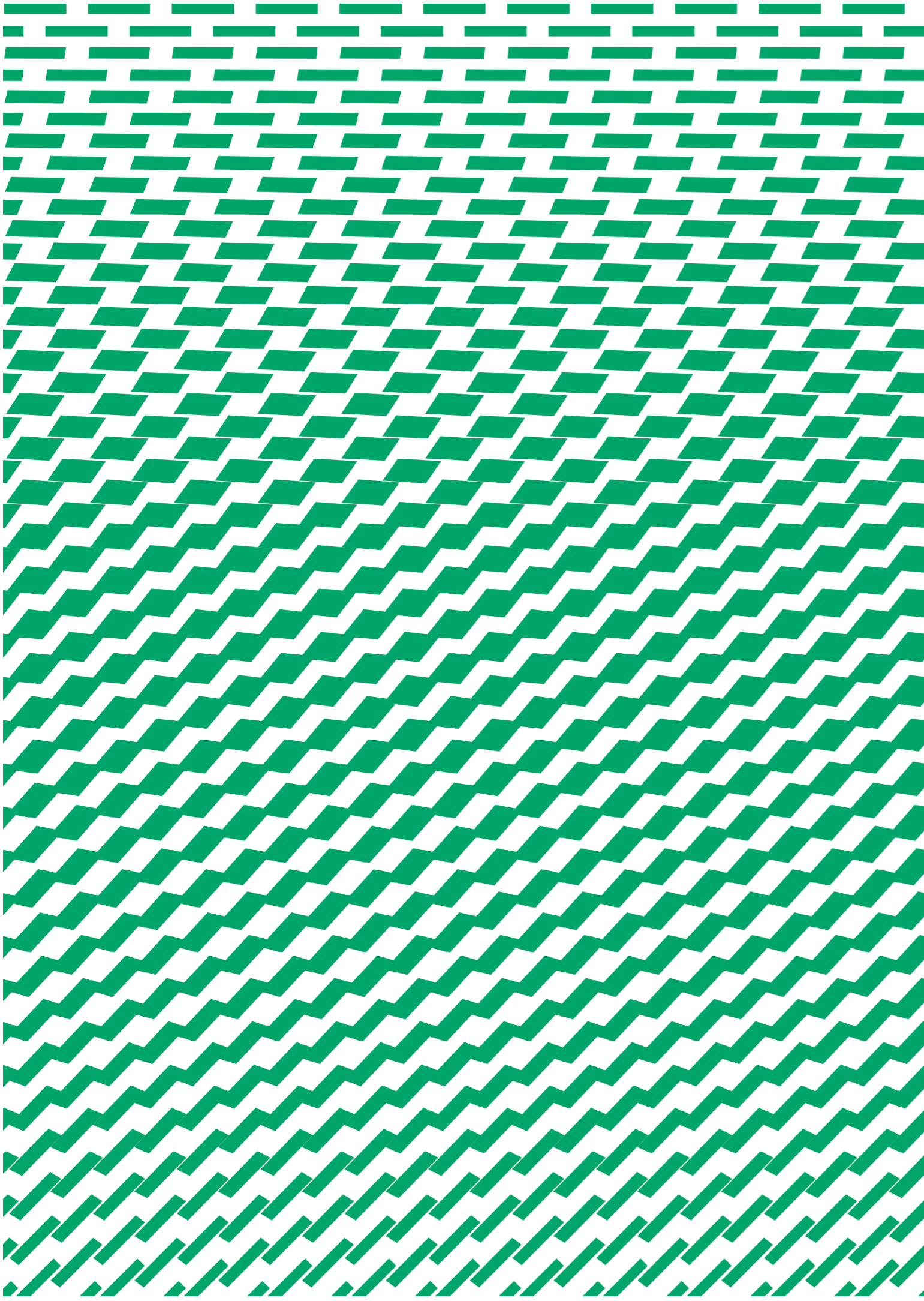


wind tunnel bulletin

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Editors of Issue #3:
Haseeb Ahmed,
Florian Dombois,
Kaspar König

Contributors:
Julie Harboe, Mirjam Steiner,
Sarine Waltenspül

Design:
Viola Zimmermann,
Andreas Moesch

Translation of John Tzetzes
Historiarum variorum chiliade
by T. Kiessling

Translation of Ovid Fasti V
by James G. Frazer

Translation of Florian Dombois
by Burke Barret

Images:
Members of the Size Matters
research group at the Zürich
University of the Arts produced
the images in this issue except
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[Accessed: 22 Oct 2014].

P. 11: 1942. Cross-section of the
"Trudelwindkanal" in Berlin-
Adlershof. From G. Thiel and
A. Hufschmidt: *Der Trudel-
windkanal der DVL*. In: *Jahrbuch
1942 der Deutschen Luftfahrt-
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P. 58-59: 2014. Drawing by
Olivier Chazot.

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wind tunnel bulletin n° 03, nov 2014

The Wind Tunnel Bulletin is produced by the re-
search group 'Size Matters: On the Scale and Size of
Models' to share material that we find interesting.
Following our concept of a man-engine (Fahrkunst),
it is alternately edited by one half of the group with
their different backgrounds either in the arts or in the
humanities.

The space that exists in between two states is one
of potentiality. It is a temporary shift in which ques-
tions of a large magnitude take the form of particular
actions and objects. From Aristotle to medieval
theologians it was thought that the wind itself could
fertilize animals and people just as it does plants
(pp. 46–47, 57). If the wind can fertilize then a wind
tunnel may incubate thoughts that do not yet have
a definite form.

Our project is undergoing a fundamental change
as the Zürich University of the Arts, where we are
based, moves to the new centralized Toni-Areal
building. Prior to this the school existed in over 30
different smaller buildings around the city. The
final event of the Modellapéro at old Hafnerstrasse
building marked the arrival of its new purpose as
a mosque (p. 48) and the departure of our group
together with our wind tunnel, the 'Temple of the
Winds', to the radically new context of Toni-Areal
(p. 49). Sofie van Loo conceives this as a 'bi-modern'
jump (p. 49). Packing compresses our work up to
this point (pp. 50–51). This moment before arriving is
taken as an opportunity for the expansion of our wind
tunnel to create a space inside of institutional space.

One test section becomes two with Kaspar König's
plans for an Eiffel-type wind tunnel embedded within
the original Göttingen-type wind tunnel (pp. 52–55)
which is itself now implanted on the roof of the new
building. A section of the Wind Tunnel Bulletin be-
comes a "Designated Discomfort Area (DDA)" from
which other such spaces can be identified with the
labels enclosed. Haseeb Ahmed elaborates on
this temporary state by looking at various instances
of sucking and blowing (pp. 56–61). Florian Dombois
sustains this in-between with a response to the
proposals contained within this issue of the bulletin
(p. 62).

Haseeb Ahmed, Florian Dombois, Kaspar König



Wind egg of a chicken, photo: Timo Rieg, 2012

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“I have found that the entire tribe of vultures are female. And flying for five days with the wind against their rumps, they receive properly the gonad from the wind. In 120 days they produce the wind eggs and in as many days they hatch out (the young) from the eggs and in another 120 days they rear them up in the time of their flight. You have the fertilization of the vultures, that is to say of the female generations by the wind.”

Historiarium variorum chiliades by John Tzetzes (1110–1180 A.D.), a Byzantine writer.

“A Grecian nymph was I, Chloris my name –
Change but some letters, it becomes the same
As Flora, mark you-and among the Good
Within the Happy Fields was my abode.
How fair I was it scarce beseems to tell:
But to a god I deemed desirable.
For as I roamed abroad, one April day
The West Wind saw me, and, though I said nay,
Took me by force, as Boreas before
Took Orthyia on the Attic shore.
Still, for that wrong by wedlock he atoned
Nor have I cause to grieve, as consort owned.
Eternal spring is mine, trees ever green
Earth clothed in herbage, azure skies serene;
And as my bridal gift and marriage dower
He gave me governance of every flower.”

Fasti (Book of Days) by Ovid (43–17 B.C.), a Roman writer.

“In den ersten tagen der welt gab es nur frauen, sie hatten keine männer, der wind schwängerte sie im sommer, und gegen frühling gebaren sie töchter, aber keine söhne. Sie wußten nichts von einem anderen geschlecht, sie vermißten es nicht, zumal sie sich, sooft sie wollten, in den armen der brisen und zwischen den beinen der stürme ergötzten, sie fanden abwechslung, je nach art und weise des windes.”

Die Sonne war ein grünes Ei by H.C. Artmann (1921–2000 A.D.), an Austrian writer.

My idea of a wind tunnel is a bi-modern and abstract-realist wind tunnel, which means an instrument for a gentle jumping between 'imagination' – also as a thinking-through of (non-)knowledge – and 'thinking' (of knowledge) without falling in the gap of neither (re-)presentation nor transformation.

Sofie van Loo

10: 19:52 CEST
The sun sets in Didymoteicho, Greece and the evening (Magrib) call to prayer sounds at the Mosque of Çelebi Sultan Mehmet Camii and its model located at the Hafnerstrasse building of the Zürich University of the Arts. This is its last day as an art school before it becomes a mosque and the school moves to the Toni-Areal. A former yogurt factory turned creative industry campus.



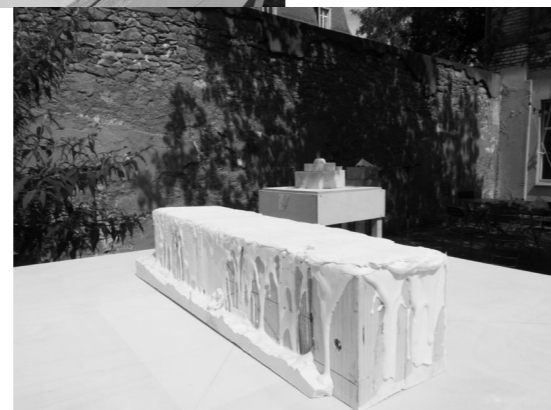
9: 19:57 CEST
Music from the wind tunnel commences.

8: 20:29 CEST
The sun sets in Belgrade, Serbia and the evening (Magrib) call to prayer sounds at the Barjkali Mosque and from its model at the Hafnerstrasse building in Zürich.



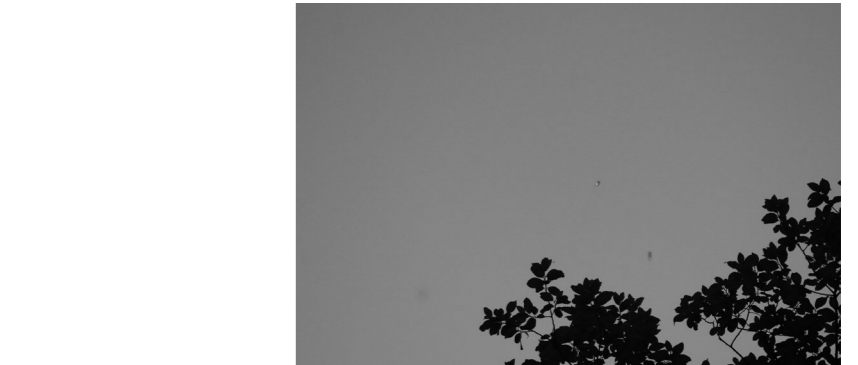
7: 20:54 CEST
Music from the wind tunnel commences.

6: 21:00 CEST
The sun sets in Vienna, Austria and the evening (Magrib) call to prayer sounds at the Masjid al Hadayah and from its model at the Hafnerstrasse building in Zürich.



5: 21:05 CEST
Music from the wind tunnel commences.

4: 21:26 CEST
The sun sets in Zürich and a moment of silence is centered on a green square on the ground. The square is identical to the one painted on the plinths which held the models of the mosques.



3: 21:31 CEST
The wicks of paper lantern models of the new ZHdK Toni-Areal building are lit and the lanterns fill with hot air.

2: 21:36 CEST
The paper lantern models of the ZHdK Toni-Areal buildings are launched into the air and rise until they can no longer be seen.

1: 21:45 CEST
The departure of the Size Matters group from Hafnerstrasse is complete pending its arrival at the new Toni-Areal building some time later.

0:



Packing, moving and unpacking placed us *in-between*. What is really important to have in this new situation? This state is prolonged due to the alienated environment of the Zürich University of the Arts' new building the Toni-Areal and the first *Toni-surreal* experience of it.

Now, we are still operating *in-between* and may not arrive for another year yet. Will all of our boxes be unpacked *before* and *after* then? This affords us the time to raise questions; empty voids to let new ideas appear. Do all of our boxes really need to be unpacked, the wind tunnel turbulences tempered or the *in-between* avoided?

Here, research can continue. It will blow and suck and potentiate ideas that can suddenly pop from the nowhere or nothingness into the streams of winds, people and institutions and perhaps land us into a designated discomfort area.

Kaspar König



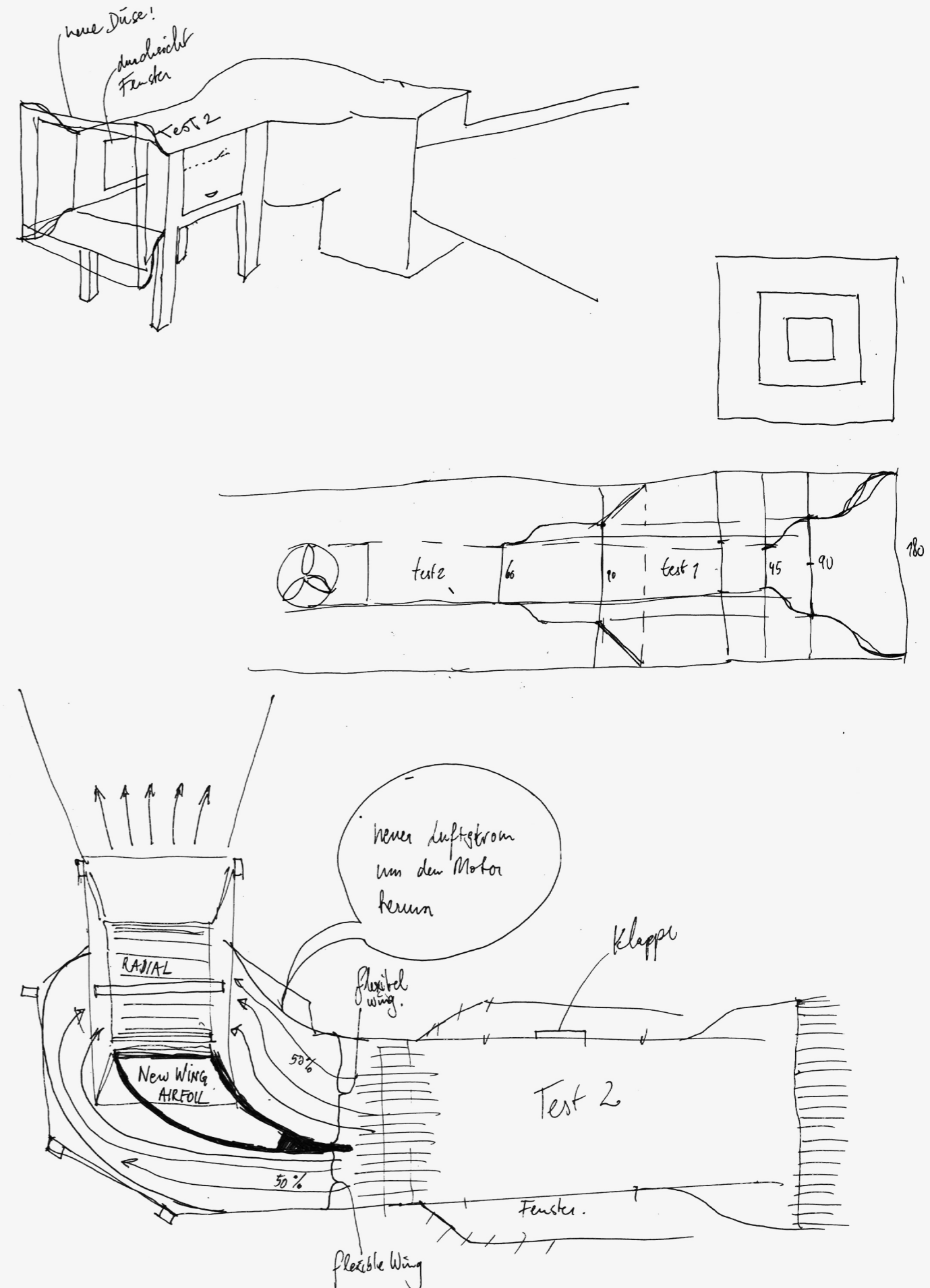
New plans for the wind tunnel have arisen which we can discover if we look to the left and right of the wind tunnel. Every fan or air pump has an inlet and an outlet to suck or blow air molecules. In the appliances of our performance-based society one of these airflows is engineered and the other is left passive and less engineered.

A typical appliance that runs hot is equipped with a fan to cool it down including the heat generated from the fan itself. These appliances work with a simple outlets like a grid or an opening in the casing that often features a warning not to close it. Now, if you close the inlet warm air can still flow out but not in. Heat doesn't escape and there is potential for overheating.

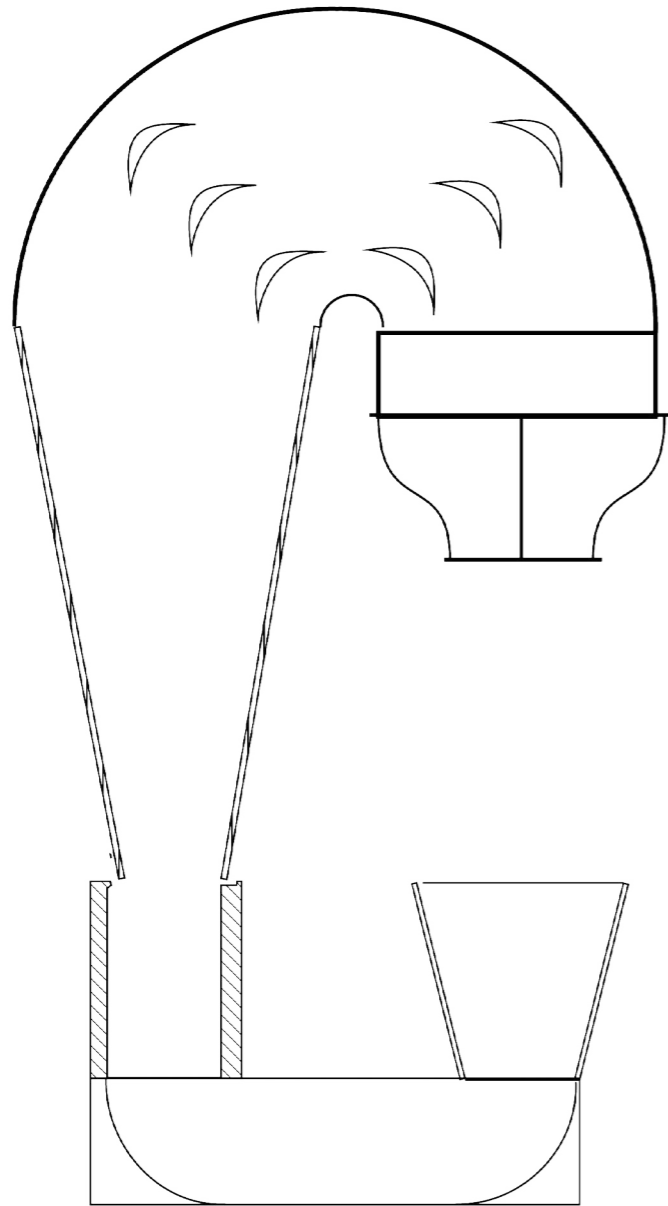
Back to the wind tunnel – the existing Göttingen-type on the left side (p. 54) allows for testing in a constructed area where air blows from the nozzle outlet back into the inlet on the left. The fan engine both sucks in and blows out air. To make the airflow more fluent (laminar or straight-moving) the inlet must suck in as much as the nozzle blows out. Ideally the exact same air molecules should circulate.

The wind tunnel model on the right (p. 55) is however a novelty. It tries to combine the Göttingen (circular blowing) and the Eiffel-type (directional sucking) wind tunnel types. This hybrid tunnel reuses the air from the inlet as an outlet for a second nozzle of a new closed test section. This test section is closed to avoid external influence like natural winds which in our new Temple of Winds on top of the Toni-Areal in Zürich is often a concern.

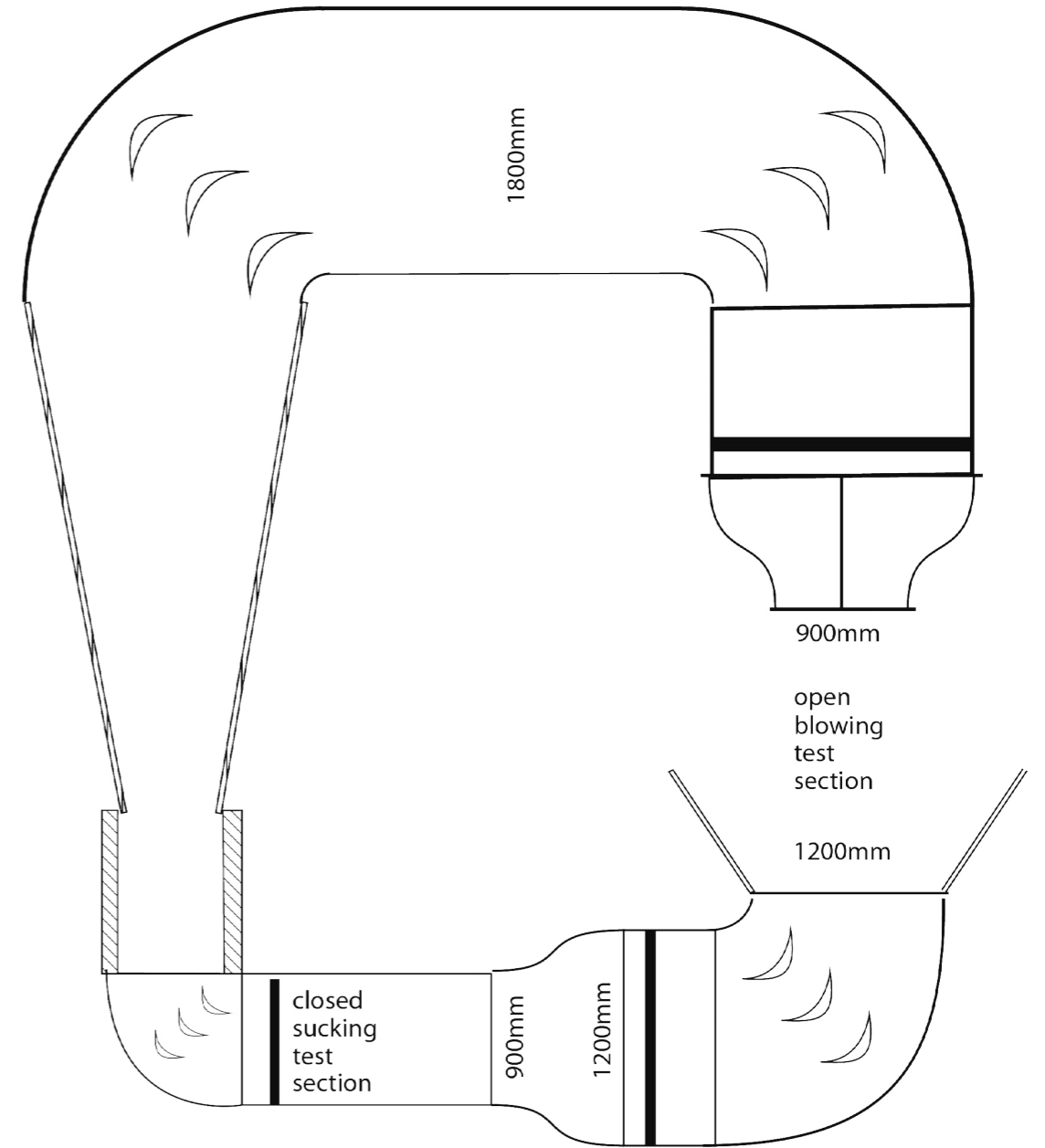
Kaspar König



Built up till 062014



Build up at Toni from 012015



— = Straightener

Teaching Grandmother to Suck Eggs.

*“You see, Grandmama before you extract the contents of this bird’s egg by suction, you must make an incision at one extremity, and a corresponding orifice at the other.” Grandmama’s response is to the effect, “Dearie me and we used to just make a hole at each end.”*¹

This English idiom is meant to imply that the act is so fundamental that trying to teach it is needless and must demonstrate a kind of inter-generational arrogance by a younger generation towards an older. It can also refer to the futility of offering advice to an expert. A test section of a wind tunnel blows and sucks at once to create a laminar flow. When making art in a wind tunnel who is the expert?

Forcing air from one’s lungs, windpipe and mouth, into an egg to evacuate its embryonic contents would only be done if preparing its shell for decoration. The saying is over 200 years old and its absurdity helped keep its appeal.²

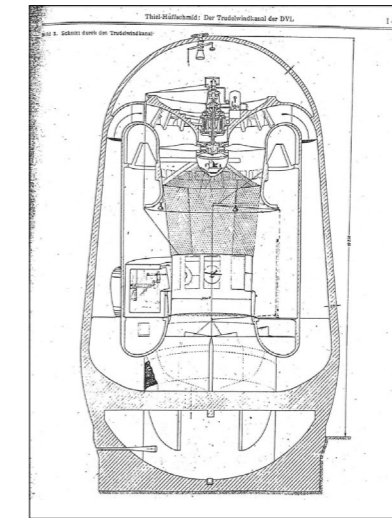
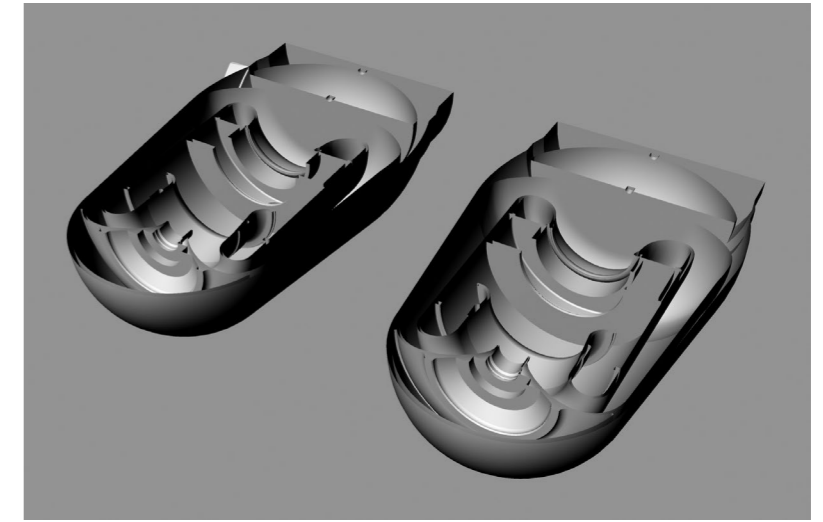


Wind Eggs

This type of appeal may explain why proto-scientists from Greek antiquity to the 16th century thought that certain species were fertilized by the wind itself. A thought so prevalent it was applied as a scientific proof for the Virgin Mary’s immaculate conception.³ Egg and dart ornamental patterns were also popular in ancient Greek architecture and revived in the neo-gothic period.

Much later, in the late 1930s, aeronautical engineers persisted to use the form of an egg to develop a vertical wind tunnel outside of Berlin called the Trudelturm. This form allowed air to be kept in constant circulation within in the vertical wind tunnel allowing engineers to sustain the moment of falling or diving indefinitely.

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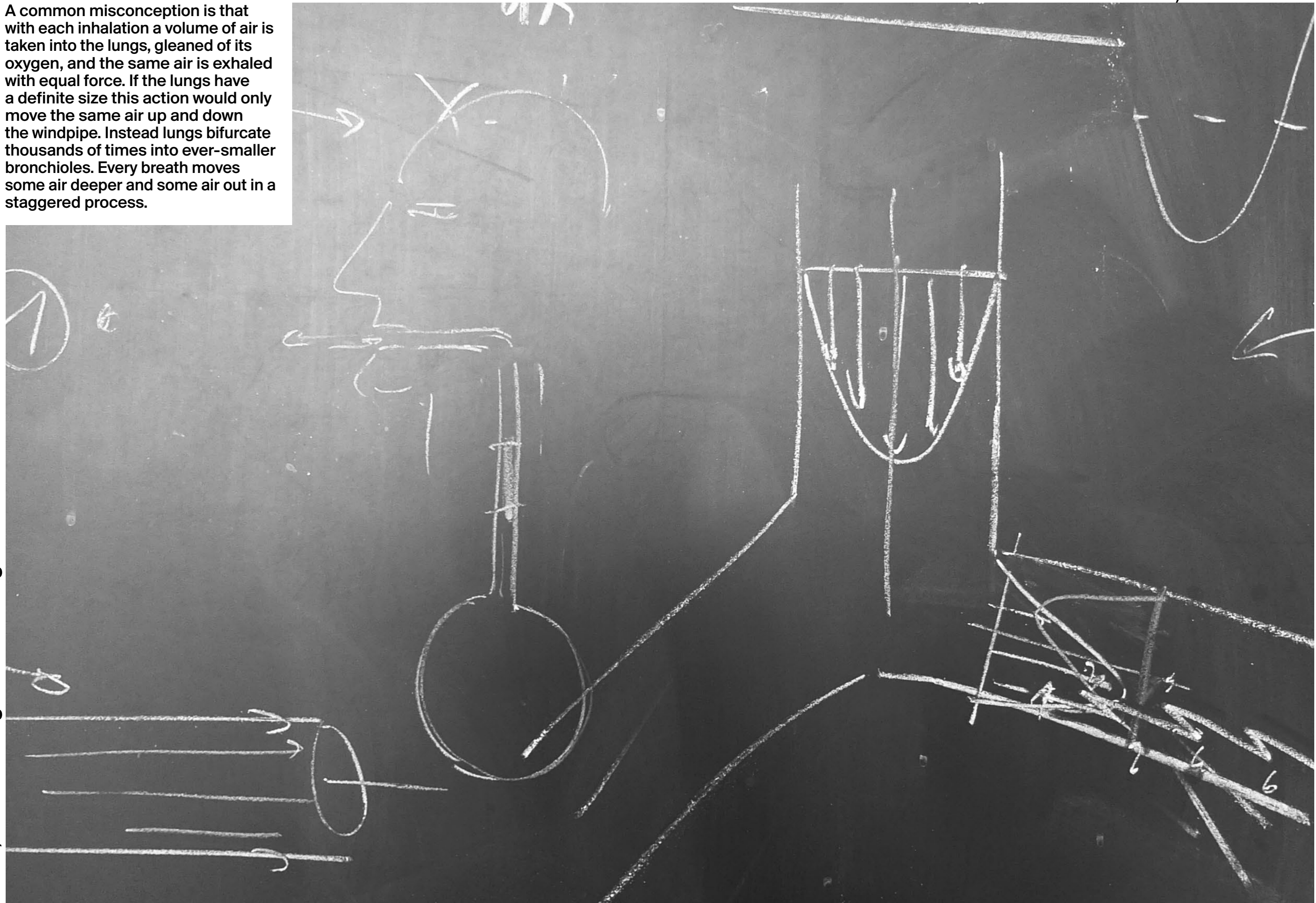
After dealing with two-dozen eggs I can say that blowing works much better than sucking. It avoids the intimacy of the mouth or any accidental consumption. I had cleared the eggs to illustrate another idiom ‘walking on eggshells’ for the inauguration of the new Toni-Areal of the Zürich University of Arts shrouded in safety regulations. Taken in isolation the motions of sucking and blowing seem antithetical. However, the two instances complete one another when considered in the context of breathing or a wind tunnel.

¹ “Re: Sucking Eggs.” *Re: Sucking Eggs*. N.p., n.d. Web. 14 Oct. 2014.

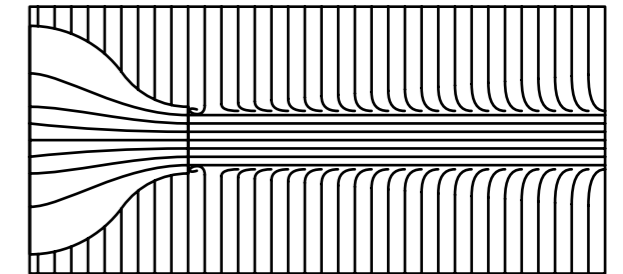
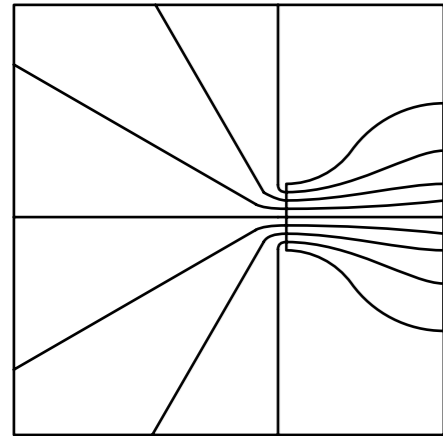
² Funk, Charles Earle, and Tom Funk. *A Hog on Ice: And Other Curious Expressions*. New York: Harper & Bros., 1948. Print.

³ Zirkle, Conway. *Animals Impregnated by the Wind*. Isis 25.1 (1936): p. 95. Web.

A common misconception is that with each inhalation a volume of air is taken into the lungs, gleaned of its oxygen, and the same air is exhaled with equal force. If the lungs have a definite size this action would only move the same air up and down the windpipe. Instead lungs bifurcate thousands of times into ever-smaller bronchioles. Every breath moves some air deeper and some air out in a staggered process.



Boundary Layer



A Göttingen-type wind tunnel blows from its nozzle and sucks from its return. Olivier Chazot says: “For an engineer, when sucking flow is coming from all (plenty) the directions instead of when blowing it goes in one preferential direction.” (personal communication, 6 October, 2014). A boundary layer separates the core of driven preferential flow from the indecisive flow that fills the atmosphere or free-stream velocity.

Free-stream velocity is that which is not disturbed by any object or boundary. This mixing between directional flow and the atmosphere becomes increasingly turbulent away from its source.

Blowing and sucking collude in the test-section as a straight laminar flow of air. Here a model of anything can be placed to simulate the conditions of anywhere. These two are the subject and object of a continuous sentence uttered by the unending breath of the wind tunnel.

Haseeb Ahmed

Rational numbers can be represented with fractions, real numbers only approximately. I like that: the not-yet, the almost, the right-before-its-resolution. Behind each π (pi), to cite a pop star of real numbers, there is an infinite series of digits. A circumference and its diameter conjure up unsolvable complexities – or to put it a different way: clear conditions provoke unending descriptions nonetheless.

In chemistry, for instance, there are research chemists and industrial chemists. The former do research, the latter apply it. We want to work like the former: we want to lay tracks, provide ideas, but not to transfer anything to the economic realm. A not-yet art. Or an art of the not-yet.

Sofie van Loo calls it bi-modernism: the leap between imagination and thinking. Yes! And when we work, we leap too. We call it ‘man engine’, the technology from 19th-century mining whereby two ladders move up and down. Depending on the miner’s rhythm as he switches sides between them, he rides into or out of the shaft. In German this is called ‘Fahrkunst’ (man engine), driven by a ‘Kunstrad’ (water

wheel), ‘Kunstgestänge’ (flatrod) and ‘Kunstkreuz’ (rotating cross-shaped lever) – all with the German word ‘Kunst’, in the ancient meaning of ‘technology’ (Greek: techne), or ‘art’, in them.

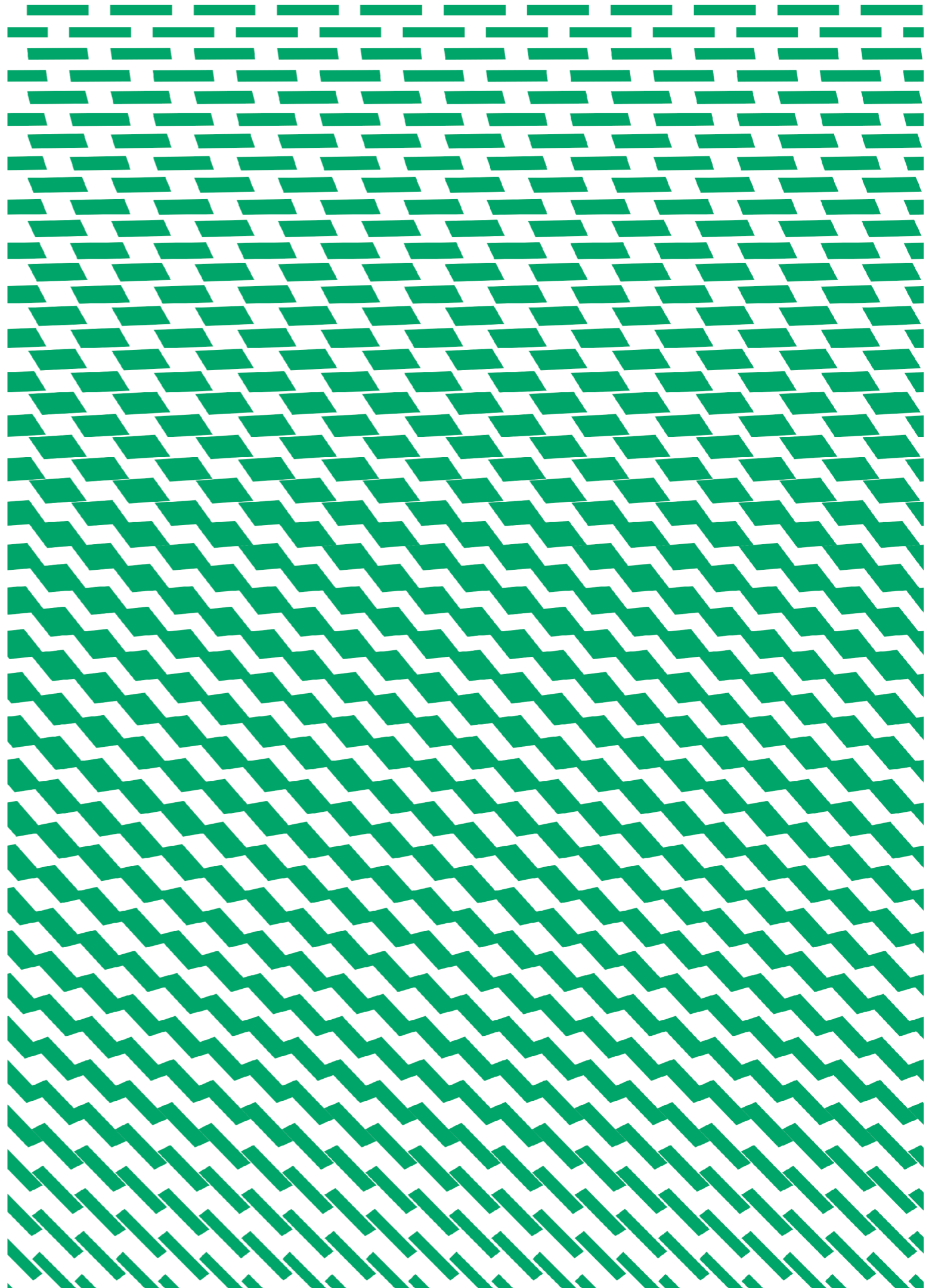
Our wind tunnel is conceived in an erotic spirit. One can have sexual associations. There is sucking and blowing. What of this is feminine, what masculine? I don’t know. And that’s a good thing. The working section is in between, it is the empty space between the nozzle and the vent. When I hold my face there in the wind: does my hair fly around because there is excess pressure in front of me? Or because there is low pressure behind me?

Our wind tunnel has moved since our Modelapéro. At that time, we were next to the “Kunsthof” on Hafnerstrasse. Now we are gradually installing ourselves on the roof of the Toni Campus building. The whole Zürich University of the Arts in one place, and we on top. There is an escape route through our laboratory. We need it. Above all mentally.

“Epistemic things” are things “that leave something to be desired” Hans-Jörg Rheinberger said in a lecture today (2 Oct. 2014). And what is more, he said that they can only be epistemic things “if their potential of signification is not exhausted”. The aim is to successfully endure this tension.

“Designated Discomfort Area” is our realm of thought. We are not interested in affirmation, nor in opposition à la 1968, which has long become a comfort zone. For it is not a matter of declaring others guilty. We want to think, and subsequently to endure this thinking. We have to endure fears, otherwise nothing more can happen. This is existential.

Florian Dombois



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- 042 27.06.14 Developing Tunnel Vision
- 043 13.09.14 Kein Windspiel
- 044 14.09.14 Aerographie
- 045 14.09.14 Ballon-Versuch
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- 063 27.09.14 Toni Brännt
- 064 28.09.14 Thinking Machine



061



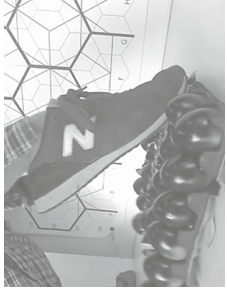
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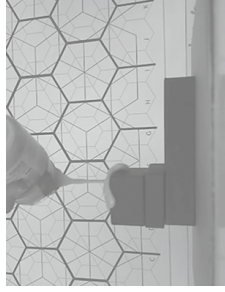
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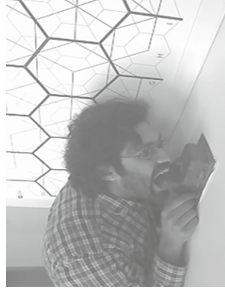
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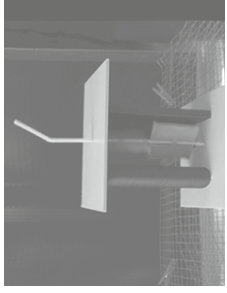
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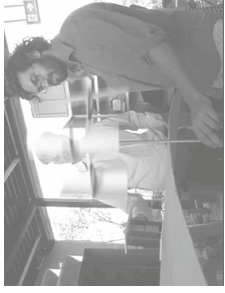
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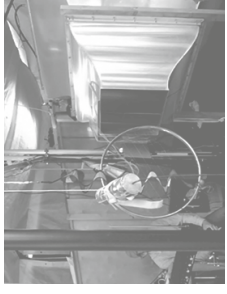
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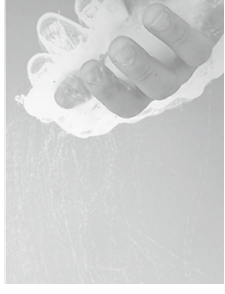
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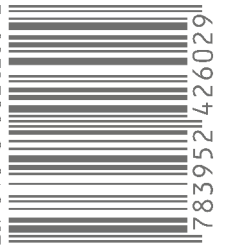


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