somaini, “The Atmospheric Screen: Turner, Hazlitt, Ruskin,” in C. Buckley, R. Campe, F. Casetti, eds., *Screen Genealogies*: 169.

40 J. Brugidou, F. Clouette, “Habiter les abysses? D’une architecture du confinement à la co-création de mondes,” *Techniques & Culture* 75 (2021): 6, <https://doi.org/10.4000/tc.15690>.

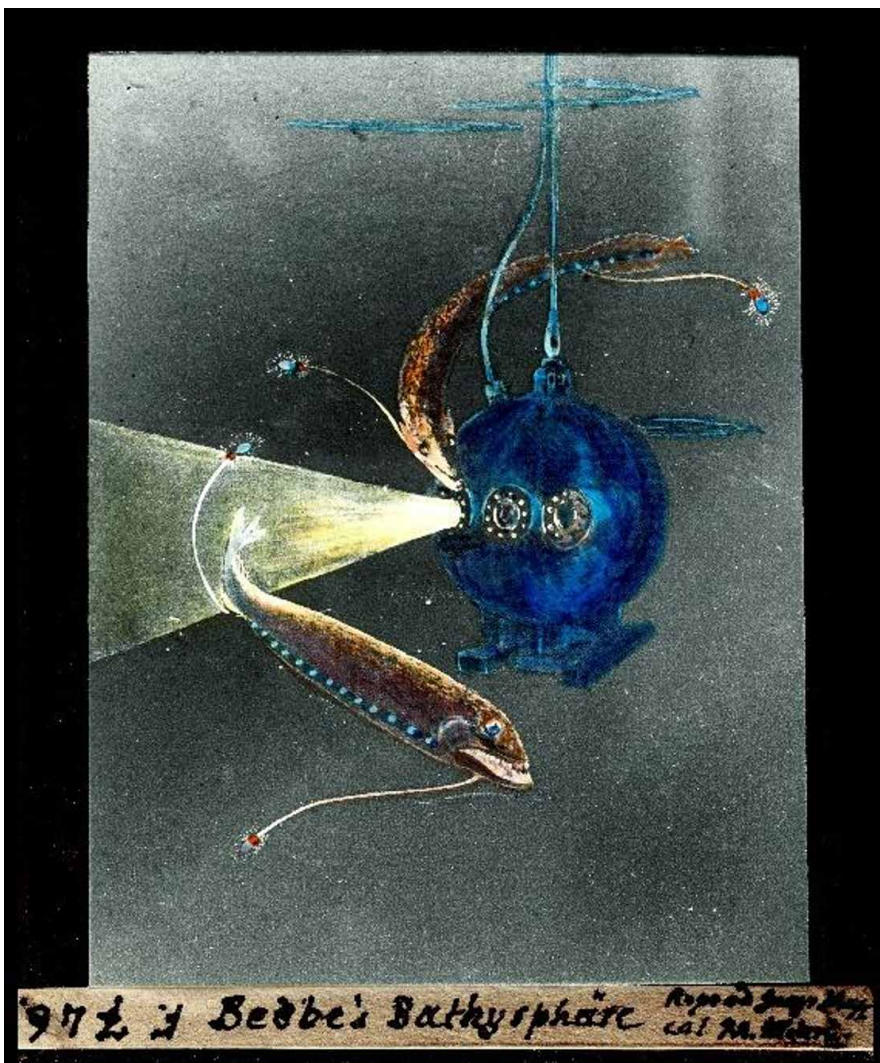


Fig. 5. Leo Wehrli, Margrit Wehrli-Frey, *Beebe's Bathysphere* in "National Geographic Magazine," 1934. © ETH Library Zürich, Image Archive.

the image, thus enabling the body "to navigate in a three-dimensional environment."⁴¹

However, if the goal – especially when the camera is carried by scientific missions – is objectivity, recorded visions are often influenced by the ideologies of their time. Williamson's movie is shaped by Western imperialism which goes along with an underwater imaginary inherited from the aquariums of the 19th century. The ocean, like other territories, is considered a space to conquer, enslave, civilize, along with its inhabitants, a space without time, borders or history.⁴² The underwater scenes in *Thirty Leagues under the Sea* depict the seabed as a place of danger and fascination, a danger Williamson creates himself by hanging a

41 P. Roubaix, "Le milieu subaquatique et le cinéma scientifique français": 162-163 [my translation].

42 N. Starosielski, "Beyond Fluidity: A Cultural History of Cinema Underwater," in S. Rust, S. Monani, S. Cubitt, eds., *Ecocinema Theory and Practice* (London-New York: Routledge, 2013): 149.

dead horse face down in the water in the hope of attracting a shark that he will then kill with his bare hands. Williamson did not want to simply document underwater fauna and flora, he also sought to present the fight of the western man against wild nature and its inhabitants.⁴³

This colonial and imperialist imaginary continues in the second part of the 20th century, like in the famous movies of Jacques-Yves Cousteau.⁴⁴ Therefore, even if shapes are changing within the submarine, few films revolutionize their content. The submarine apparatuses also carry technical and ideological confrontation to the environment they seek to explore, a reinvention of the submarine rather than a true understanding of its beings and functioning.

Virtual Underwater Ecologies

Rethinking the materiality of the screen, of images and of relationships to the environment through the prism of water aims to blur the distance between the viewer's body and what is being experienced; the further we progress in the history of the link between images and water, the more that distance shrinks to the point of (almost) disappearing. Immersive art in its most contemporary aspects such as virtual reality, also rhymes with the absence of distance between oneself and one's environment.⁴⁵ VR makes it possible to reproduce the real experience of a body in a given environment as faithfully as possible and thus to go beyond an ordinary experience, making it feel and become something else.⁴⁶ VR is one of the most accomplished versions of immersion thanks to its device, often reduced to a *Head Mounted Display* (HMD) which makes it possible

43 Ibid.: 154-155.

44 See *ibid.* for a complete analysis.

45 However, the absence of distance is one of the major criticisms formulated against virtual reality by O. Grau in *Virtual Art: From Illusion to Immersion* (Cambridge MA: MIT Press, 2003): 202-203.

46 A. Rogers, "Taking the Plunge": 152-154.

to simultaneously contain and open perception towards another space.

Water, particularly in its submarine application, is very attractive to virtual reality as an unframed, haptic manifestation of a milieu that can be experienced by the whole body, which corresponds to virtual reality's search for total perception. The fluidity of water is commensurate with the fluidity of virtual images in being easily transgressed, crossed as well as expanded and distorted. Virtual environments are in a way liquid, a liquid that cannot be touched, a missing materiality. Even if virtual perception is a totalizing experience, it is also built in relation to a fundamental *absence*. What I aim to touch in the virtual world escapes me instantly.

VR is a reality, effectively perceived, but it is also a virtual one, a program, a simulation. Incidentally, VR has no obligation to correspond to physical reality, above all when it is used for an artistic purpose. For Ariel Rogers, VR does not need to be understood through the dualism of illusion and truth. VR does not intend to “displac[e] the material world” but to “penetrate its surface.”⁴⁷ VR is therefore built on an absence, a lack of the physical world, but it is also a *more-than-the-world*, exceeding and renewing its perception.

The subaquatic experience is similar to that of VR. Being underwater enables an increased perception of some of the senses and disrupt the functioning of others. What it gains in touch, it loses in sight, hearing and smell. The diver's body is already an augmented body, trained to breathe, see and move underwater. Because everything that is perceived from under the sea dissolves in the liquid mass and the darkness of the depths, it constitutes a perfect space for the projections of the imagination. Symbolically, the subaquatic therefore exceeds the common terrestrial

47 Ibid.: 151.

world because it functions according to different laws and principles, which authorize the creation of new possibilities and fantasies.⁴⁸ VR and subaquatic environments are a world in the world, a temporary accessible bubble for humans to feel their bodies and surroundings otherwise.

One of the most renowned works in this regard is *Osmose* by Char Davies (1995). The “immersive virtual space”⁴⁹ created by Char Davies is a reality in which the frontiers between various elements can be crossed smoothly, almost without noticing. One passes without hindrance from the clouds to the darkness of the forest, to the depth of a pond or even under the ground. All these elements are rendered in a transparent and luminous way, bypassing the surfaces and enabling the sight of the interior of things. Virtual reality makes it possible to “penetrate” the surface of reality, to highlight areas of the world beyond our awareness.⁵⁰ Char Davies does not want to create a reality from scratch but rather to reveal, increase, sublimate and transform our sensorium by means of the virtual.⁵¹

To achieve this end, Char Davies drew on her own experience as a scuba diver, which inspired her to create *Osmose*.⁵² I have not been able to find out if the first images of the demonstration of *Osmose* representing the ocean floor with a diver swimming were part of the immersive experience, or if they were added after the video was edited.⁵³ Nevertheless, it is clear that for Davies, the point is to *dive* into *Osmose* and let oneself be carried by its elements. This way, Davies not only uses water as a motif in VR but as a way of experiencing the artwork. The experience is even more similar to scuba diving as the

48 M. Jue, *Wild Blue Media: Thinking Through Seawater*: 78.

49 C. Davies, “Landscape, Earth, Body, Being, Space and Time in the Immersive Virtual Environments *Osmose* and *Ephemere*,” in J. Mallory, ed., *Women, Art, and Technology* (Cambridge MA: MIT Press, 2003): 327.

50 A. Rogers, “Taking the Plunge”: 151.

51 C. Davies, “Landscape, Earth, Body”: 322.

52 O. Grau, *Virtual Art*: 198.

53 See: <http://www.immersence.com/osmose/>, accessed July 25, 2023.

“immersant” floats through *Osmose* thanks to their breathing, which is recorded by sensors located in the vest on their torso. Breath removes any distance between the immersant and the surrounding reality, connecting them more deeply physically.⁵⁴ The whole body of the participant is thus involved in the process as are most of their senses, as each virtual zone crossed has a soundscape which is diffused in stereo in the HMD.

Immersion in *Osmose* lasts about fifty minutes. It is a complete and contemplative experience that intends to redefine our relationship with natural elements and technology. Char Davies is in line with the history of underwater cinema. She inherits from its technical and aesthetic achievements, but transcends them by pushing their last limit, the screen itself. By choosing to embody the experience of water, to adapt to rather than confront the surroundings, she challenges the western submarine paradigm. It is a fundamental work for many other virtual⁵⁵ (and non virtual) pieces that also investigate the relation between immersion and the aquatic element, an element that is no longer seen as a single motif, but as a genuine way of being and of experiencing an artwork.

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54 C. Grammatikopoulou, “Breathing Art: Art as an Encompassing and Participatory Experience,” in C. Van den Akker, S. Legêne, eds., *Museums in a Digital Culture* (Amsterdam: Amsterdam University Press, 2016): 48.

55 For an interesting selection of virtual works involving water, see: <https://www.radiancevr.co/categories/water/>, accessed July 25, 2023.

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