

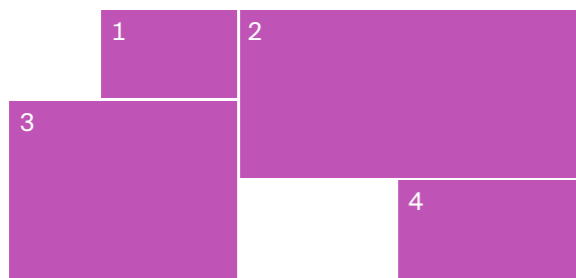
wind tunnel bulletin



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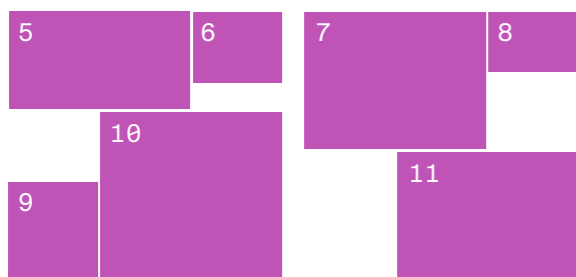
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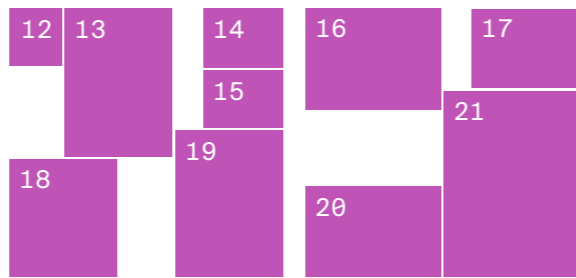
- 1 Kleng Ek, Cambodia; <http://english.cambodiadaily.com/news/kite-enthusiasts-gather-for-annual-festival-51004/>
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- 3 Cody's Bat Kite in military testing, Great Britain; <http://fly.historicwings.com/2013/03/high-upon-a-kite/>
- 4 Janggan, Indonesia; <http://baligatesofheaven.blogspot.com/2021/01/bali-kite-flying-festival.html>

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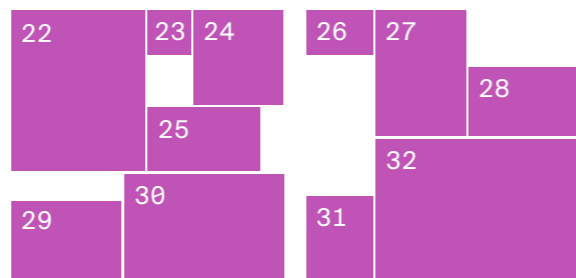
- 5 Wau Dodo Helang, Malaysia; <https://www.gettyimages.in/photos/kelantan-kite?phrase=kelantan%20kite&sort=mostpopular>
- 6 Koryu-semi, Japan; <https://tokuhain.chuo-kanko.or.jp/detail.php?id=1870>
- 7 Bermuda Kite, Bermuda; <https://kalinko.com/blogs/yangon-post/kalinko-living-easter-around-the-world>
- 8 *Triple Instruments* in Venice, 2019; <https://blog.zhdk.ch/windkanal/2019/04/27/sound-kite-orchestra-in-venedig/>
- 9 Koryu-semi by Satoshi Hashimoto, Japan; <https://www.nationalkitemonth.org/kites-from-around-the-world/>
- 10 Steiff's Roloplan arch, also inventor of the Teddy Bear; from Walter Diem, 2008: *Der Drachendesigner Richard Steiff*. Norderstedt: Books on Demand, p. 15
- 11 Bell's Circular Kite, Canada; <https://www.scientificamerican.com/article/alexander-graham-bell-goes-and-flies-a-kite-for-science/>

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- 12 Edo Kaku-dako, Japan; <https://www.my-best-kite.com/asian-kites.html>
- 13 Box Kite (Lindenberger Normaldrachen, Germany), 1908; <https://www.monumente-online.de/de/ausgaben.backup/2011/2/entdeckungen-in-freier-atmosphaere.php>
- 14 Edo Kaku-dako, Japan; <https://www.drachenforum.net/thread/81065-edo/?s=5dba9edfbaa1f30505e-14b45303e2a509f1a427>
- 15 Edo Kaku-dako, Japan; source unknown
- 16 Bebean, Indonesia; <https://www.deviantart.com/bythart/Bebean-Kite-251997993>
- 17 Box Kite, Germany, 1905; https://rcccm.dwd.de/DE/forschung/atmosphaerenbeob/lindenbergersaeule/mol/historie_node.html
- 18 *Triple Instruments* in Venice, 2019
- 19 Box Kite, in front Samuel Franklin Cody, aeronautical pioneer and wild west showman; from David Pelham, 1976: *Kites*. London: Penguin, p. 50
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- 21 Cody's Bat Kite, Great Britain; <https://www.fotomuseum.ch/de/situations-post/michael-kempf/>

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- 22 Cody's Bat Kite, Great Britain; <http://avstop.com/news/cody2.html>
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- 25 Dieu Sao, Vietnam; https://www.youtube.com/watch?v=MPUG_i6XW7g
- 26 Dieu Sao, Vietnam; <https://urbanisthanoi.com/hanoi-culture/12894-at-a-thousand-year-old-flute-kite-festival-in-northern-vietnam,-melodies-and-prayers-cross-the-sky>
- 27 Dieu Sao, Vietnam; <http://www.windmusik.com/html/caisao.htm>
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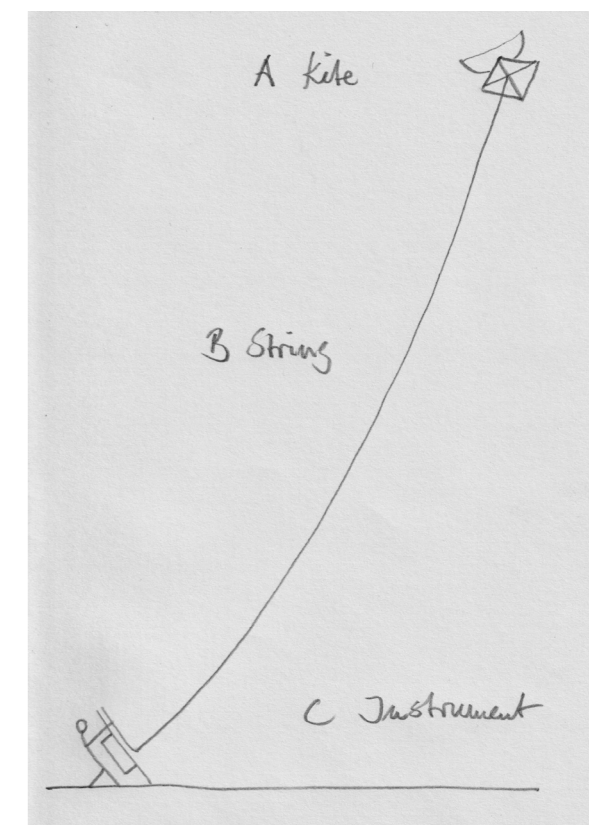
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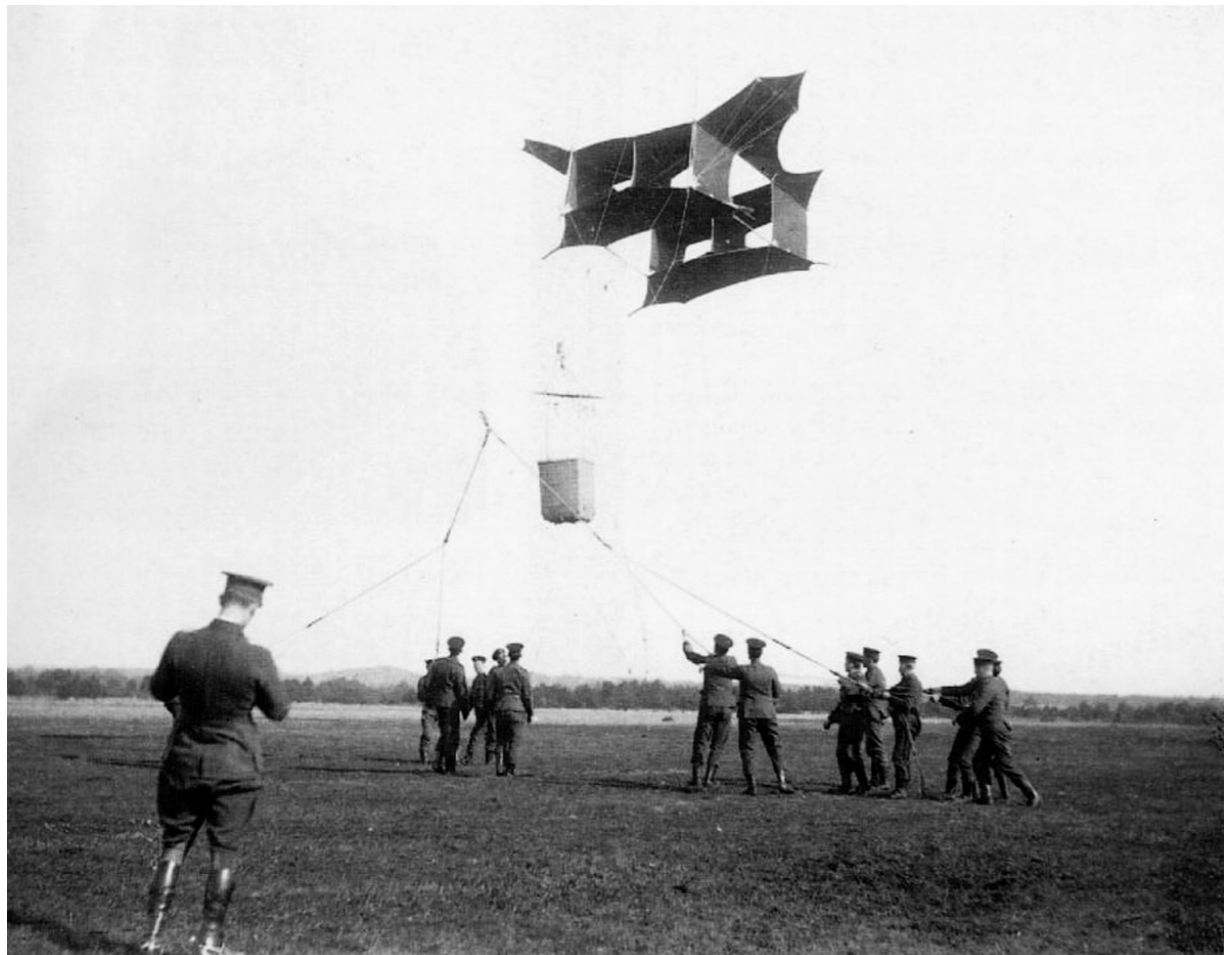
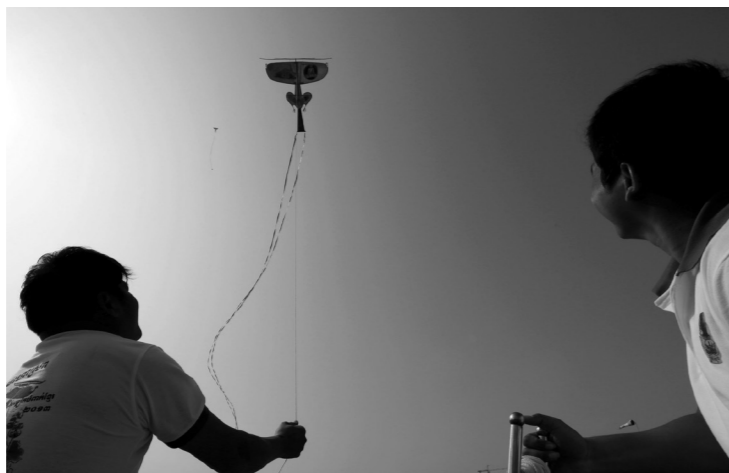
wind tunnel bulletin n° 13, june 2021

The high art of kite flying in Asia goes back centuries, if not millennia. Many of these traditional kites are also musical instruments, and articulate the wind in sounds. This issue of our bulletin is dedicated to sound kites, which we juxtapose with the silent European box kites of the late 19th century and our present-day further development: *Triple Instruments*, in which not only the kite sounds but also the string on which it flies and the ground instrument through which its line is passed. Together with Patrick Müller, we reflect on such music-making with a natural player and print the first draft of a piece of sonic fiction by Antoine Chessex; a new genre through which he seeks to promote listening through language. But that's not all: while reading, you can listen to a radio program that Fabian Gutscher has composed especially for this issue and that can be synchronized with the print edition. (Just scan the QR Code below or go to worldwide-wind.org). Follow the sound of turning pages or simply your own curiosity. Open your ears and ahoy!



Florian Dombois, Fabian Gutscher,
Krispin Heé and Mirjam Steiner





Florian Dombois
Triple Instruments

*Hear the sky make music.
And play along with it.
Listening through the string.*

Triple Instruments is an artwork for everyone, an artwork anyone can shape as they wish: Anyone who holds the string of a flying kite and threads it through a sounding instrument. Anyone who extends an instrument's string skywards, by attaching it to a kite. Anyone who is ready to fathom the wind's own spectrum, from the lightest breeze to a life-threatening hurricane. Stay alert.

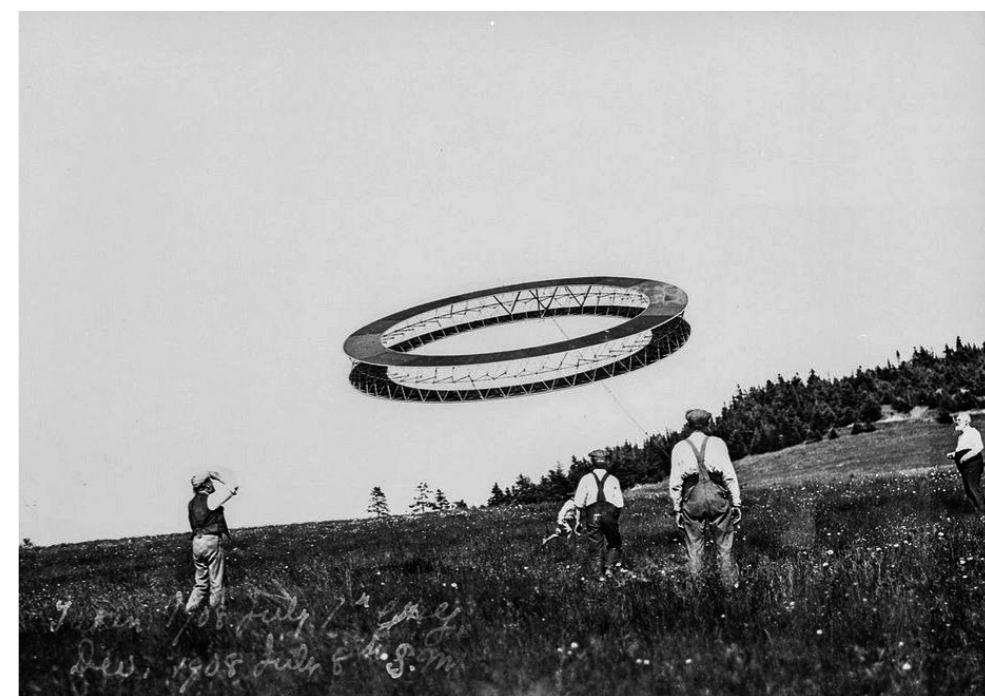
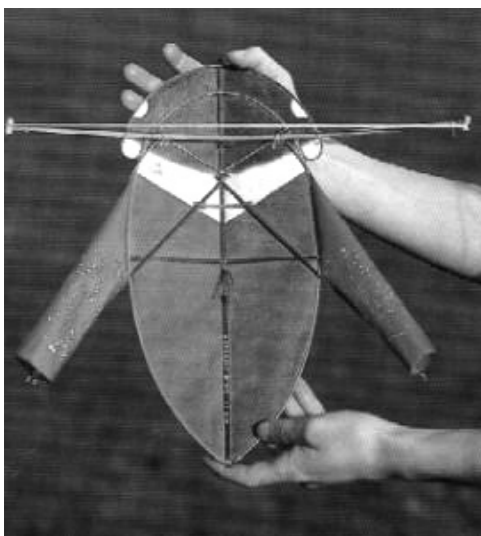
A ground instrument
body of the monochord could be a violin, or a cello, or a double bass or guitar. It could also be a đàn bau, a zither, or a diddley bow: There are no limits. Any stringed instrument can be converted into a *Triple Instrument*. Any stringed instrument can be extended far into the sky, if you so choose. Or, if you prefer the other way round, thread an external string — a kites string — through your instrument, attaching it at the neck and foot. Discover any and every way the airborne string can vibrate and create resonance.

Triple Instruments is based on a monochord, an instrument with a single string. The resonating body of the monochord could be a violin, or a cello, or a double bass or guitar. It could also be a đàn bau, a zither, or a diddley bow: There are no limits. Any stringed instrument can be converted into a *Triple Instrument*. Any stringed instrument can be extended far into the sky, if you so choose. Or, if you prefer the other way round, thread an external string — a kites string — through your instrument, attaching it at the neck and foot. Discover any and every way the airborne string can vibrate and create resonance.

The string of a classical instrument is under very high tension. Were a kite to pull as strongly as a fully-taut violin string, it could launch you airborne. So if you choose to use the extended string of an instrument as a kite string, you should harness the string's power in some way. For example, you can attach a metal screw terminal to the kites string, then tighten the string with a small loop attached to the screw terminal and pass it through the monochord's neck. But make sure this can move freely, so it doesn't break the resonant circuit between earth and sky, blocking the sound as it passes in both directions. *Triple Instruments* has three sonic producers: a human being, a human-made object, and the non-human world. The three elements reciprocally influence each other: You, the player, are one of them. If you wear headphones, you can hear deeply into the subtlety of each element. Something else, though, remains inaudible: The Earth. It, too, vibrates, oscillates, and sings. Coming up through your feet, the actual resonance of the Earth underlies the three upper elements of the performance.

A string
The string, the connecting and transmitting line, forms the soul of *Triple Instruments*. It must be able to vibrate freely. Two ideal materials would be gut string or piano wire. But even tennis strings will do. Above all, avoid any muting or dampening of the vibrations as they pass through the string from top to bottom and back again. This string allows you to sense the wind in all its nuances. It howls in the wind, sending the hummer's noise to the earth. This provides an echo of the sounds you make, your plucking and stroking. All of which are transmitted upward to the kite, then sent back down to earth. A kite's beauty lies in its string, which can put the sky into your hand. Remain susceptible to what the kite string affords.

You can use any shape, any kind of kite. Decide which shape you want travelling upward on your string, that is, the form you choose to offer the wind. Traditional or avant-garde, native or foreign: Give your imagination free rein. Even a raincoat can become a kite. All you need is for the kite to fly well and to be strong enough to carry the weight of the string, and of some kind of hummer. A hummer consists of a length of ribbon, from about 5 to 15 millimeters wide, stretched flat across an arc of bamboo, wood, or carbon. The ribbon starts to vibrate in the wind. Long arcs produce deep tones, short ones high tones. You can also hang the ribbon from threads, which can produce quite a different set of tones. Try out forms that correspond to the wind. The buzzing is transmitted to the kite's body and from there down the string to earth. You can use the hummer to lend the wind a sonorous voice and to listen back to the sounds it makes. Kite flyers have done this for centuries in Malaysia, China, Bermuda, and elsewhere — both for aesthetic reasons and for religious ones, in order to listen to the gods and to their ancestors. As for you, you choose whom you hear in the wind above your head. You decide whom you wish to play with.



Sound Kites Around the World

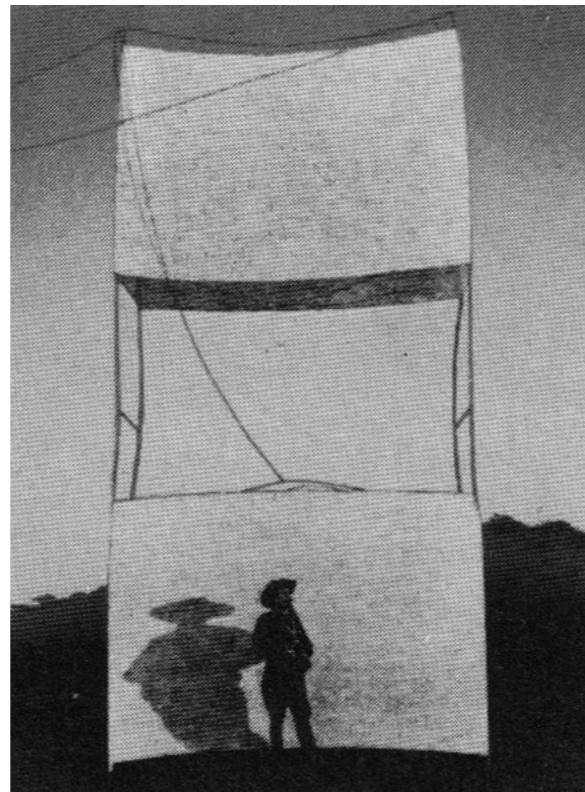
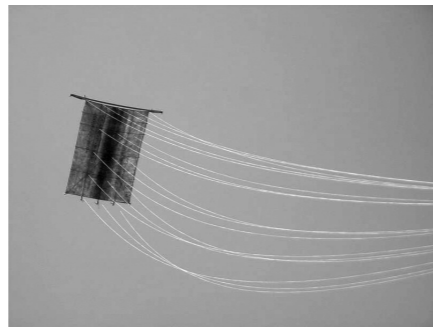
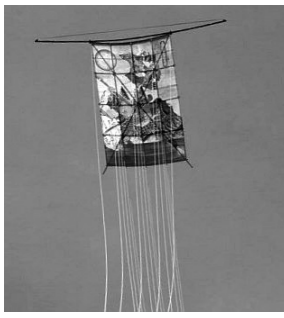
A classic among kite books is *Kites* by the artist and art director David Pelham [1976], which gives a profound overview of the common kite models and their flight characteristics that is still topical today. The most important online source for kite models and their flight characteristics that is still topical today is the *Kite Plan Base* (kiteplans.org), which has largely replaced the countless printed kite construction manuals. In the *Kite Plan Base*, however, there are no instructions for building sound kites and therefore we would like to mention [Ferment et al. 2008], which is dedicated to the construction of wind instruments. One of the authors, Uli Wahl, is in charge of the most extensive, if somewhat unorthodox, online source on sound kites: windmusik.com. Other interesting materials can be found at *The Drachen Foundation* (drachen.org), the *American Kitefliers Association* (kite.org), *Kite Builders* (kitebuilders), or in old issues of the magazine *KiteLines* (kitelife.com/magazine-archive/publications/kite-lines). For kite construction in Switzerland, Thomas Horvath must be mentioned, whose *kite lab*

(horvath.ch) has emerged internationally with *Zero Wind Kites*.

Historically, the written tradition of sound kites begins in 202 B.C. in China: A commander named Huan Theng – inspired when his hat was blown off his head – is said to have built numerous kites, which he equipped with sound devices. He used so-called hummers, thin pieces of bamboo that were tensed between the ends of an arch. He had his kites with «noise makers» [Crouch 2003, 24] flown at night over the camp of the enemy troops, who believed that the gods were announcing their defeat [Newman 1974, 204] and who subsequently fled in fear of the eerie whimpering sound [Pelham 1977, 9]. Evidence of this origin can still be found today in the Chinese character for kites, which is composed of wind and harp.

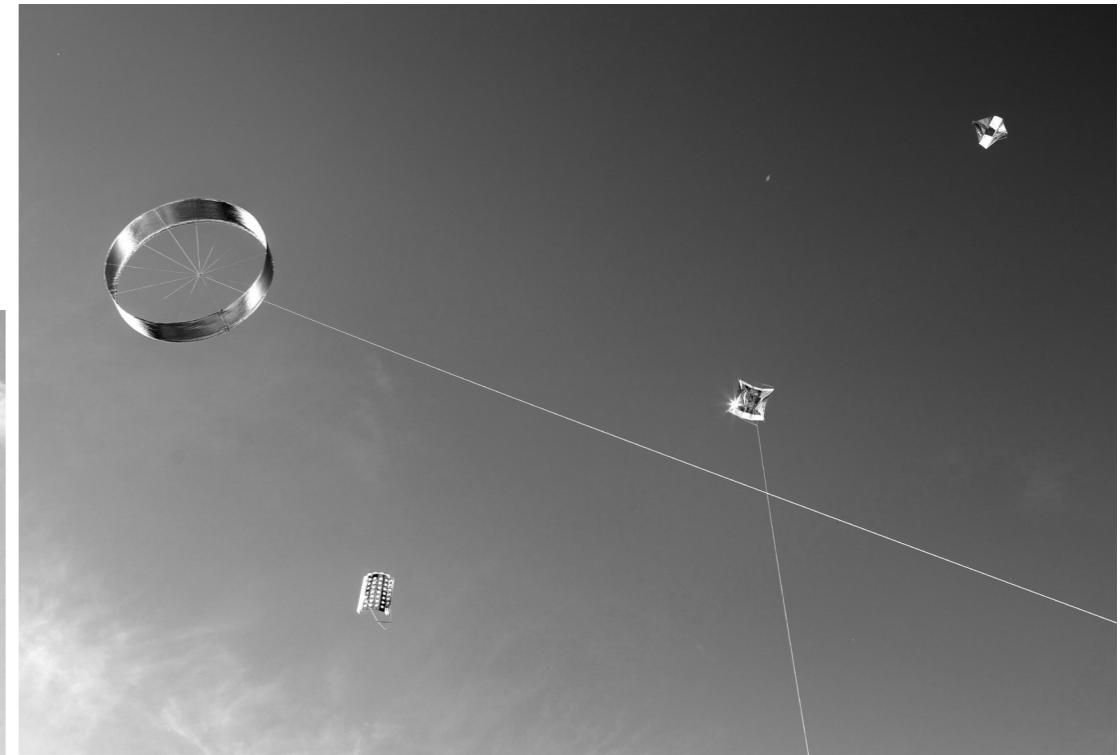
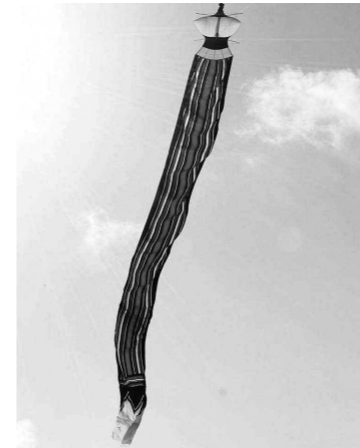
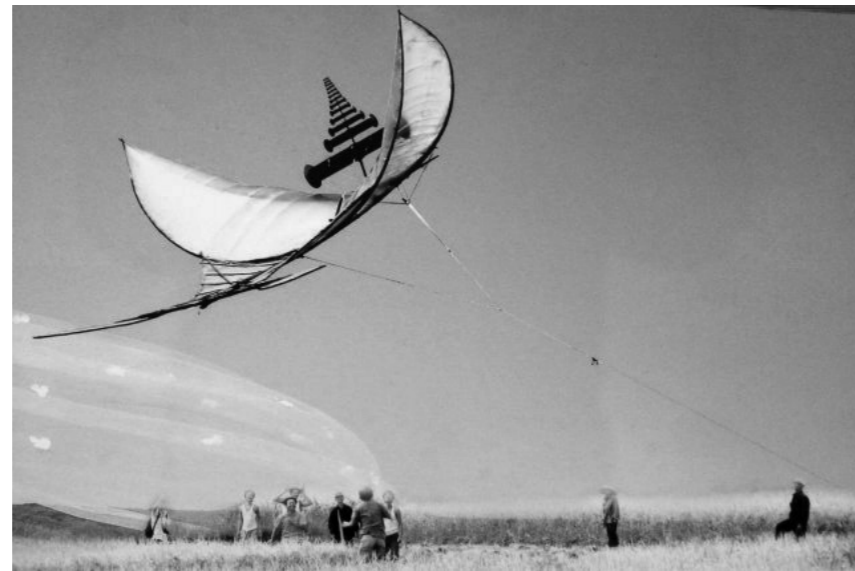
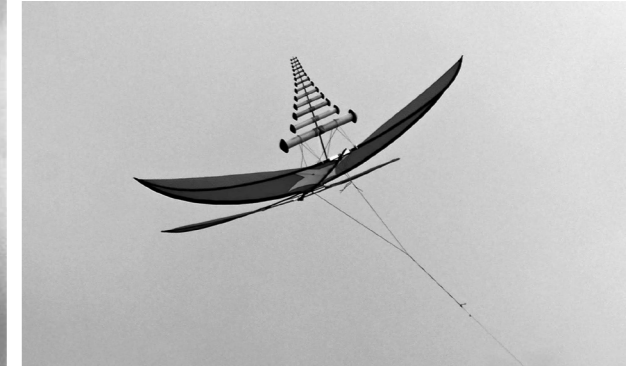
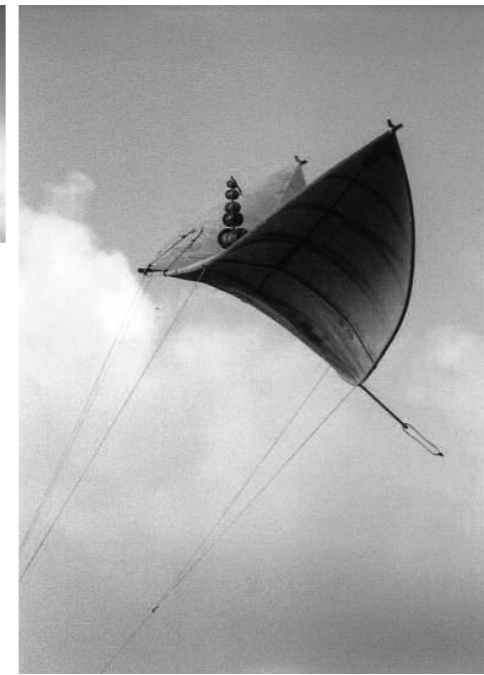
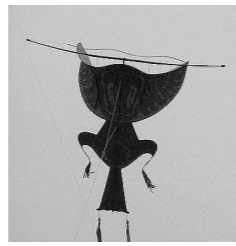
The situation is different in Europe, where kite flying first became known through Asian trade in early modern times [Hart 1967, 61–80] and still today is mainly regarded as an activity for children and a hobby. Only for a short time (about 1860–1910) were kites used as scientific tools (meteorology) and at the same time as preparation for motorized aviation according to the heavier-than-air flight principle [cf. Crouch 2003], whereby the goal was always to cast off the kite line and to fly with no connection to the ground (sic!).

If one has a look at sound kites outside of Europe, a broad spectrum of practices and functions can be identified: Apart from use as war technology, they were deployed in China, for instance, in the 10th century, as



instruments for sound production. For example, the kite maker Li Yeh is said to have created an Aeolian harp in the structure of a kite, with the metal strings on the harp played by the wind [Hart 1967, 27; Needham 1965, 576, 578]. The tradition of *Dieu sáo* flute kites in Vietnam also dates back to the 10th century [listen here: <http://windmusik.com/sounds/caisaox.mp3>]. In this tradition, the kites acted as mediators between earth and heaven: «People on earth made kites as a way to restore contact with the heavens. People attached bamboo flutes to the kites to call the fairies to the earth's festivals» [Chi et al. 2015]. For more than 1,000 years now, an annual sound kite festival has been held at Ba Duong Noi, where the kites symbolize yin and yang, and are believed to bring a good harvest and keep diseases at bay. And they are said to forecast the weather: If kites fly high in the air and make loud noises, good weather is imminent [Chi et al. 2015; Humphrey 2018; on weather kites in Europe see Diem / Schmidt 2010]. In Indonesia, sound kites are flown on different islands. In Sulawesi, they are called *Khagati* and are made from dried leaves. [Bieck 2002] assumes these kites are 5,000 to 9,000 years old based on a cave drawing. The sound kites in Bali are often equipped with two differently tuned bows, with thin strips of whalebone or rattan outer skins used for the strings (today various materials are utilized) [see Wahl 1997/1998]. It is reported that a re-

cord harvest could be hoped for if the higher sounding *pardhana* could be brought into harmony with the lower sounding *purusha* [Kelbaugh, n.d.]. The kite flying customs of the richly decorated *Wau* kites in Malaysia served as a social practice for interaction across village boundaries. Several kites were flown in a first village and in the next village the harmonies were answered by the village's own harmonic ensembles. This tradition has largely disappeared since Islamization [Sater 2018]. The hummer technology in Japanese kite construction was probably adopted from China. So-called *Unari* (translated: the thing that makes U) were and still are applied to different types of kites with different symbolic meanings and practical applications. In competitions at the Tahara Kite Festival loud sounding *Unari* kites are flown and the area around Nagoya is known for sounding so-called insect or cicada kites [Streeter 1974, 56]. In Cambodia, the *Kleng Ek*, which were banned during the reign of the Khmer Rouge, are being flown again [listen here <https://www.soniccambodia.org/khlaeng-ek> and here <https://youtu.be/cg5S4MBIupY>] and the associated legends are even to be taught in schools [Yarin, n.d.]. A kite technology related to Asian hummers can be found in Bermuda, where the strings have a round cross-section and paper is glued on to them [Wahl 1998]. It is reported that in 1800 the sound kite



tradition (which probably already existed before that time) was Christianized. Even today on Good Friday an Easter Kite Flying takes place, transforming the silent Good Friday sky «into a pleasant multi-pitched drone heard from one end of the island to the other» [Bernews 2012]. The custom has become a mass event in recent years. The noise and the danger of being hit by a kite are found so disturbing that the police hold emergency meetings with the kite clubs and in certain instances ban flying [Bernews 2019]. To our knowledge, kites have only been flown on piano strings throughout history so far without sonic interest, for example, by Richard Steiff, the inventor of the Teddy Bear, for his his *Roloplan* bow at the beginning of the 20th century ([Diem 2008, 15], which was used by the German air defense during World War I [Rahskopf, n.d.]), and during World War II, when both the German and the U.S. military developed an emergency transmitter with a wire antenna that was raised up by a kite [Kiteflieger 93, n.d.]. It is significant that the sound kite traditions that still exist today are almost all linked to social and celebratory practices such as festivals. The earth under the sky seems to be a place of encounter and the kites are flying objects that can be (technologically) updated while retaining traditional aspects.

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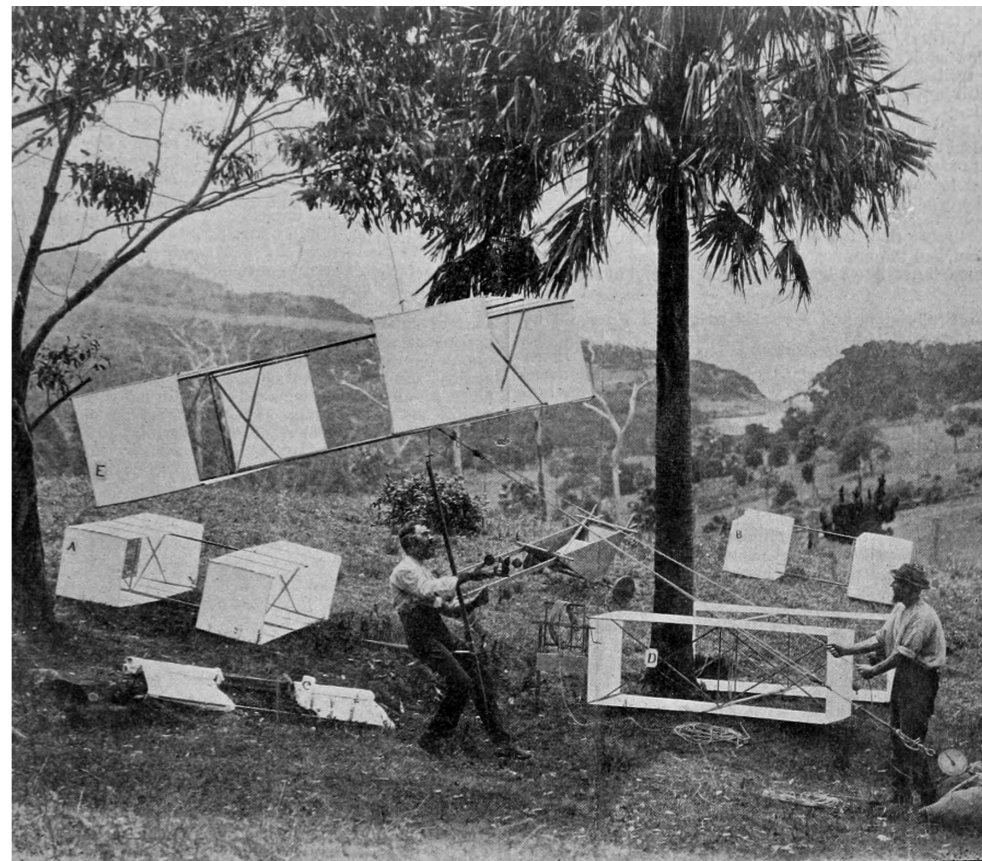
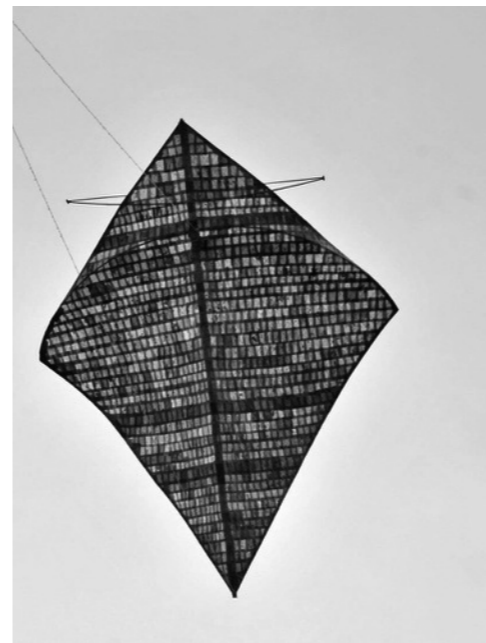
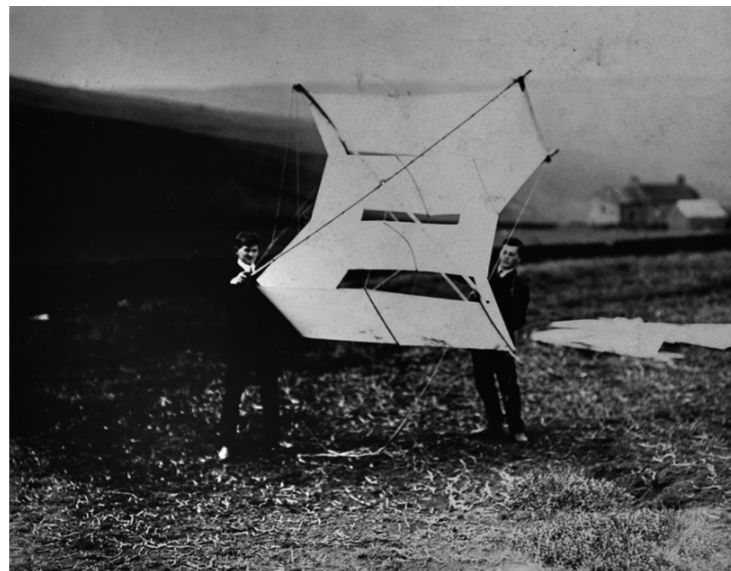
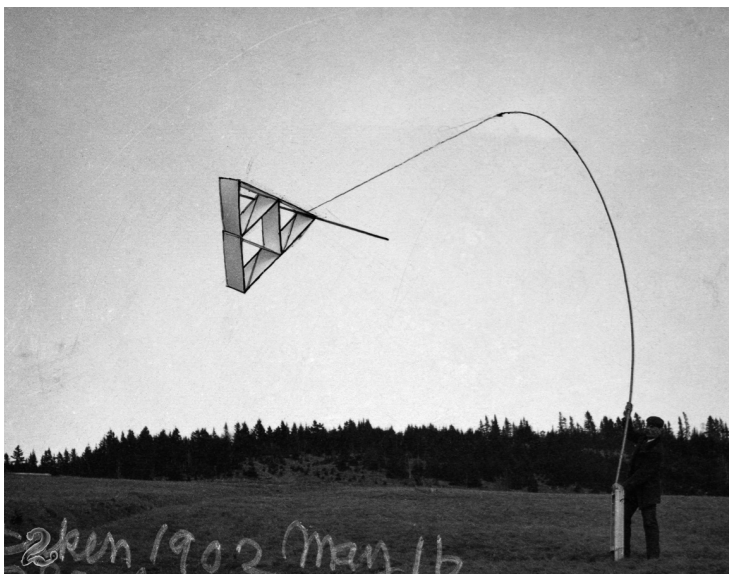
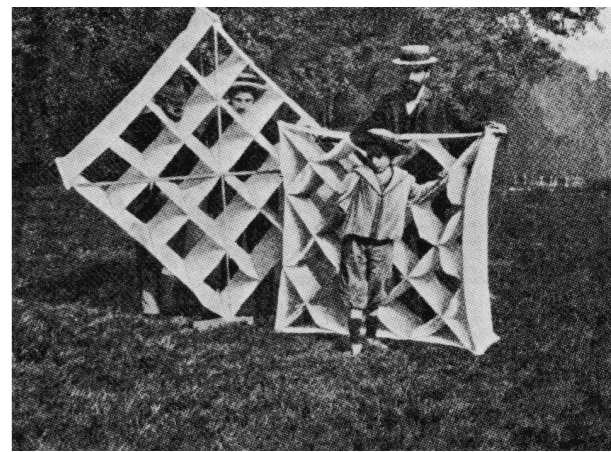
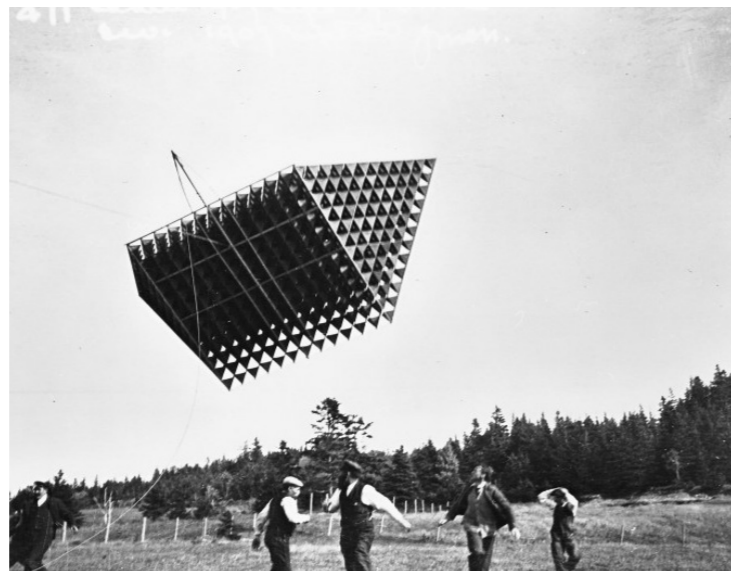
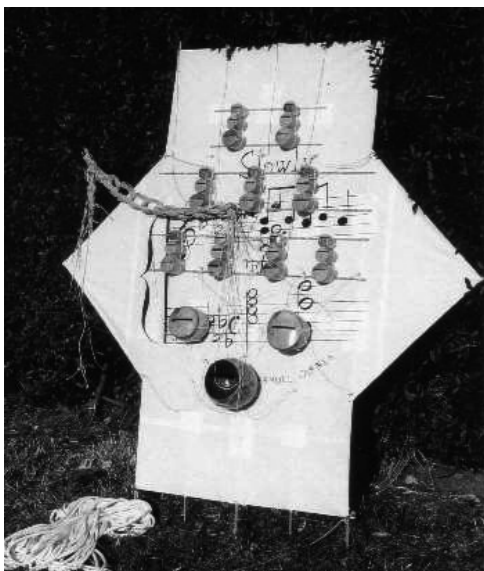
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Fabian Gutscher, Patrick Müller
The Loneliness of the Microphone

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Patrick sends me a message: «I'm ready.» I am walking. I am walking telepathically with Fabian. I hear water, it is flowing. In my ears, a high-pitched murmur, some water, a slowly pulsating drone [«Widerspiegelt, was vorbeikam» (2010), Christoph Brüngel, stereo audio], rhythimized by the movements of my steps oscillating around a pulse. I am walk. I am think. The drones and the flowing bring tranquility. Fabian has given me some questions, about uncontrollability, about nature, about bees and humans. Christoph writes about water as «...the element promising immortality in mythology.» But isn't flowing a sign of transience?

I turn a corner. But another thought seizes me. I resist it, but it glues itself to my feet, hands, ears: «The loneliness of the microphone.» It's cold Do you hear it too? I hear it in your voice, in the plops and the wind, when it nestles so intimately against my ear. I hear it in an electronic hum, in glitches, in drones, in noise: the microphone. The human ear is formed before the eye. So we hear water in the mother's belly, which is made to sound by movement. Are these sounds still stored somewhere? Is that why this calm feeling arises? In my mind's eye, I see lonely microphones everywhere. They nestle against wires and stones and planks. They hang, stand, lie in the landscape or in the art space. A breeze brushes over them, water flows around them, and they are touched by insect legs, and moved by human hands.

I let myself drift. The bees from Ludwig Berger's installation hum in my ears. I start feeling warmer. Do I hear the knowledge of the bees' heat-generating vibrations? [«Bien» (2019), Ludwig Berger, stereo audio]

Via my headphones, I hear Fabian flying a kite, I picture him in Silvaplana. The kite is the measuring instrument in a wind tunnel, formed by Piz Palù and Piz d'Err. The triple instrument, consisting of a flying object, wire and resonance body, is a gigantic microphone. It drifts lonely in the mighty Engadine landscape.

When a bee walks up to a microphone, it has to come down later. That's predictable

I am swimming, listening with my body, in the material ocean between insect and piezo, between cardioid and wind tunnel, between microphone bee, nature culture and reed hearing.

Are you still listening?

I immerse myself in the atmosphere of Silvaplana and remember recordings of Venice without a binaural microphone. I turn the recording down until it is no longer distinguishable from the real soundscape. I turn it up again and then down again. I play the game a few times. Are you still listening?

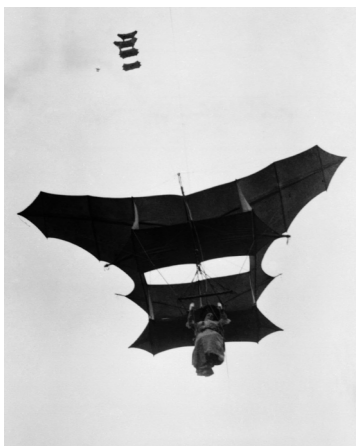
I want to see myself as part of complex systems until the moment when I get dizzy in the face of doubt about who or what is acting and reacting here and when when—or what is controlling whom or whom is controlling what here.

A friend from Hong Kong once wrote me: «Be water, my friend!»

In the recording I slowly find the sounds of *Triple Instruments*. My ear no longer knows what is outside and what is inside, what is made and what happens, where are humans, nature, technology.

Perhaps it really is possible to be water as a player too. I am always already inside. With you.

Do I hear bees working?

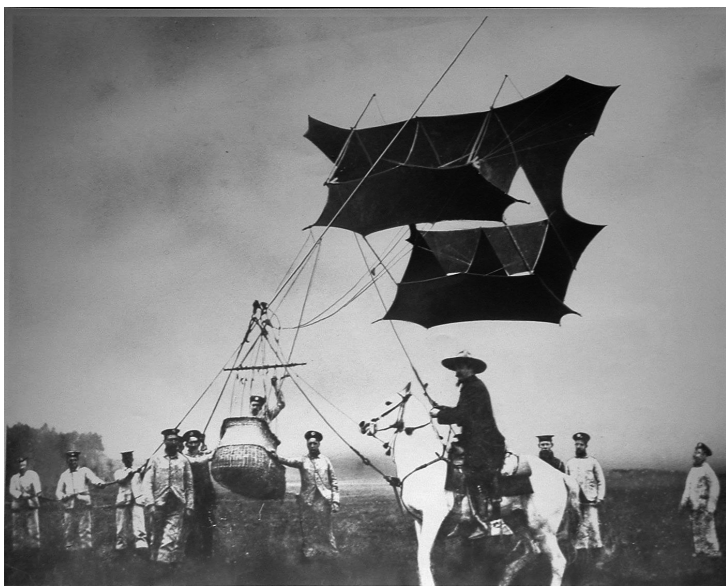


Fabian Gutscher:

We start walking. Each of us at a different place. Mirjam has asked me a question, and I have asked Florian one. We spend the next half hour walking through our neighborhood to the same soundtrack of World Wide Wind Radio. Mirjam asks: «Making music with the wind always involves playing with imponderability. What fascinates you about working artistically with coincidence, with the unpredictable? What drives you to do this, and where do you reach your limits?» I leave my house. «Limits» linger in my thoughts and occupy them for the next few minutes. I'm thinking of national borders, coronavirus and all the absurd distancing rules. We continue walking alone together. It's a long time since I've done an experiment like this, this time without a «Synchronisator.» I miss the feedback from the others' walking pace, but knowing that they hear the same sounds connects us. I re-read Mirjam's question and realize, once again, how much I think like a musician: For years, we learn to bring an instrument under control. A composer writes a composition, a performer plays only the desired sounds of all the possible sounds. Everything else is wrong. Over time, I've come to increasingly reject this unbelievable degree of control. That's why I seek coincidence, controlled – and hopefully happy – coincidence, so-called serendipity. Moreover, there's my later experience as a sound engineer on film shoots. To hear how far removed our culture's sound products are from those of a seemingly chaotic soundscape. The wind offers freedom. The *Triple Instruments*, too, have a system, which, despite all its randomness, provides boundaries and control: the instrument (sound space, resonance), the string (player, connector and what is played), and the kite with a hummer (player and played). We influence this system, and thus it would be mistaken to speak of the completely natural or coincidental. I think about the instrument. Is that where most cultural history lies? I cross the street, the lights switch to orange. A black BMW is already revving its engine. I'm startled. I'm by the river and look at the concrete structure and wonder whether randomness also exists with engineers. I recapitulate my question for Florian: If you had to give up your transdisciplinary identity, in which discipline would we find you? Or vice versa, which disciplinary parts make up your transdisciplinary identity?

Florian Dombois:

For me, disciplines are social spaces, groups of people in which I involve. They negotiate with each other, and challenge each other as peers. I continue to be fascinated by how varied what they're saying is. I want to listen to them because they're so serious and so different. And I want to understand their view of the world. But if you ask me where would I be if I had to choose: well, with people like Andres Bosshard or Christina Kubisch, that is, with sound artists. Yet the word «identity» in your question makes me uneasy. Identity delimits and reduces one to a given, for instance, genes. Even if one understands this in active terms – «who do you identify with?» – I'd always answer the question in the plural: with artists and scientists, because they invent the world; with plants, because they grow; with stones, because they carry our feet; or with the breeze, that is, the movement between two spaces. I discuss these experiences with our *Triple Instruments*. Mirjam, when you listen to *Triple Instruments*, where do you see a connection with your own art historical research, with photogrammetric images, with measuring?



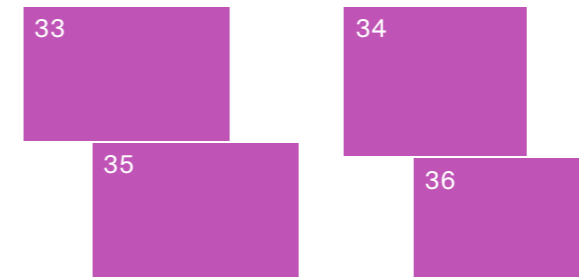
Mirjam Steiner:

I see two connections: First, kites have been used for centuries in civilian and military contexts to conduct spatial measurements or aerial surveillance of hard-to-reach territory by equipping them with cameras. The research collective Forensic Architecture (FA), which I'm involved with in my dissertation, used camera-equipped kites to visually trace the continuity of Bedouin villages in the Naqab Desert. Such kites provide photogrammetric images comprising the most accurate metadata of an area. And just as the kite part of *Triple Instruments* make the unheard audible, aerial surveillance kites make the hidden visible.

I see a second connection in the method of the Commons. *Triple Instruments* is publicly available, open source, and visitors are invited to experiment with the kites and to become researchers in the process. Forensic Architecture's kite cameras also have a community dimension: FA works with PublicLab, a community and non-profit organization that supports communities in taking their own improvised aerial photographs with consumer cameras and kites or helium balloons, and in intervening in political events with these so-called «community satellites.» Both *Triple Instruments* and the community satellites are tools that are used collectively and initiate dialogue.

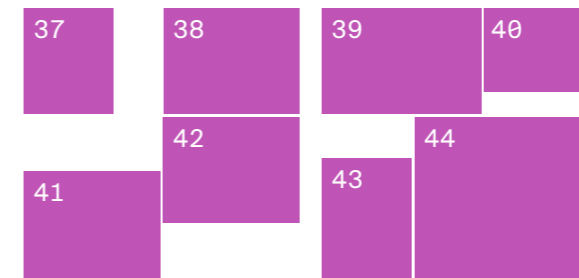
I look at the clock: Our half hour is up.

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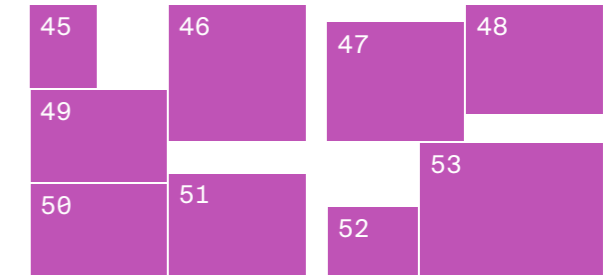
- 33 Sode Kite, Japan; <https://zhuanlan.zhihu.com/p/311439569>
- 34 Wau Bulan, Malaysia; https://www.researchgate.net/figure/Moon-Kite-Wau-Bulan-Source_fig4_333798146
- 35 Bebean, Indonesia; <https://blog.komaneka.com/kite-tradition-in-bali/>
- 36 Kleng Ek, Cambodia; <https://www.phnompenhpost.com/post-life-arts-culture/traditional-khmer-kite-flying-festival-returns-svay-rieng>

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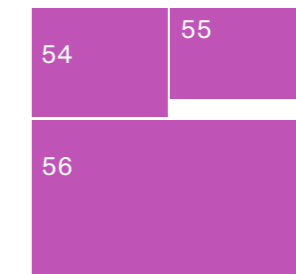
- 37 Nantong Kite, China; <http://www.windmusik.com/html/page3e.htm>
- 38 Bell's Tetrahedral Kite, Canada; <https://www.theatlantic.com/technology/archive/2012/01/a-gorgeous-floating-crystal-inspired-by-alexander-graham-bells-kites/468633/>
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- 41 Bell's Triangular Cell Kite, USA, 1902; <https://www.amusingplanet.com/2017/10/alexander-graham-bells-tetrahedral-kites.html>
- 42 Ludwig Wittgenstein and William Eccles at the kite-flying station in Glossop, Great Britain, 1908; <https://rudygodinez.tumblr.com/post/69374629284/ludwig-wittgenstein-and-william-eccles-at-the-kite-flyin>
- 43 Kaghati Kolepe, Indonesia; <https://pariwisataindonesia.id/ragam/bukan-tiongkok-tapi-sulawesi-tenggara/>
- 44 Lawrence Hargrave's Box Kites, 1893; https://en.wikipedia.org/wiki/Lawrence_Hargrave

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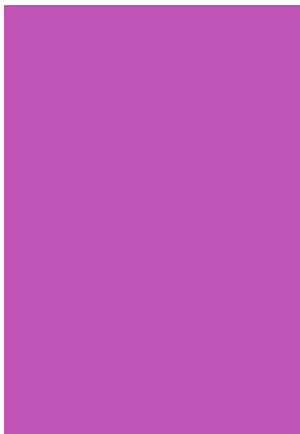
- 45 Demonstration of passenger carrying kites with a woman (probably Mrs Lela Cody), Great Britain, 1903-1913; <http://wiki.dtonline.org/index.php/Category:Kites>
- 46 Kleng Ek, Cambodia; <https://www.facebook.com/866077573530761/posts/929695870502264/>
- 47 Kleng Ek, Cambodia; <http://catholicphnompenh.org/en/church-holds-kite-flying-competition/>
- 48 Dieu Sao, Vietnam; <http://www.windmusik.com/html/caisao.htm>
- 49 Janggan, Indonesia; <https://www.thestoryinstitute.com/bali-kite>
- 50 Janggan drawing in front of Kite Museum Jakarta, Indonesia; <https://medium.com/@shrinathv/the-kite-museum-at-jakarta-d28cf37b1726>
- 51 «Kite Barn» in the ground during Sven Hedin's expedition to Mongolia 1931/32; from Walter Diem, Werner Schmidt, 2010: *Wetterdrachen von Benjamin Franklin bis Rudolf Grund*. Norderstedt: Books on Demand, p. 230
- 52 Kleng Ek, Cambodia; <https://nmbx.newmusicusa.org/classical-and-contemporary-cambodian-music-and-dance/>
- 53 Wau Bulan, Malaysia; <https://www.shutterstock.com/de/image-photo/kelantan-malaysia-15th-july-2017-undidentified-685980511>

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- 54 Samuel Franklin Cody in his typical pose instructing soldiers from the Royal Aircraft Establishment in Adlershot, Great Britain, 1904; from David Pelham, 1976: *Kites*. London: Penguin, p. 53
- 55 *Triple Instruments* in Venice, 2019
- 56 Bebean, Indonesia; <https://baligatesofheaven.blogspot.com/2021/01/bali-kite-flying-festival.html>

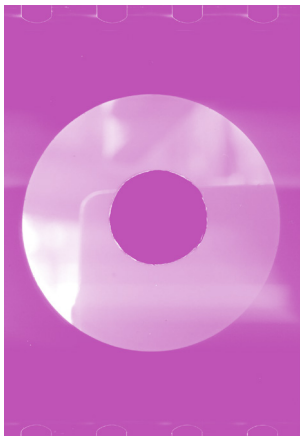
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