

The Wind Egg Experiment

Haseeb Ahmed

This paper deals with Haseeb Ahmed’s ongoing art project The Wind Egg.¹ Ahmed is a Brussels-based artist originally from Northwest, Ohio, in the US, a location that has inspired his practice a great deal: The estuary of the Great Lake Erie was once known as the Great Black Swamp and was drained in the 19th century to yield an unrelenting flat landscape for agriculture.² In this place, the sky dominates the horizon as the wind accelerates over the earth until it howls. Tornadoes are not uncommon in the Spring. The movement of the wind has shaped Ahmed’s thinking since his childhood [Fig. 1].

All life as we know it exists within the relatively thin atmosphere held to the Earth by gravity. The totality of the air connects the scales of the body to the world. In my art, I give form to that which does not yet have one. For example, the fluid movements of air are hard to grasp. We cannot see the wind directly, only by the way it affects other substrates, like clouds or leaves. The task becomes one of rendering underlying social dynamics into a form perceivable by the senses, a movement analogous to that of conveying the fluid dynamics of air and wind that constantly surround us. For nearly 15 years, this task has been motivating me, whose work hinges on the properties of air to unpack the metaphors it provides. Some art must be state of the art. In this regard, he has worked with tools and technologies that shape our industrially produced realities [Fig. 2].

Among them are wind tunnels, paradoxical architectures shaped for the air to inhabit, rather than people. They are designed to create the conditions of laminar flow, a straight moving air. By

* The notes and figures are arranged by the editors, according to the power point data for the presentation at the symposium 2022 by the author.

1 “Haseeb Ahmed,” accessed May 12, 2023, <https://haseebahmed.com/>.

2 For the map of the the Great Black Swamp before the 19th century, see “The Great Black Swamp,” accessed May 12, 2023, https://en.wikipedia.org/wiki/Great_Black_Swamp. For the photograph of the swamp in about 1890, see “The Center for Archival Collections, Bowling Green State University CC,” accessed May 12, 2023, <https://www.bgsu.edu/library/cac.html>.

placing an object in their test sections, the interaction of solid and fluid matter can be observed, especially as the turbulence patterns that form in the wake of the object. If we want to see these phenomena for ourselves, we can look at a flag that waves due to the invisible vortexes on either side of it. The turbulence is created by the flagpole. In an artwork, I replaced the cylindrical form with that of a paraboloid, which too creates the von Karman double-street vortex pattern.

My first artwork related to wind was a site-specific installation³ inside of the MIT Wright Brothers Wind Tunnel.⁴ This work was produced when he was still a masters student in the Program for Art, Culture, and Technology at MIT. Commissioned in 1940, the Wright Brothers Wind Tunnel was the oldest operational facility of its kind until its recent retirement. While wind tunnels were instrumental in the development of aircraft from the early 20th century, they saw extensive use in the rapid development of aircraft during WWII. The second paradox of wind tunnels is that objects that would normally move through the air are held stationary, while the air is moved past them. My artwork at MIT consisted of creating an infinite cut through the air.

The wind moved past the sword at the speed it would normally be swung, never arriving at its target. This otherwise impossible moment could only exist inside of a wind tunnel. My transdisciplinary art practice continued when, in 2014, he was granted a research position at the von Karman Institute for Fluid Dynamics, one of Europe's oldest and largest aeronautics research facilities located on the outskirts of Brussels.⁵ This is the context where the artist began his project The Wind Egg, whose aim was to test cultural mythology with science to consider the implications of human reproduction with the wind, without men, by using technology.

Since its inception, The Wind Egg has involved collaboration with other researchers from the von Karman Institute, artists, composers, florists, historians, programmers, and more. To date, it has consisted of a trilogy of installations, a forthcoming book, and my PhD project, undertaken at the University of Antwerp, Sint Lucas Antwerp School of Art and Design, the Zurich University of the Arts, and the von Karman Institute itself, a landscape of institutions that reflect the relationship between art, humanities and sciences in his practice [Fig. 3].⁶

For millennia, ancient Egyptian, Arab, Indian, European and Chinese cultures shared the belief that animals and people could be fertilized by the wind just as plants are. This concept was

3 "Wright Brothers Wind Tunnel," MIT, accessed May 12, 2023, <https://aeroastro.mit.edu/wbwthomepage/>.

4 Haseeb Ahmed <Shamshi+Wind Tunnel=Progress> 2008–09, site-specific performance, MIT Wright Brothers Wind Tunnel, Cambridge, MA.

5 "Von Karmen Institute for Fluid Dynamics," accessed May 12, 2023, <https://www.vki.ac.be/index.php/academics>.

6 "Haseeb Ahmed, The Wind Egg Experiment. A Trilogy of Exhibitions." HI Project, accessed May 12, 2023, <https://hl-projects.com/viewing-room/16-haseeb-ahmed-the-wind-eggexperiment-a-trilogy-of-exhibitions/>.

also widely propagated through the 17th century in Europe, where Catholic theologians relied on the theory of the wind egg as an explanation for the Virgin Mary's Immaculate Conception. As eloquently described in Prof. Baert's book,⁷ the Holy Spirit traversed realms as a wind. It brought the vital principle in the conception of Christ. In Genesis, existence itself is inaugurated by Ruach, the primal breath of God as it blows over the dark, watery void [Fig. 4].

In another drawing, I transliterated the Hebrew word Ruach into English. By switching the vowels of U and A we get Rauch, the German word for smoke, often caused by burning something. The creative and destructive potential of wind set the frame between these two poles. Prof. Baert also points out that in the Torah vowels are omitted and this may possibly mark the transition from an oral to a written culture. The text comes to life when read infused with the reader's breath, maintaining the likeness of vowels to breath and breath to soul. Adjacently, the Arabic word for breath is raha, and ruhu is soul.

It was known that certain animals were only female and reproduced solely with the wind. The wind carried a vital and fertilizing principle. Most commonly known among these anaemophilous animals were vultures. Each Spring, the vultures mated with Aeolus, the Anemoi responsible for the Western and most important wind. The 4th century Greek thinker Horapollon Nilous (5th century) described that "[t]he vulture is kindled with a desire to conceive, opening her womb to the North Wind, she is, as it were, embraced by him for five days, during which time she partakes neither of food nor drink, being intent upon procreation. There are also other kinds of birds which conceive by the wind, but their eggs are of use only for food and not for procreation, but the eggs of the vultures that are impregnated by the wind possess a vital principle."⁸

My Wind Egg experiment began with animal testing and still hopes to eventually move onto human trials. Working with a vulture, an animal typically associated with death (Parsi and Zoroastrian funerary traditions even rely on vultures to dispose of the dead) was a significant choice in this first attempt to create new forms of conception for humans and animals [Fig. 5].

The indoor and outdoor vulture aviaries comprised the first lab in the sequence in which my collaborators and I prepared wind eggs to be introduced to the wind. They worked with Dominique Willems, a falconer based in Limburg, Belgium, and his female white-backed African vulture, Sparta. The artist and the other researchers postulated that sound was essential to aerial fertilization as it is also a phenomenon propagated through the air [Fig.6].

Fittingly, the indoor vulture aviary was built upon the air return of a defunct vertical wind

7 Barbara Baert, *"Pneuma" and the Visual Medium in the Middle Ages and Early Modernity: Essays on Wind, "Ruach", Incarnation, Odour, Stains, Movement, Kairos, Web and Silence* (Leuven and Paris: Peeters, 2016).

8 Conway Zirkle, "Animals Impregnated by the Wind," *Isis* 25, no. 1 (1936): 106.

tunnel, and the recorded sound was brought down the steps to the “L2B aero-acoustic Wind Tunnel,” the second lab in the process of fertilizing wind eggs.⁹ Here, Wind Egg researcher Marc Matter prepared the sound of the vulture by using a technique he developed with turntables to allow for intuitive fine tuning, aiming to make the vulture sound more compatible with the wind. The following stage in the experiment made use of existing work by von Karman researcher Yakut Cansev.¹⁰ Her attempt to develop the most aerodynamic and streamlined shape resulted in an egg shape. Unknowingly she had created a wind egg, which was agreed to be incorporated into the larger project [Fig. 7].

The wind carried the sound downstream to the egg. Cansev had developed a technique to measure the turbulence this shape created by placing a microphone inside of the egg. The amount of wind penetrating the egg corresponded to the amount of turbulence it created.

The unedited sound of the egg recorded inside of it — resembling a heartbeat — meant it had been successfully fertilized. As American anti-abortion activists contend, a heartbeat is the first sign of life.

In order to sustain this fledgling sign of life, the wind eggs were transported to the “L1 Wind Incubation Wind Tunnel”¹¹ where they were exposed to a special wind. Sound is air moving. Speakers perturb the air so it can carry the vibrations that our minds translate into sounds. Instead of using the massive turbine blades of the L1 wind tunnel, I worked with physicists from the University of Antwerp to create an acoustic vortex. It consisted of 6 speakers that played a sound in a clockwise rotation. The sequence overlapped to create a special phase relationship resulting in a vortex traveling down the length of the wind tunnel. Like all vortexes, the center remained empty. In the center of the acoustic vortex was silence [Fig. 8].

Like children in the womb, one can assume that wind eggs are comforted by the voice of their mother vultures. Fertilized wind eggs were sustained here until it would be determined how to induce their hatching. In the final lab of the Wing Experiment, a visitor was introduced to the wind itself. In the “L7 Wind Personification Wind Tunnel”,¹² a flow visualization of a turbulence pattern that appeared as the face of the wind was featured. In keeping with the logic of the wind egg as a

9 “The Wind Egg : L2B aero-acoustic Wind Tunnel,” HI Projects, accessed May 12, 2023, <https://hl-projects.com/content/feature/285/artworks-569-haseeb-ahmed-l2bwind-egg-insemination-2016/>.

10 Yakut Cansev Kucukosman, “Semi-analytical approaches for the prediction of the noise produced by ducted wind turbines,” Diss. Delft University of Technology, 2019.

11 “The Wind Egg: L1 Incubation Wind Tunnel,” HI Projects, accessed May 12, 2023, <https://hlprojects.com/content/feature/285/artworks-570-haseeb-ahmed-l1-windeg-egg-incubation-2016/>.

12 “The Wind Egg: Wind Personification,” HI Projects, accessed May 12, 2023, <https://hl-projects.com/content/feature/285/artworks-568-haseeb-ahmed-l7-windpersonifications-2016/>.

fertilizer, wind egg researchers postulated that the wind is male [Fig. 9].

As stated before, one cannot see the wind directly, only the way it affects other substrates. For this reason, smoke was introduced into the flow of the wind in the L7 wind tunnel. A laser sheet cut and illuminated a two-dimensional plane of the three-dimensional flow. This cross section was the face of the wind. The angles of the delta wing seemed to affect the facial expression of the wind. In the attempt to communicate with it, my collaborators and I exposed it to various stimuli. In a later installation created for a presentation at Nanyang Technological Institute in Singapore, the artist connected the face of the wind to real time wind data coming in from weather stations at every line of latitude around the world.¹³ The face changed in response to this data to make it the representative of the world-wind. It is still unsure whether this part of the Wind Egg project is about anthropomorphizing the wind in order to grasp it as a natural phenomenon or the face is the embodiment of the wind itself. As human activity greatly affects weather and air conditions, the line between humanity and nature has become difficult to distinguish.

In a later installation, I worked with researchers from the University of Maastricht's Brain and Emotion laboratory to attempt to feel what it might be like to inhabit the wind.¹⁴ Electrodes were placed on the face of a researcher and muscle nodes associated with non-verbal emotional cues. The input signals from the researcher changed the face of the wind. A period of embodiment took place in which the faces of the wind and the researcher calibrated with one another. It was less clear who was responding to whom [Fig. 10].

As mentioned earlier, The Wind Egg is a trilogy. In 2016, the artist and his team had to leave the von Karman Institute due economic instability. Authorities had come to question the need for large research facilities, especially when a century of accumulated knowledge on fluid dynamics had been compiled into computer simulations. The next home of the project was another type of experimental space, the art gallery Harlan Levey Projects in Brussels. All of the necessary research facilities were recreated for this context. The red structure in the center for instance was the residence of the couple, wind and vulture.

Inside the face of the wind appeared in the specially designed wind tunnel while Sparta, the female vulture, dwelt in her aviary on top of the structure. One can see that the forms in this new installation carry the memory of their past. The red color and shape were taken from the vulture aviary at the von Karman Institute. The Wind Egg Incubation wind tunnel with its acoustic vortex took the form of a smaller installation, yet with formal resemblance with that at the von Karman

13 For the exhibition "Wind Avatar" held at the ADM Gallery, Singapore, the author received the award of Global Digital Art 2019 at Nanyang Technological University (NTU), Singapore.

14 Haseeb Ahmed, with researchers from the University of Maastricht Brain and Emotion laboratory. <Wind Avatar> Theater of Liege, Belgium, 2015–19.

Institute. As facilities shifted, a leitmotif developed: The installations became a measure by which to compare types of spaces — the scientific lab and the art gallery — that claim a similar neutrality, albeit for different reasons.

In 2018, the Wind Egg continued at the Museum of Contemporary Art of Antwerp, where it was presented as a solo exhibition. The facilities transformed once again. Infused by both the iterations in the laboratory and the art gallery, the museum is its penultimate version. The wind eggs, still beating, could be seen as the white forms in the wind tunnel [Fig. 11].

One of the main structures in the exhibition, the Tower of the Winds and Vulture is a replica of the ancient Greek Tower of the Winds in Athens, which is thought to be one of the world's first dedicated weather stations. The eight Greek gods of the wind, or Anemoi, were rendered as reliefs near the top of the structure. It originally housed a water clock; the flow of time and the flow of fluids have been associated since antiquity with Heraclitus (c. 540 BC–c. 480 BC)' famous fragment: We cannot step into the same river twice as we are not the same nor is the river. This notion of *Panta Rei*, that everything flows, is part of what the Wind Egg experiment also tests. The trilogy consists of three replicated installations which provide a measurement for change.

The wind egg is an anachronism. It attempts to realize ancient concepts of fertility using cutting edge modern technology. The question remains whether humans and animals could reproduce with the wind and without men, using technology. How might society be transformed once it is liberated from the social structures premised on biological necessity?

Fig. 1 was taken just a few days ago in Brussels. It does not convey the yellow tint the sky took as dust from the Sahara Desert filled the sky, on 26 March, 2022.

Fig. 2 is a wind tunnel flow visualization of the famous von Karman double-street vortex; on the book cover of *An Album of Fluid Motion* (1982) by Milton Van Dyck (1922–2010). It is historically significant because it proved that the nature of fluid tends towards instability but that instability is predictable.

Fig. 3 A still from the film: *The Wind Egg film* (2016, 38 min.).

Fig. 4a “Wind Egg Scroll” (2017/18) The artwork is an 8-meter-long drawing composition of the experiment by Haseeb Ahmed; Dimensions: 110 cm (height) x 86 cm (wide) x 38.2 cm (deep), Material: Graphite, India Ink, Gauche, and Inkjet Print, Japanese Kozo Paper, Plexiglass, and 3D printed PLA Plastic.

Fig. 4b shows a section of the Wind Egg scroll describing the essential moment of creation.

Fig. 5a shows the inside of Tower of Silence used by the Parsi Community in Mumbai, India.

Fig. 5b shows the outdoor vulture aviary created at the von Karman Institute for Fluid Dynamics where the bird could maintain her circular soaring flight pattern. A still from the film: *The Wind Egg film* (2016, 38 min.).

Fig. 6 shows a Wind Egg researcher collecting the calls of the soon to be mother vulture.

Fig. 7 shows a speaker (the brown box in the lower left corner) playing a sound into the wind tunnel. This was the sound of the vulture Mark Matter had prepared.

Fig. 8a shows Wind Egg Researcher Salka listening to the silence.

Fig. 8b at left we see a computer visualization of an acoustic vortex.

Fig. 9 shows a turbulence pattern created with a delta wing model in a plexiglass test section. The wind originates from the red nozzle seen to the left.

Fig. 10 shows some of the emotional states of the wind, identified in comparison to a vernacular form of pictorial facial expression known as emojis.

Fig. 11 The tunnel leads to the combined residence of the wind and the vulture now known as the “Tower of the Winds and Vulture,” 2018, Museum of Contemporary Art, Antwerpen, Belgium.

Haseeb Ahmed

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