Marco Poloni
The Majorana Experiment, 2010

The Majorana Experiment fans out from an account of Ettore Majorana, a genius of Italian physics who disappeared at sea in 1938 under mysterious circumstances.
A secret history of sorts, Majorana's journey is a shadow line that traces the covert story of the creation of nuclear weapons. Majorana's story became a myth after the publication in 1975 of Leonardo Sciascia's novel *The Vanishing of Majorana*. The polemic generated by this publication spurred an impressive number of speculative theories, some more plausible than others, about the causes that pushed Majorana to cover up his tracks. One theory gained much currency over the years: Majorana orchestrated his own disappearance because of his anticipation of the deadly outcome of the discovery of nuclear fission.
The theory advanced in this constellation of works is speculative. Majorana operated a 'quantum disappearance' on himself: a passage from an embodied existence to a multiplication of 'eigenstates,' which can synchronically co-exist in different places, transcending the laws that link time and space. This abstract idea offers a vast territory for experimentation. It endows classical narrative with an open structure in which Majorana's uncertain journey becomes a time capsule, a container for narratives that subsequent historicizations can potentially bestow with meaning, and which, in the present context of nuclear weapons proliferation remains surprisingly relevant.

This constellation of works is comprised of 8 elements:
– *Majorana Eigenstates*, 2008
– *The Sea Rejected Me*, 2008
– *Domus Galilaeana, Majorana Fund, File 13-0122*, 2009
– *The Sea of Majorana*, 2008
– *Persian Gulf Incubator*, 2008
– *Prof. Otto Hahn's Work Table for Neutron Bombardment of Uranium, 1938, Deutsches Museum Setup, München*, 2010
– *a very wobble unstable drop*, 2010
– *Black Hole*, 2010

All installation views: Kunsthalle Bern, 2010, © Dominique Uldry 2010

Film still

In the film *Majorana Eigenstates*, an actor who interprets Majorana – and who strangely resembles him – synchronically lives in two places: a hotel room in Napoli, where the real Ettore Majorana lived before vanishing at sea, and the cabin of a ship. The use of two cameras with a parallax gap generates a split filmic space.

Continuous film projection with sound, HD video, 1:2.35, colour, stereo, dimensions variable, loop of 43 min 52 sec

Film still

The film *The Sea Rejected Me* was found at a dealer of used cinema equipment in Tehran. The deteriorated film shows a man on the deck of a ship. The man's resemblance to photographs of the physicist is striking. Like him, according to biographical information, he plays chess and writes on what appears to be a cigarette pack.

Continuous 16 mm film projection installation, 1:1.33, colour print from original B&W film, silent, loop of 3 min 37 sec

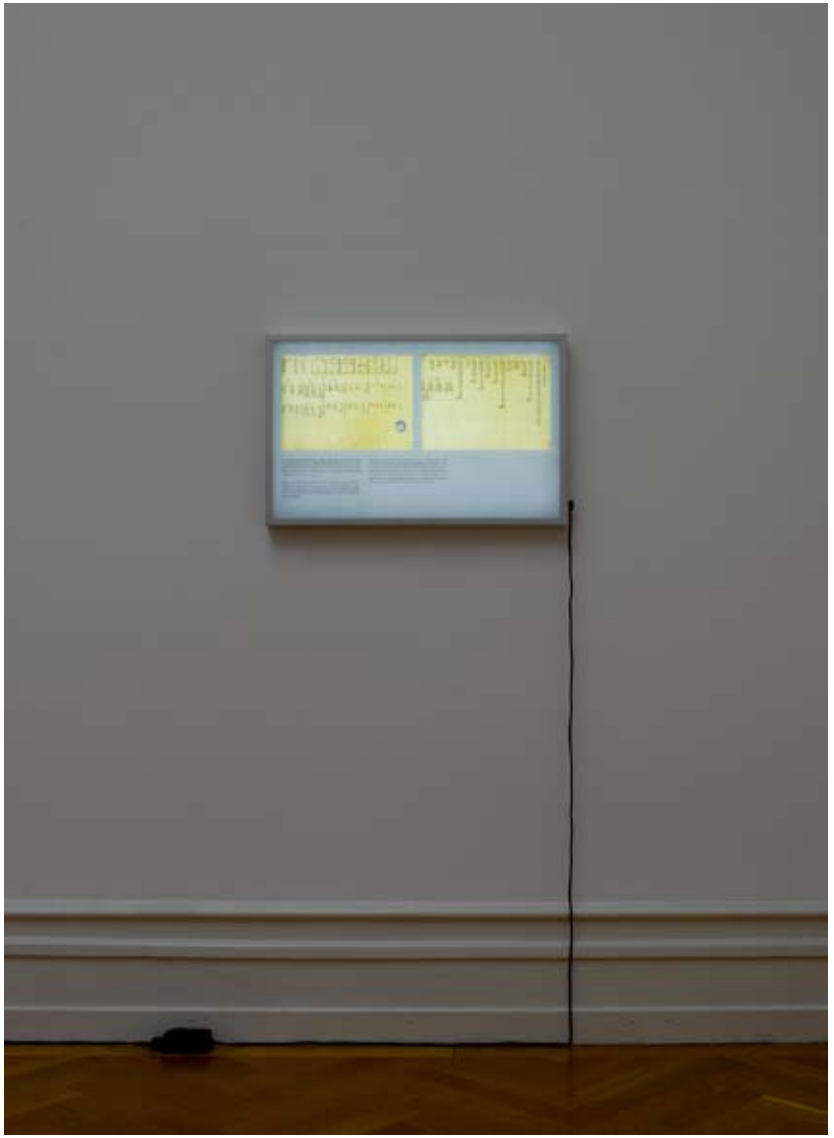
Detail

On a long stopover in Tehran on my way to Europe, I strolled down Sepahbod Gharani Avenue and found a small dealer of used film equipment. Inside, the shop was messy, cluttered with cinema gear and props. The manager was playing cards on his computer. He let me look through the jumble of camera spares. There I found a deteriorated film can. There was indecipherable text on it but the name of a ship was legible: "M/N Oceania." The can contained a 16 mm film. The film was badly damaged. There were traces of salt and of dried up algae on the film's surface, as if it had been lying in sea water. I bought the film for two thousand tomans.

It is possible that the man in the film is Ettore Majorana. A close look at the film reveals a strong resemblance to photographs of the physicist. Like Majorana, he plays chess and writes on what appears to be a cigarette pack.

Ettore Majorana was possibly the most brilliant Italian physicist of the 20th century. He worked with Enrico Fermi and Werner Heisenberg before the two scientists were asked to lead the research on the American and German atomic bombs, respectively. Majorana disappeared at sea in 1938, on a boat journey from Palermo to Napoli. His body was never found. His vanishing prompted a series of unresolved speculations. One theory gained much currency over the years: Majorana orchestrated his own disappearance because of his anticipation of the deadly outcome of the discovery of nuclear fission.

In the sixties however, a number of newspaper articles reported the names of six persons who attested to Majorana's presence in Argentina. It is a fact that in the thirties the "Oceania," together with her twin sister "Neptunia," sailed the South Atlantic route from Napoli to Buenos Aires. The two ships were later sunk by the English submarine "Upholder," in 1941, while carrying troops from Taranto to Tripoli.



The light box *Domus Galilaeana, Majorana Fund, File 13-0122*, 2009, displays a document that contains a series of tables and numbers handwritten by Majorana in minute characters. The data describe the size and armament of military ships before World War II. At the time of his disappearance, Majorana was convinced of the imminence of a world conflict and believed that the war would be won or lost at sea.

LED light box, 429 x 692 x 50 mm

Ettore Majorana was possibly the most brilliant Italian physicist of the 20th century. He worked with Enrico Fermi and Werner Heisenberg before the two scientists were asked to lead the research on the American and German atomic bombs, respectively. Majorana disappeared at sea in 1938, at the age of 32, on a boat journey from Palermo to Napoli. His body was never found.

Majorana's scientific papers are kept at the Domus Galileana, a scientific library in Pisa, next to notes left by Fermi and manuscripts by Galileo. Majorana's estate includes 23 notebooks and a multitude of lecture notes, files, thesis papers, scholarly articles, and hundreds of loose sheets filled with pages of calculations, handwritten in minute characters.

Oddly, two of these sheets – dated between 1933 and 1937 – contain a series of tables and numbers that describe military ships before World War II. The tables list, in turn, the fleets of the great world powers: England, America, Japan, France, Italy and Germany. The numbers appear to represent the ships' size and armaments. The lists are incomplete, as only battleships with a displacement of 10,000 tons or greater are listed. At the time of his disappearance, Majorana was convinced of the imminence of a world conflict and believed that the war would be won or lost at sea.

Detail

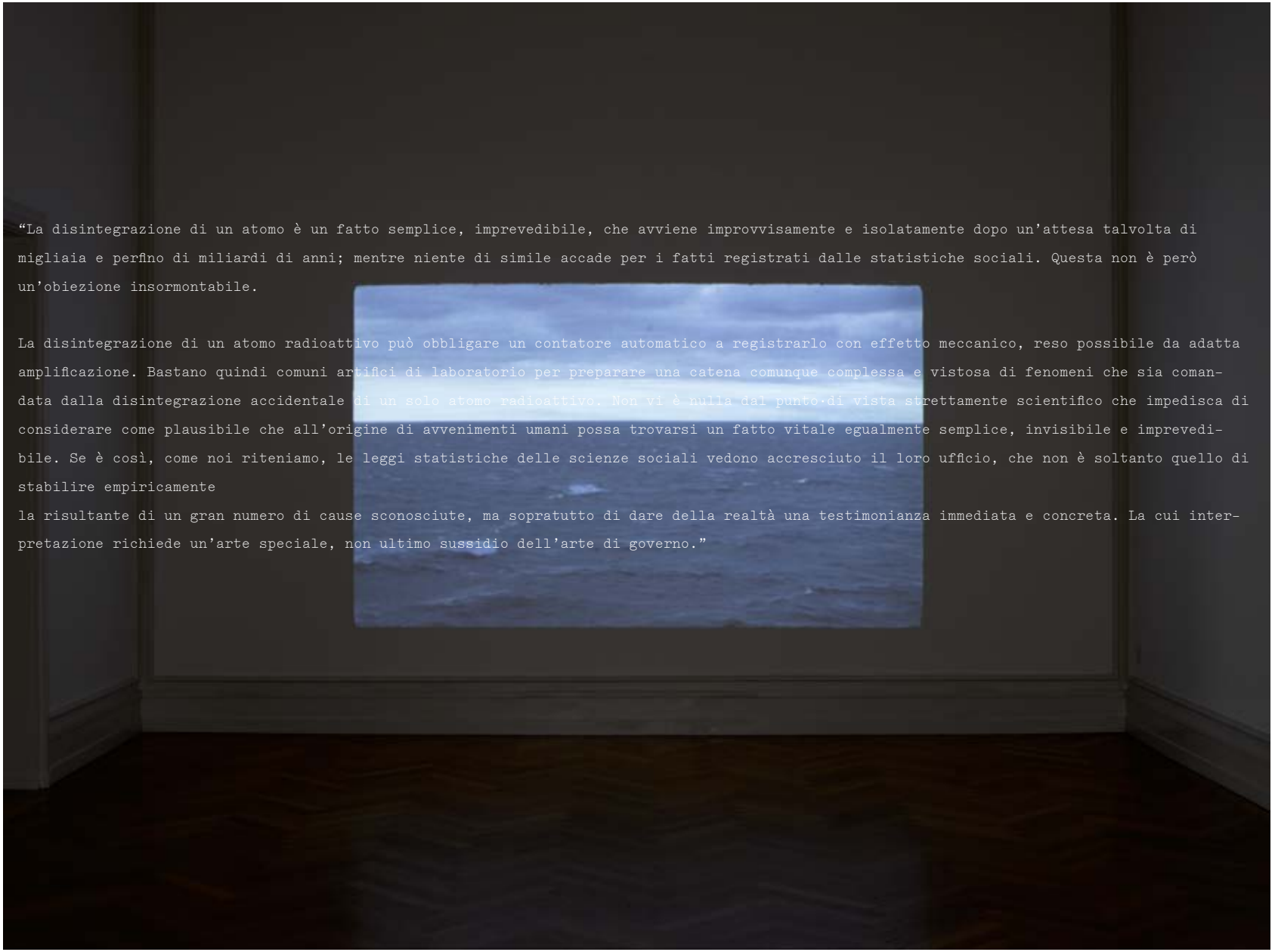
Film still and english translation of voice-over

“The disintegration of an atom is a simple and unpredictable fact, that occurs abruptly and in isolation after a wait of thousands and even billions of years, whereas nothing similar occurs for the facts recorded by social statistics. However, this is not an insurmountable objection.

The disintegration of a radioactive atom can force an automatic counter to detect it with a mechanical effect, thanks to a suitable amplification. Common laboratory set-ups are therefore sufficient to prepare a complex and rich chain of phenomena, triggered by the accidental disintegration of a single radioactive atom. From a strictly scientific point of view there is nothing that prevents us from considering that a simple, invisible and unpredictable vital fact could be found at the origin of human events. If this is the case, as we believe, the statistical laws of social sciences increase their agency, which is not only that of empirically establishing the result of a great number of unknown causes, but, above all, to produce an immediate and concrete evidence of reality, which interpretation requires a special skill, not the last support of the art of government.”

The third film, *The Sea of Majorana*, 2008, shows a post-nuclear seascape filmed between Napoli and Palermo, where Ettore Majorana disappeared in 1938. The ambient radioactivity perforates the material support of the film. A voice over reads an excerpt of an essay by Majorana, “The Value of Statistical Laws in Physics and Social Sciences.”

Continuous film projection with sound, Super-16 mm film onto SD video, 1:1.66, colour, stereo, dimensions variable, loop of 8 min 30 sec

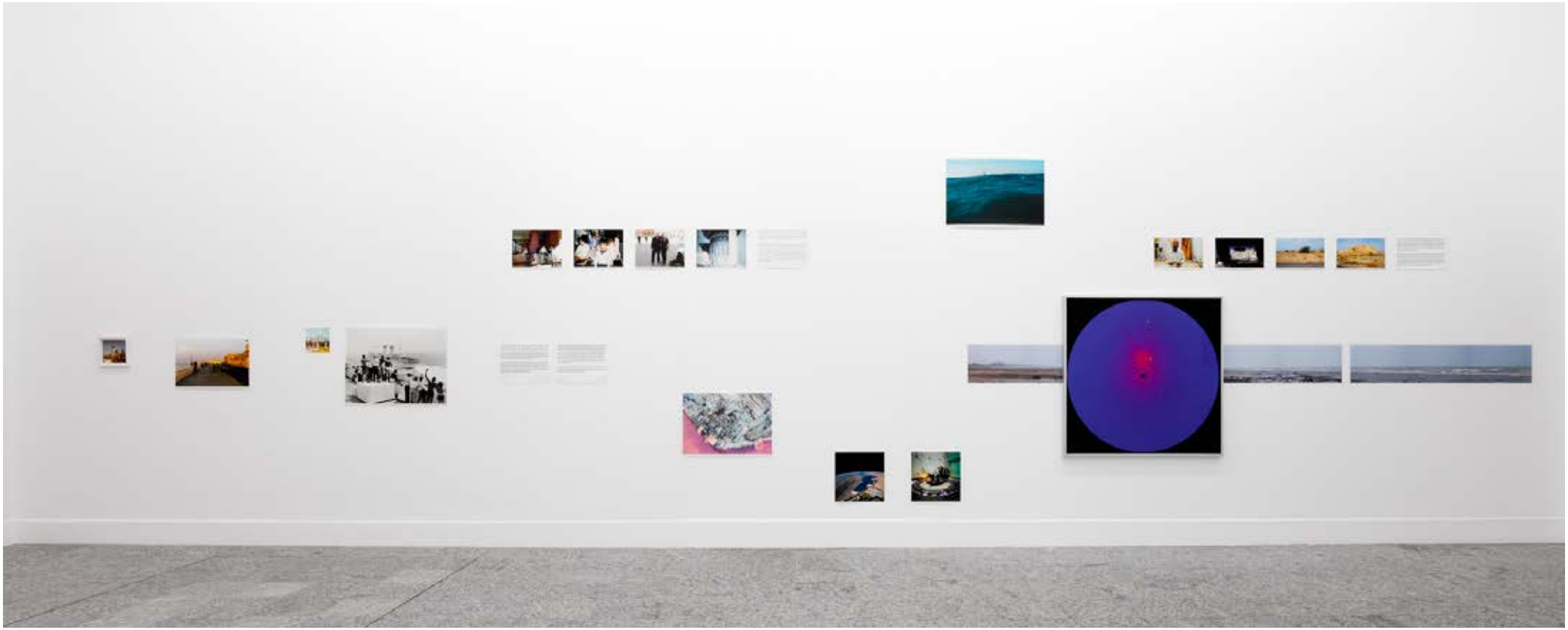


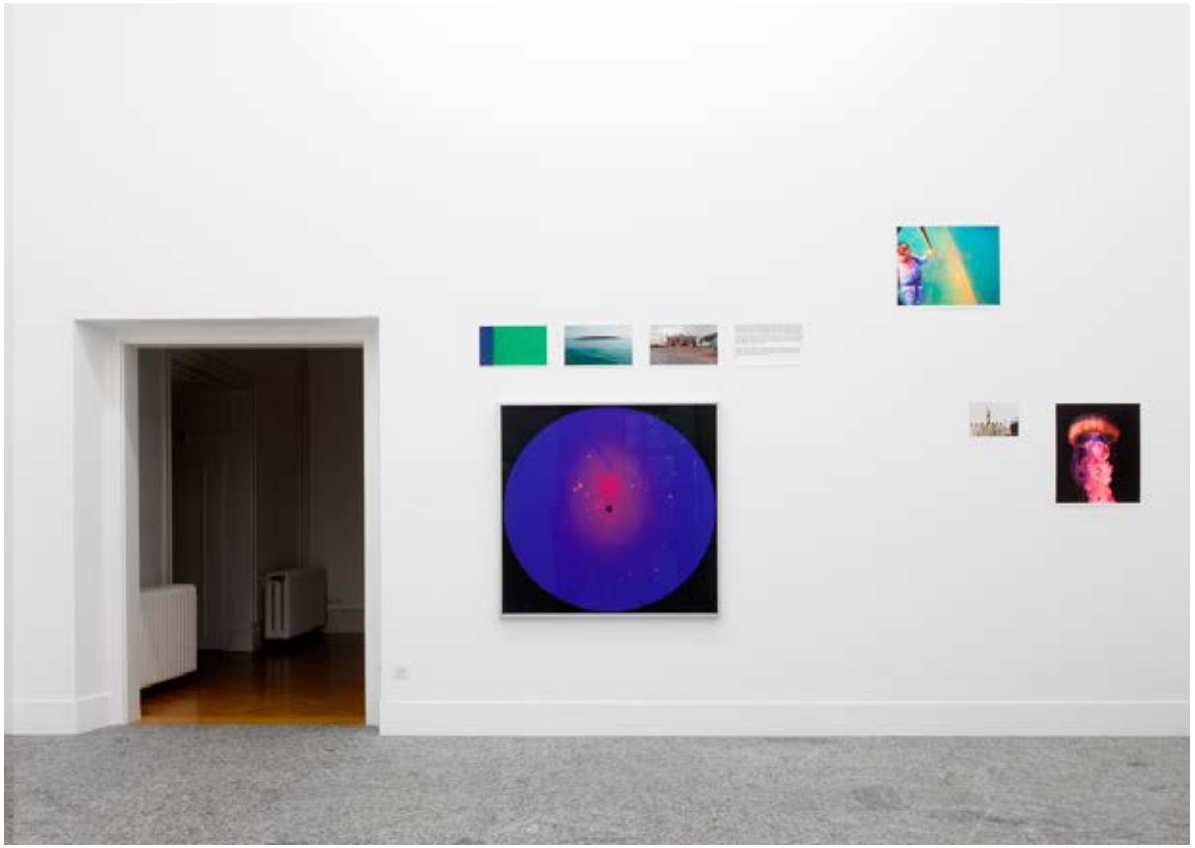
“La disintegrazione di un atomo è un fatto semplice, imprevedibile, che avviene improvvisamente e isolatamente dopo un’attesa talvolta di migliaia e perfino di miliardi di anni; mentre niente di simile accade per i fatti registrati dalle statistiche sociali. Questa non è però un’obiezione insormontabile.

La disintegrazione di un atomo radioattivo può obbligare un contatore automatico a registrarlo con effetto meccanico, reso possibile da adatta amplificazione. Bastano quindi comuni artifici di laboratorio per preparare una catena comunque complessa e vistosa di fenomeni che sia comandata dalla disintegrazione accidentale di un solo atomo radioattivo. Non vi è nulla dal punto·di vista strettamente scientifico che impedisca di considerare come plausibile che all’origine di avvenimenti umani possa trovarsi un fatto vitale egualmente semplice, invisibile e imprevedibile. Se è così, come noi riteniamo, le leggi statistiche delle scienze sociali vedono accresciuto il loro ufficio, che non è soltanto quello di stabilire empiricamente
la risultante di un gran numero di cause sconosciute, ma sopratutto di dare della realtà una testimonianza immediata e concreta. La cui interpretazione richiede un’arte speciale, non ultimo sussidio dell’arte di governo.”

The constellation of photographs *Persian Gulf Incubator*, 2008, narrates the finding of the wreck of the Italian luxury liner "M/S Raffaello" in the Persian Gulf. The ship was sold in 1976 by Italy to the Shah of Iran, and was sunk by Iraqi jetfighters in 1983, a few miles off the coastal nuclear reactor of Bushehr in the Persian Gulf. This facility much worries American and Israeli policy makers. In this narrative the ship is a space capsule that journeys over a historical period spanning from the 1973 oil crisis to the events of 9/11.

32 elements: 24 Archival Pigment Prints, 3 wallpaper prints, 5 text panels, dimensions variable





The “T/S Raffaello” was built in 1965 for the “Italian Line” shipping company. Along with her twin sister, the “T/S Michelangelo,” she serviced passengers across the North Atlantic route, from Genova to New York. The two ships were the longest, most modern and luxurious Italian liners of their time. The Raffaello housed six swimming pools and a five hundred-seat movie theater. The lounges were designed by leading interior architects and decorated with specially commissioned Italian paintings and sculptures.

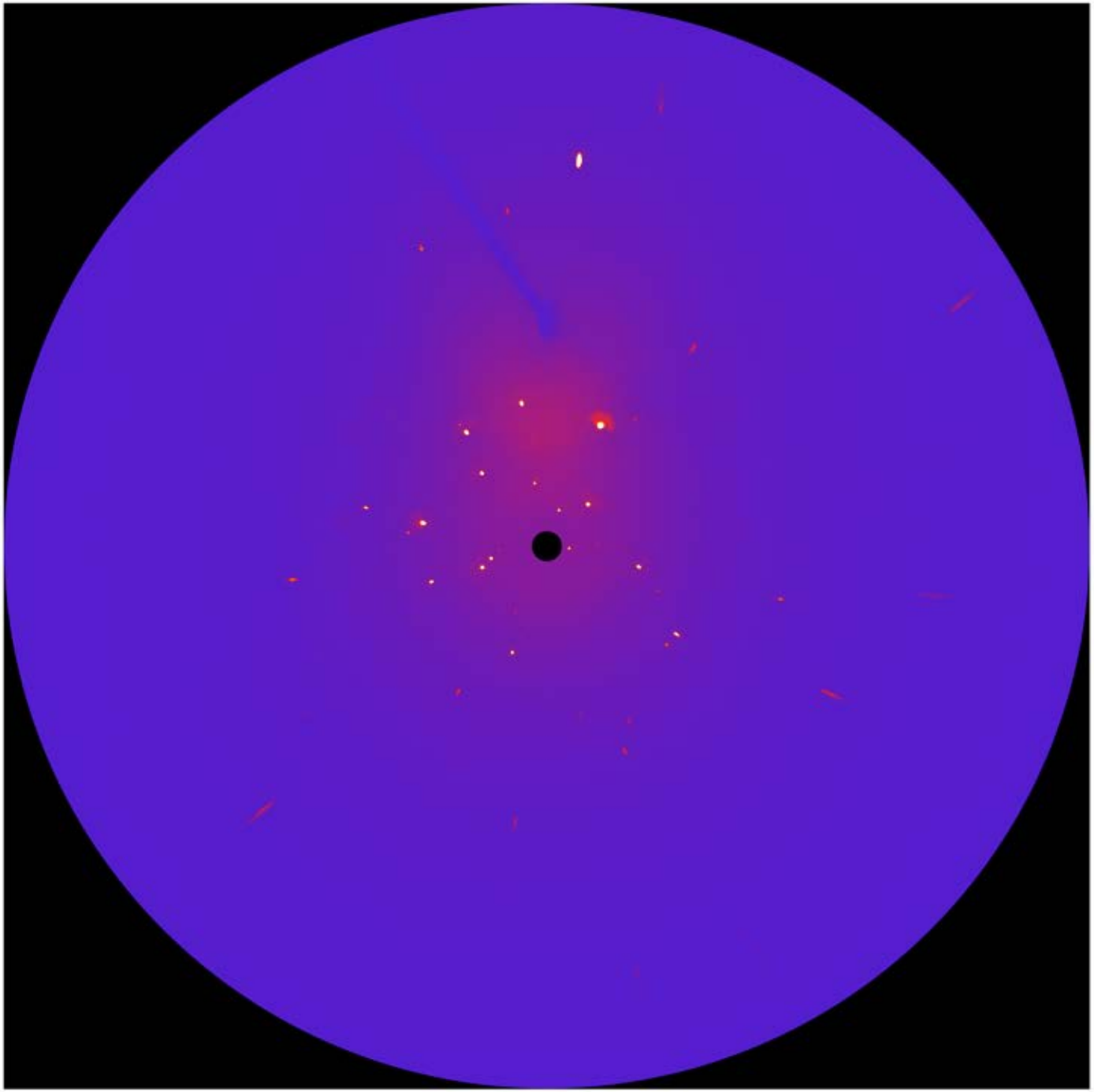
The 1973 oil crisis brought an end to transatlantic passenger service. The super liners were put up for sale, and were purchased in 1976 by the Shah of Iran. One ship became a floating palace for the Shah. The other was converted into a barrack ship for navy officers. Reduced crews of Italian sailors were kept aboard both ships to perform any maintenance.

During the Iran-Iraq war, the “T/S Raffaello” was moored in front of the coastal nuclear plant of Haleyleh, South of the port of Bushehr. A local story among Busheris is that the ship was a decoy to protect the nuclear site against air strikes from Iraq. In 1983 the Raffaello was actually targeted by Iraqi bombs. She was severely hit and sank in shallow waters. According to the story, the exact placement of the Raffaello was tactical, to obstruct a naval channel in the event of her sinking. The wreck became a favorite spot for Iranian divers searching for the artworks on board, which were then sold on national and international markets.

The submerged Raffaello lies a few miles from one of the sites that most worries American and Israeli policy makers today. She becomes discernible from above only when the waters are exceptionally clear.

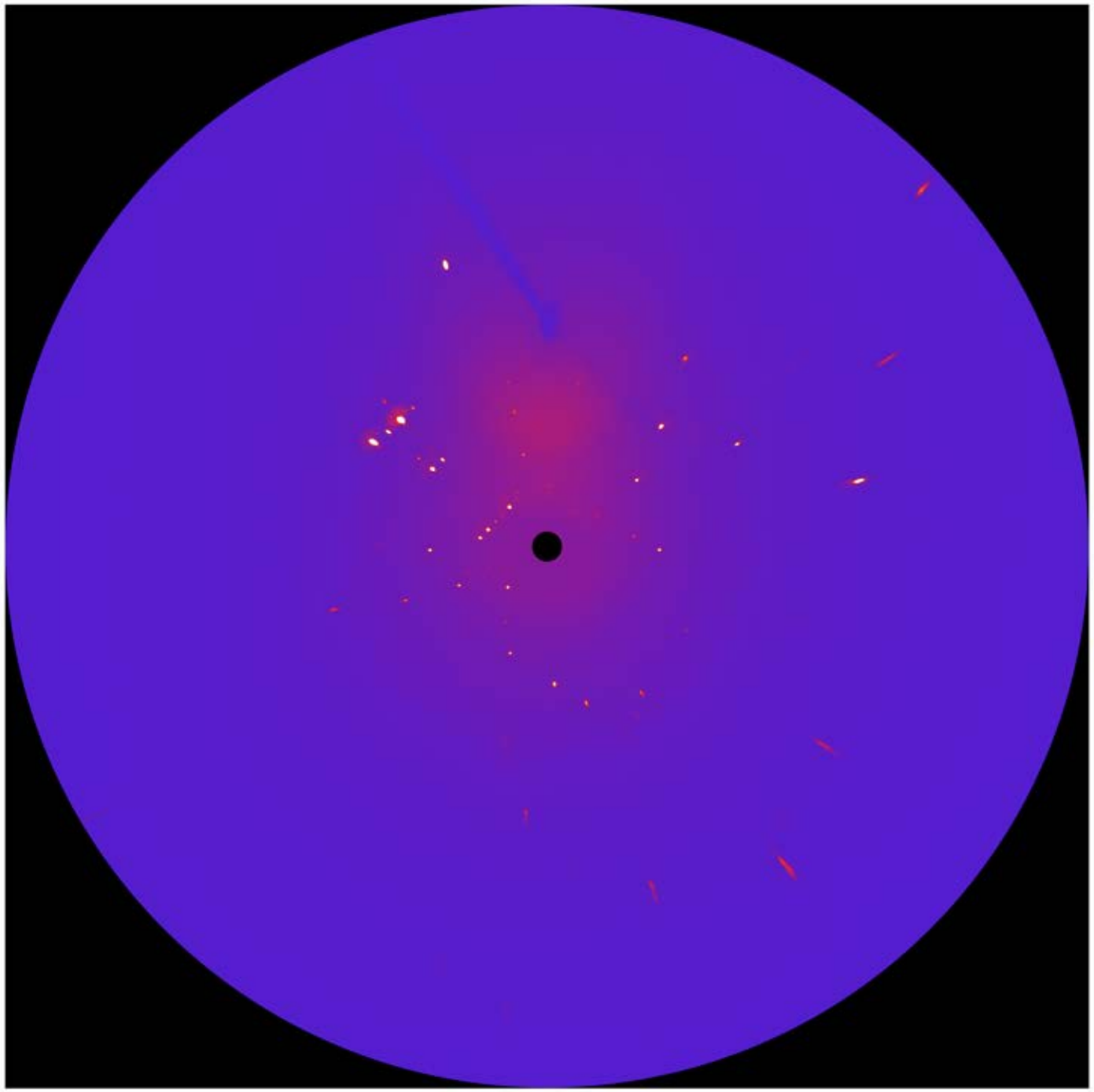
In June 1966 Peter Demonte, now a sergeant at NYPD, took a long holiday trip with his family. They sailed on the "T/S Michelangelo" from New York to Napoli and on the "T/S Raffaello" on their way back. He was only four but remembers the trip well. His most vivid memory was his anticipation that the huge ship's two funnels would hit New York's Verazzano bridge when the ship passed under it.

On September 11, 2001, he was on bike patrol at 50th street, near the Waldorf Astoria Hotel. At 8:47 a.m. a call came that a plane had hit the World Trade Center. He immediately rushed to lower Manhattan. He propped his bicycle near the entrance of WTC 5 and began evacuating people. He recalls that people were sort of dazed. As he was assisting them in leaving the building, a flash went off behind him. The photographer, John Labriola, was a security systems consultant working for the Port Authority. He eventually became a freelancer for Associated Press. Every year he and Peter pose at Ground Zero for the anniversary of the attack.



General Younes Khalifeh heads the antiterrorist group of the Iranian Army at Bushehr, an elite unit that performs tactical operations. He is a specialist of explosives and an expert diver. He is a sweet, well-educated man, married with two sons. The day I was introduced to him he was off duty, so he offered to drive me to the coast to show me the location of the Raffaello wreck. The water was too murky to attempt a dive.

The next day I hired a taxi to drive me further south, close to the nuclear site. I was unaware that General Khalifeh's soldiers were positioned all around the plant. They were overseeing the delivery, by Atomstroyexport—the Russian company now building the reactor—of a first batch of approximately 80 tons of low-enriched uranium-235 fuel rods. In the evening I met the General at his house. Over dinner we talked about fishing and ships.



A few miles North of the Raffaello lies a capsized shipwreck, the "Iran Salam." Reportedly, this small ship accidentally crashed into the submerged Raffaello wreck, which caused it to sink. Although it is ten times smaller than the Raffaello, the Iran Salam is mistakenly taken for the massive Italian liner. Busheris tell the rare visitors to this area that the visible upturned hull of the Iran Salam is the Raffaello, possibly to offer them something to see, or to prevent them from approaching the nuclear site.

The Iran Salam is visible from a Kentucky Fried Chicken outlet called the "Rafael." One can also hire a boat and climb on its hull to watch the supertankers en route to the Strait of Hormuz.

The stereograph *Prof. Otto Hahn's Work Table for Neutron Bombardment of Uranium, 1938, Deutsches Museum Setup, München*, 2010, is a tridimensional photographic rendition of the experimental table on which O. Hahn studied the transmutation of uranium under neutron irradiation, in 1938 in Berlin. Lise Meitner, his former colleague, correctly interpreted the data from this pivotal experiment as indicating the nuclear fission of uranium. This is the core mechanism of the first atomic bombs.

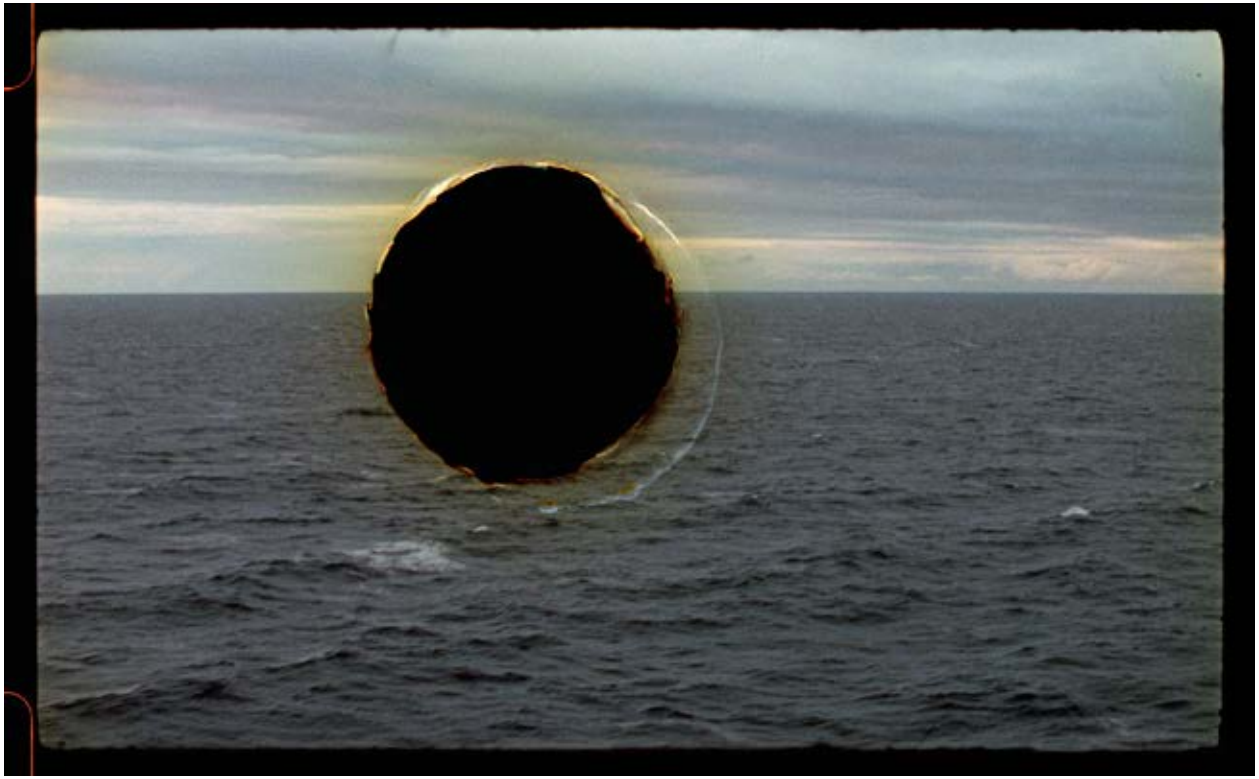
Wood, glass, mirrors, transparencies, LED light boxes, 344 x 1300 x 600 mm

Left image of the stereo pair

Right image of the stereo pair

The collection of historical documents a very wobble unstable drop, 2010, presents the discovery of nuclear fission in the late thirties, from the intuition of its mechanism to its experimental proof. These texts provide a historical and scientific framework to Majorana's disappearance.

Book, original scientific papers, photograph, yellowcake (uranium powder), text, glass, wood table, steel, 900 x 2400 x 790 mm



The photograph *Black Hole*, 2010, depicts a seascape perforated by a large hole. It punctuates the narrative dispositif with a straightforward image of erasure.

C-print from a Super-16mm film still, 650 x 1000 mm