

Erhard Hößle (1929-2019)

On July 25th, 2019 Erhard Hößle, a Bavarian silversmith and sculptor, died at the age of 90. His professional life had been marked by a strong creativity and a broad range of interests.

One of Erhard's primary interests was flight in general, aerodynamics, and kite design; and indeed, over a time span of five decades, he designed very many different kites and other flying machines, patented some of them, and built and tested kites specifically meant to be used for man-lifting trains.

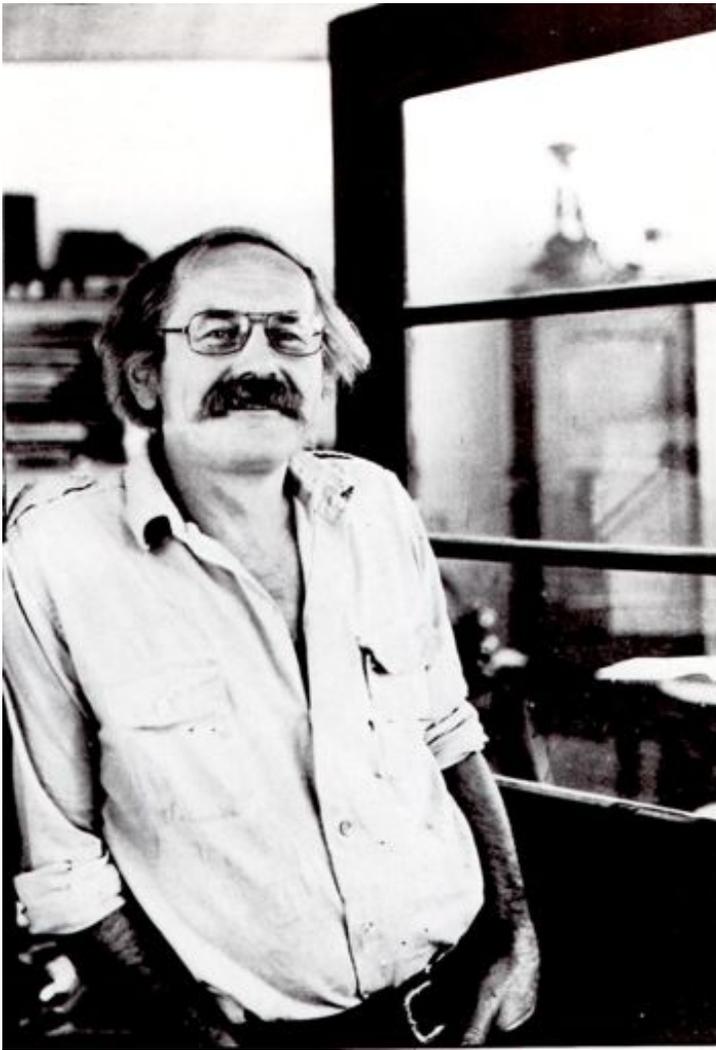
With this piece it is my wish to discuss Erhard Hößle's unique contribution to kiting and his legacy by expanding on the following points:

1. The uniqueness of Erhard Hößle's genius within the history of XX century kites and within the whole of kite history;
2. His belonging to a pre-digital, pre-internet age;
3. His ability to link an older background of kite making (the one that led to the invention and development of the aeroplane) to the availability and use of modern materials;
4. His ability to conceive, design and realize new kites *after* the invention and multifarious development of the aeroplane;
5. His two main man-lifting systems;
6. An apparent link, through his unbounded creativity, between the study of "natural" flight (as embodied in birds and insects) and the study of man-made developments such as aeroplanes, gliders, kites, etc.
7. A unique artistic approach capable of fusing all the aforementioned components into a single, original and recognizable style.

This essay cannot possibly be exhaustive but it will hopefully provide a template for a more extensive future work.

BACKGROUND

Erhard Hößle's background can be easily outlined. He was born in Memmenhausen (Schwaben) in 1929. He trained as a silversmith from 1949 to 1955 at the Akademie der bildenden Künste München with Professor Franz Rickert and established his own atelier in 1955. He then started teaching in 1969 at the Akademie der bildenden Künste Nürnberg where he taught the Klasse für Gold- und Silberschmiedkunst



up until 1991. Over the following decades his work was shown in countless exhibitions in several countries. Amongst his realization and commissions were various and varied objects, ranging from the 10-metre high Glockenspiel for the Carl v. Linde Realschule in München to a set of ten panels (enamel on copper) with Eucharistic symbols realized together with his wife Therese Hößle, also a silversmith, for the Chiesa del Sacro Cuore in Gallarate (Varese, Italy).

Throughout his work runs a sense of invention and play and those who were fortunate to get to know him could testify about a unique personality, adventurous and utterly original.

Erhard's involvement with kites found its first culmination in the first man-lifting system in the 1980s but much followed thereafter. The procedure, almost invariably, was that of drawing countless sketches, then building scaled-down models (in silver or other metals) and then realizing prototypes which Erhard often tested on the wide beaches of Northern France and Brittany where he could find ideal wind conditions.

THE POWER OF HANDS AND IMAGINATION

Erhard commanded high craftsmanship skills that enabled him to use the lightest of materials (such as spinnaker sailcloth) and some of the heaviest ones (such as a variety of metals). He could and did work virtually with every material available.

One particular aspect of his work and attitude (already mentioned) is that he often made small models of the real-size objects he had planned to build. An example is the model called "Fesseldrachen" whose kite shape resembled that of the Russell Hall kite that he used as the basis of his first man-lifting system.

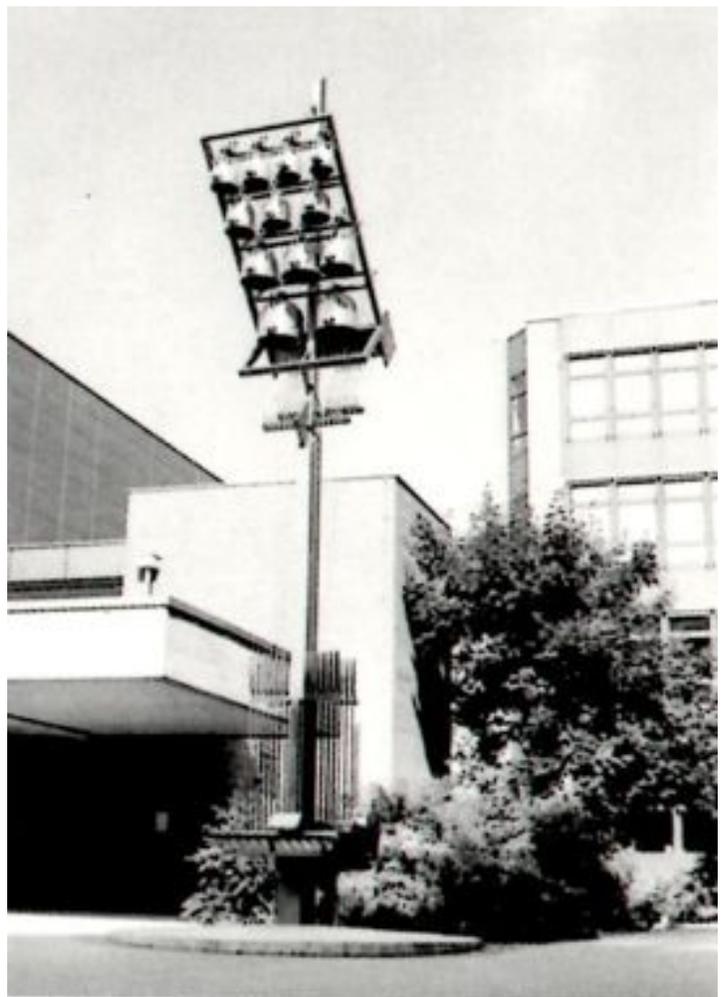
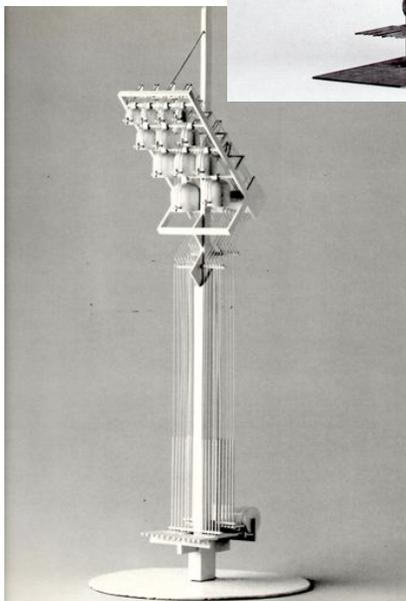
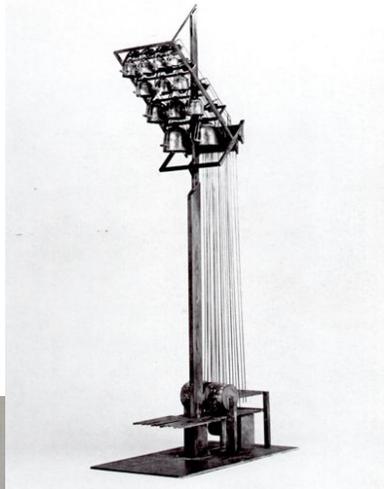
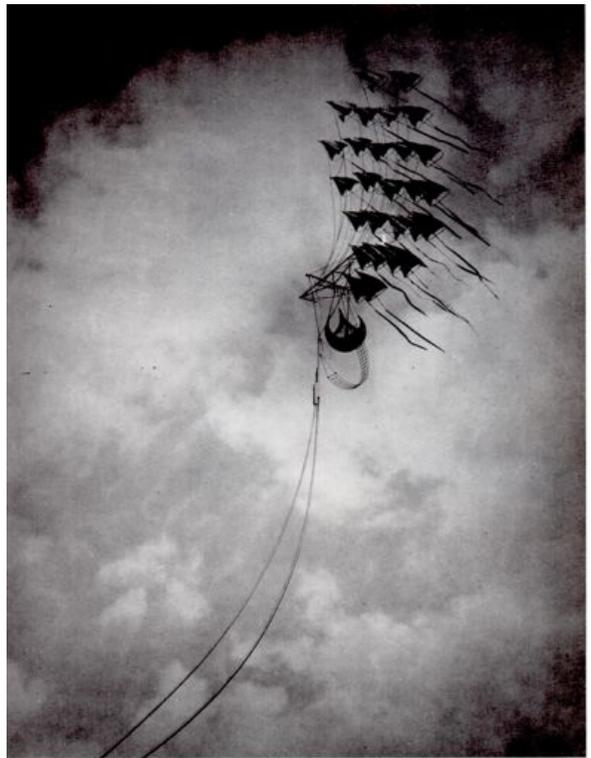
The model shown in the photograph on the right referred to "proper" kites, that is, kites properly arranged as a kite train, stacked one after the other.



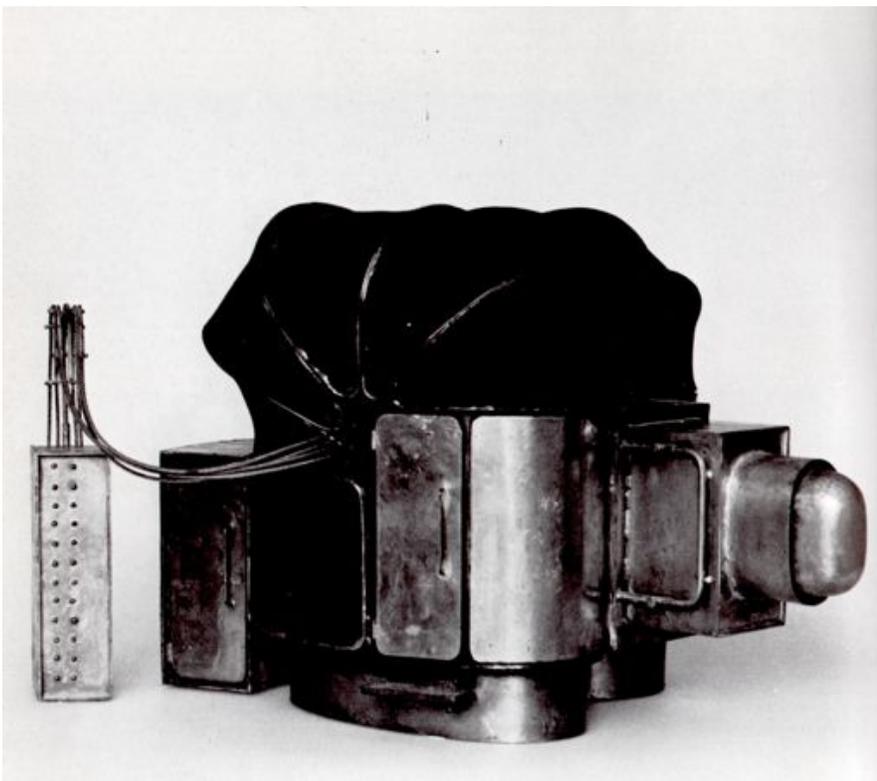
Another model was built somewhat differently because the "kites" instead of been stacked one behind the other were actually clustered over a hypothetical cradle. Of course this would not be possible to do in real life, but here is the whole point and meaning of art: art is about imagination and, quite often, about an inherent or explicit sense of playfulness.

An example of that playfulness is the other name also given to this first system - "The Höβle Himmelbett". There is no such thing in real life - but one can imagine it and create artistic realizations that embody that intuition. These may make the onlooker either dream or smile or think, and that is enough as far as art is concerned.

In any event, Erhard built a vast range of objects and on occasion worked on an event rather than on an object. The photographs below show a few examples, starting with the glockenspiel realised first as a model (more than one, actually) and then as the real thing for the Carl v. Linde Realschule in München (below right).



The following photographs show very different objects such as a set of handmade cooking utensils and a 1:10 model of a later realized large camera that could take actual-size photographs of people.



The point cannot be stressed enough that these are objects built by very capable *hands* in a pre-digital, pre-internet era.

American sculptor and artist Alexander Calder, primarily known for his huge mobiles and other installations, often said that when one has no materials to work with one can always draw.

That fittingly applies to Erhard Hößle. His hands could produce the most beautiful and strong handwriting, and did produce countless sketchbooks full of ideas which only needed a pencil to be translated from Erhard's mind into the realm of the visual.

THE FIRST MAN-LIFTING TRAIN

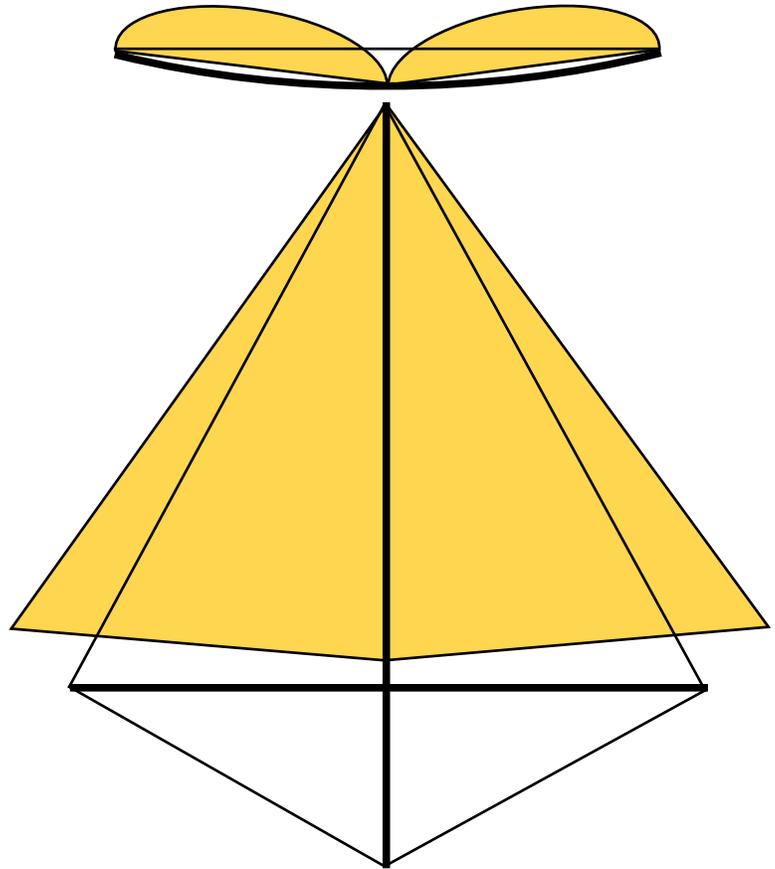
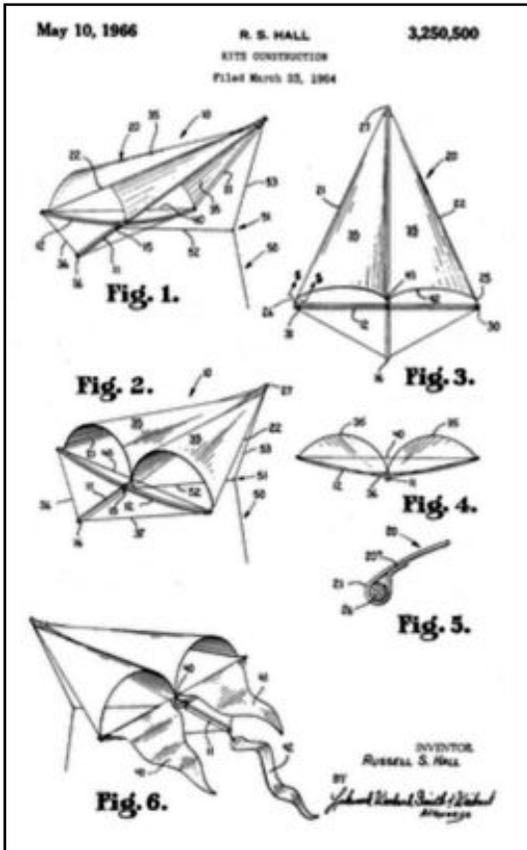
Of such main-lifting systems Erhard realized at least two which were fully tested and operated over at least two decades. The first one in particular, based on a kite by American Russel Hall, was seen at kite festivals and gatherings from the mid-1980s onwards, and contributed to create in many kite people's minds an unmistakable identity for Professor H \ddot{o} ßle and his peculiar work.



The basis for this man-lifting system is the kite invented and patented in 1966 in the United States by Russell Hall, and shown on page 211 of *The Penguin Book of Kites* by David Pelham. These are the basic specifications:

Total surface area: 70 sqm
Projected surface at wind speed 5 m/s: 60 sqm
Projected surface at wind speed 15 m/s: 20 sqm
Sails: ripstop nylon
Spars: Aluminium
Weight of complete stack: 50 kgs
Flying Line: 4 mm diametre steel wire
2 tons tensile strength
Max. Tractive Power: 350 kgs
Minimal Wind Speed: 5 m/s
Maximal Wind Speed: 15 m/s
Maximal Flying height: 80 metres

Russell Hall obtained a patent in 1966 which is shown below together with a basic diagram.

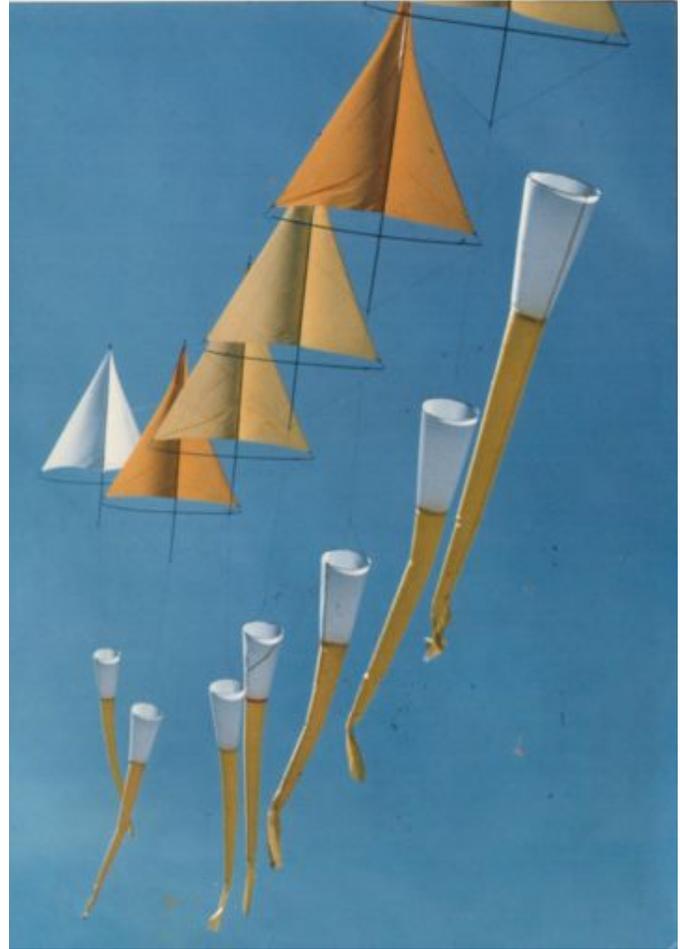


The shape vaguely resembles a low-aspect ratio delta but this is no delta at all. Its sail, under the pressure of the wind and according to the degree of bowing of the cross-spar, creates two parabolic cambers that will ensure a variable degree of stability according to the specific wind speed. Erhard used tapering aluminium ski poles which would automatically bend to a degree related to different wind speeds. As it can be seen on the legend on the previous page, the train was conceived for flying within a 5-15 m/s wind speed, and within that range, due to the flexibility of the the ski poles, the projected sail area would diminish proportionally to any increase of the wind speed, ensuring stability through a deeper dihedral angle.

The bent tapering cross spars can be seen in the following photograph showing the whole train stretched out on the ground.



Another photograph (below, left) shows the "handle bar" by which the flyer could change the angle of attack of the kites, thereby increasing or reducing lift and altitude. Long drogues (below, right) were added presumably for additional stability although I personally felt that they were not necessary as the kites were utterly stable in themselves.



A personal footnote: accounts from people who have built a Russell Hall kite are mixed and mention difficulties with bridling and other aspects. In the original patent the kite is shown as being stabilized with flaps and with a tail - I would not completely trust either. Also, most of the surface area is in the lower part, resulting in "a delta that is not a delta". If I were to build a man-lifting system I would still intuitively trust more a large Eddy, a Rokkaku/Baden-Powell-like design or, of course, a Cody kite, more than I would trust a Russell Hall kite. Having said that, Erhard Hößle did perfect the design and ingeniously utilized it for a man-lifting system which proved to be functional and totally reliable. I "flew", that is, I was lifted myself by such a system at the 1986 edition of the international kite festival "Cervia volante" held at Cervia, Italy, and the whole experience was exhilarating.

I must mention that Erhard devised several ways of anchoring this system to the ground. In Cervia, due to the narrow and crowded beach, he anchored the system to a number of sand bags which could shift over the ground to some extent and, in case of extreme danger, could also be partially or completely removed in order to land the train away from the beach and, hypothetically, even lose it in the water. At other times I believe the train was connected to Erhard's classic Hanomag military truck which often traveled from Ebenhausen to kite festivals in Germany and Europe with a whole crew of assistants.

THE SECOND MAN-LIFTING TRAIN

The second man-lifting system was designed and built in the early 1990s. Although I myself cut and sewed all the sails on Erhard's specifications, I cannot unfortunately find in my archives any written record of it in the way of notes, diagrams, dimensions, etc. To begin with, here is a photograph taken during the train's maiden flight on the Piano Grande in Umbria, Italy, in the spring of 1995.



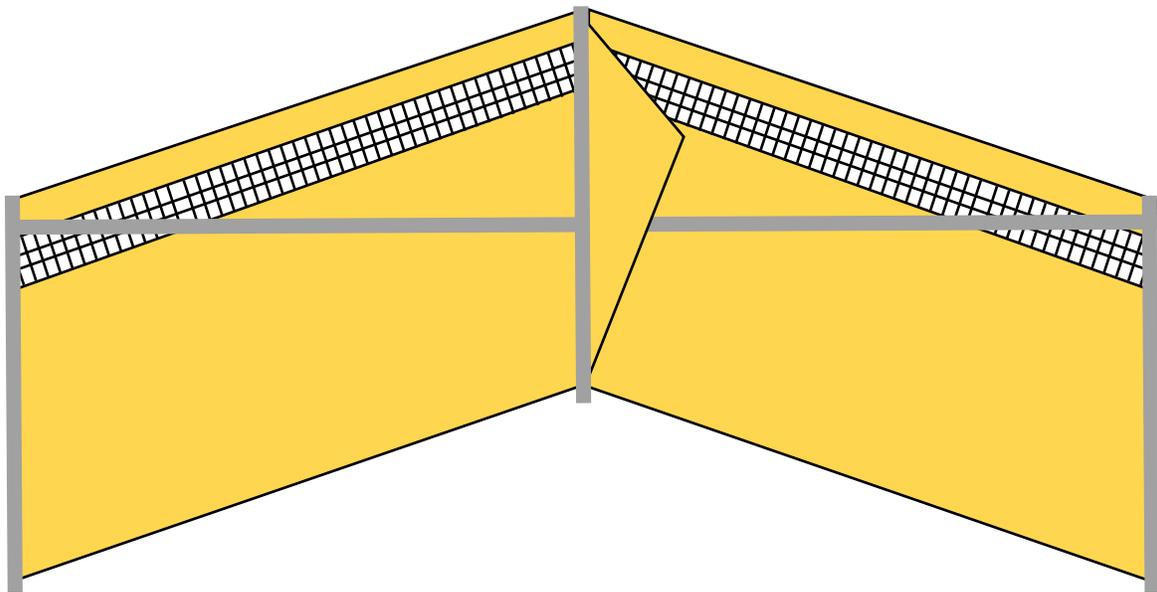
I have unfortunately to rely on my memory, so I hope to be forgiven for possible inaccuracies. I believe I prepared 12 or 15 navy blue sails, but I cannot be absolutely sure as to which number is correct. The basic design is well shown by the white pilot kite, which was first made by Erhard himself, as shown above.

This really is an excellent design. The way the shape of the kite was devised is ingenious. If we look at the central part, we can observe that the lower ends of the two longerons are connected together so that together with the two keels the central part of the sail comprised between the two longerons forms a sort of tunnel / windsock which tapers towards the end. The diagonal cross spars also are ingeniously conceived as they provide a degree of flexibility; the two parabolic cambers formed by the two wings are large enough to provide lift and stability in equal measure.

The kites (which were perhaps around 2.5 m high) were stable in themselves and needed no additional drogues. I did not get to see this train in flight personally but Erhard sent me photographs and described his experiments as being fully satisfactory.

A POSSIBLE QUAD-LINE STUNTER

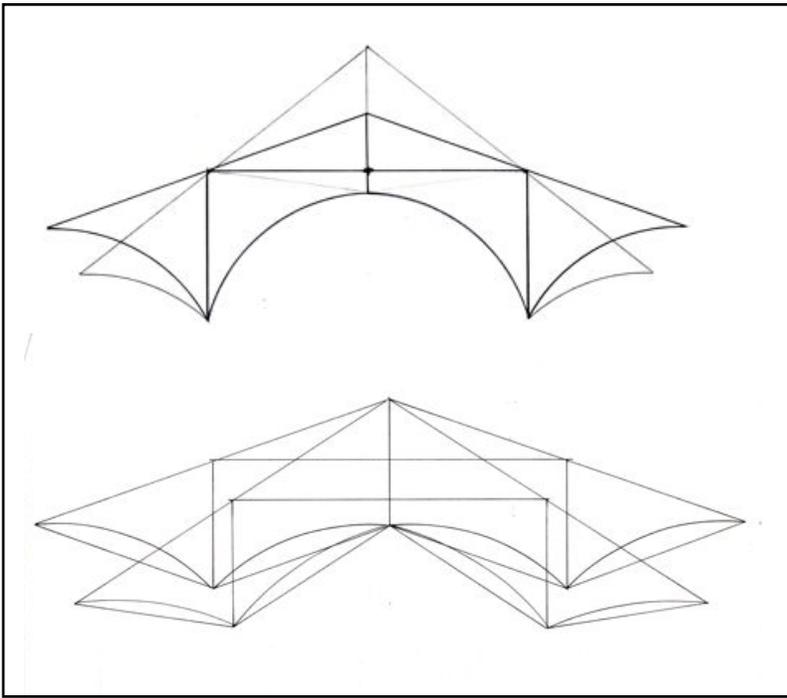
In between Erhard designed countless shapes and structures for the same purpose and built several prototypes accordingly. The following kite prototype (I am, once again, relying on my memory) shows a basic arrow-like shape with two short external longerons, a central spine and a cross-bar. Close to the leading edges are two stripes of gauze which were meant to split the inflow.



The resulting structure was flexible and inherently unstable for use in a man-lifting train due to the independence of the side longerons. But as I looked at it I saw that precisely that element could be used to realise a quad-line maneuverable kite. Imagine bridling the kite similarly to a Revolution with the 4 attachment points at the ends of the side longerons and you will get the idea.

Erhard gave me a prototype which I kept for some time, and I started designing some modified versions of it which are shown in the sketches on the next page which indeed resemble or recall the shape of some modern stunters.

But with all the best intentions I could not decide myself to get started and eventually I abandoned the project for three reasons: I felt I did not have enough experience as a maker of stunters; I was struggling to



find the time necessary to develop one or more prototypes and fully test them; and in my mind I could not escape the conviction that the resulting kite would anyway be inferior to the standard set by the Revolution. My not being an accomplished stunt-kite flier did not help either.

In the end I was sad (and still am) that at least I did not attempt to build a few prototypes.

EXPERIMENTS WITH NEW DESIGNS AND PROTOTYPES

The following two designs are shown in the diorama created for the Deutsches Museum in München.



Both kites were tested in my presence on the beach at Dymchurch (Kent, Southern England) in 1996. They both looked impressive and very original, combining cambered sections with additional stabilizing elements such as keels and rudders.

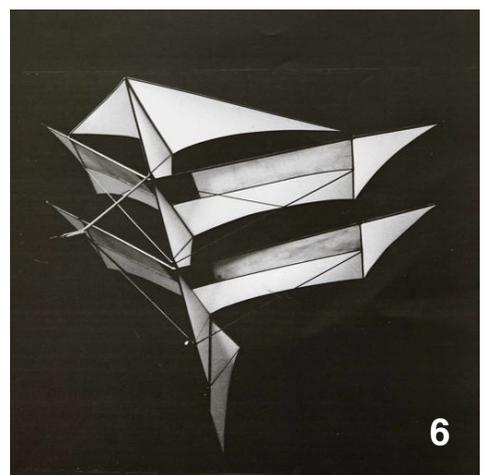
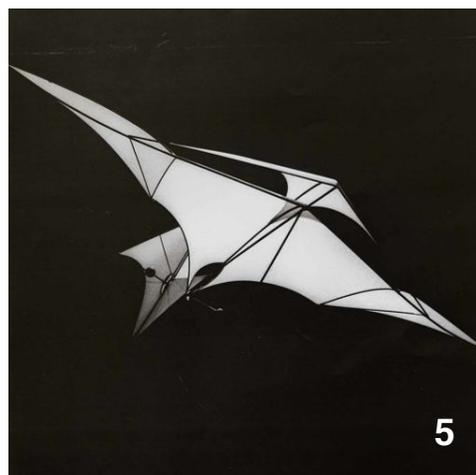
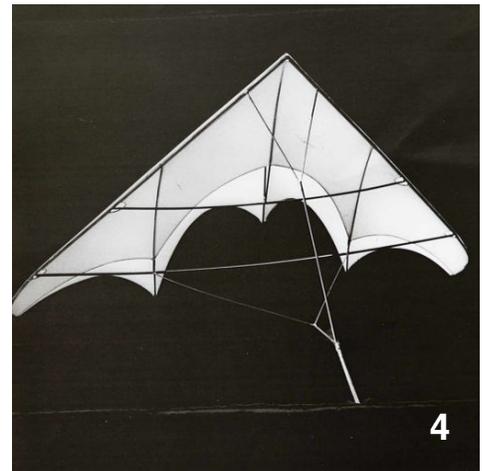
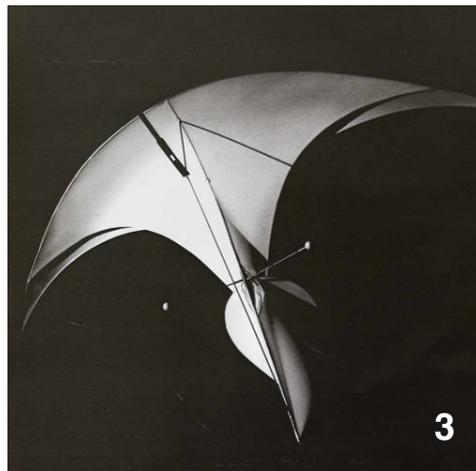
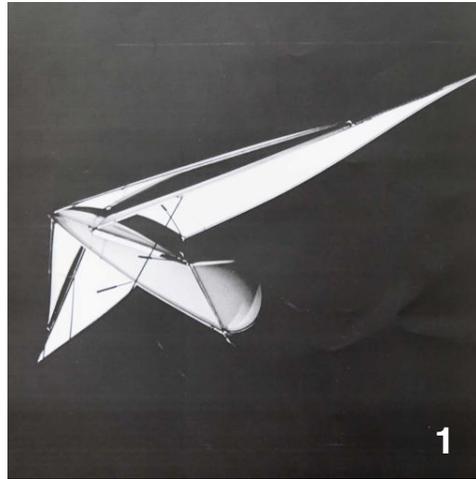


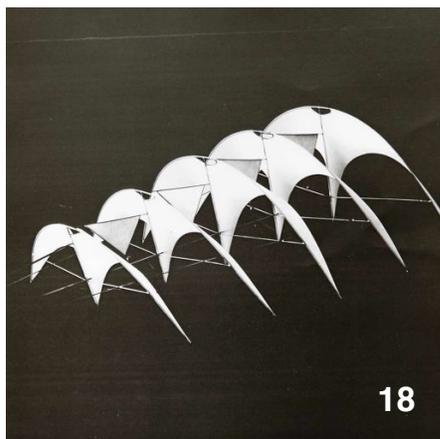
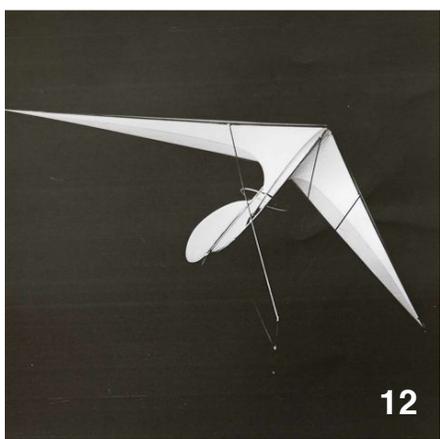
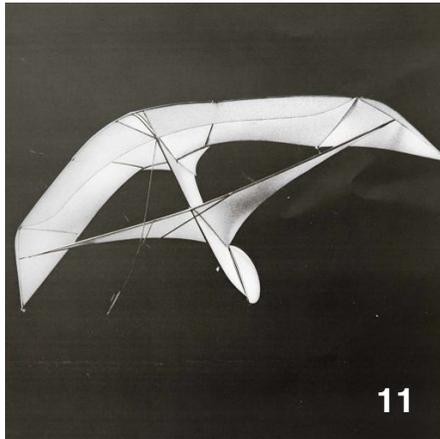
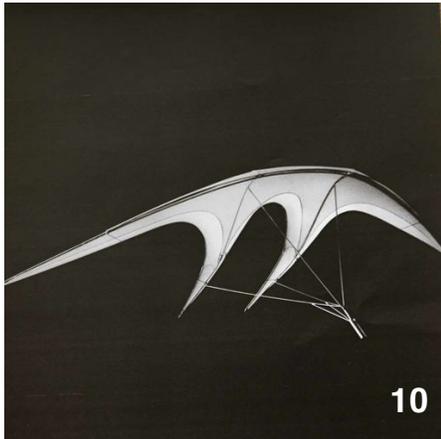
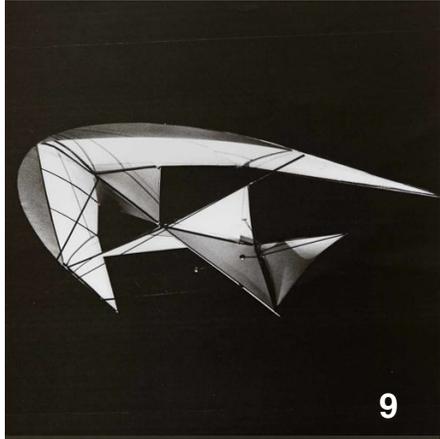
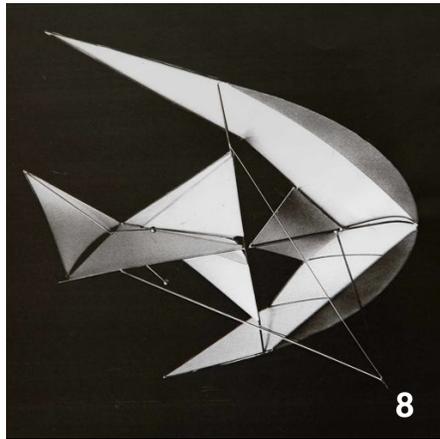
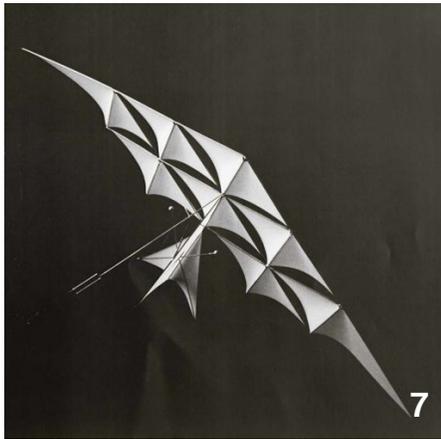
20 RECENT DESIGNS

Detlef Griese kindly shared with me some precious and relatively more recent information. He relayed that in 2006 he communicated briefly with Erhard proposing that his work be exhibited at that year's edition of the International Kiteflyers Meeting in Fanø, Denmark. Erhard replied in a letter of 14.07.2006 enclosing 20 images of new designs. In his letter Erhard comments on all the photographs being 1:10 models with an average span of 50 cm. Importantly, he defines them as "meine Drachenmodelle", adding that "einige habe ich realisiert und getestet". Unfortunately Erhard was busy with another exhibition at the time. There was no follow-up and the Fanø exhibition was never organized.

In any event, the images (shown over the next few pages) are beautiful and extremely interesting although there is no certainty as to the use that Erhard actually envisioned for each design. Over the years he obtained patents which in some cases described not kites but gliders. He had read and researched widely as regards not only kites but anything else that was designed and invented in the decades which eventually culminated in the invention of the first aeroplane by the Wright Brothers, including the early drawings of flying machines by Leonardo da Vinci.

For the sake of easy reference I have numbered such photographs 1 to 20 in order to allow the reader to quickly relate my comments to each model. No. 4 very much resembles a stunt kite; No. 18 looks like a stack of stunters; No. 1, 2, 3, 8, 9, 10, 11, 12, 13, 14, 17 and 19 look like very credible gliders; No. 5, 6, 7, and 20





seem to incorporate elements of the delta wing; No. 15 and 16 incorporate instead a parafoil-like inflatable structure combined with swept-back, "raked" wings (15) which have their own logic in dissipating wingtip vortices and therefore reducing resistance, or adding a separate flare-like rear section (14). Twelve of the designs also have added keels or rudders in the lower section of the kite's structure.



It goes without saying that it would have been so important to hear from Erhard himself about his reasons for designing these kites in the way he did and which purpose he had in mind for each design.

OLD AND NEW HISTORY

The uniqueness of Erhard's genius within the history of XX century kites and within the whole of Western kite history ought to be recognised. At times his designs make one think that he just came home after a long brainstorming session with Otto Lilienthal. In any event, Erhard Höbble occupies a unique position within the history of kites: he lived and worked *after* the invention of the aeroplane, and was surrounded by modern materials which were unavailable to all the great kite pioneers (such as Lawrence Hargrave, Joseph Lecornu, Alexander Graham Bell, etc.) and to those, like Lilienthal, who started from kites and through a study of bird flight attempted to build a machine which might be able to carry a pilot and fly through the air.

ART

"Art" is the indispensable concept needed for a full assessment of Erhard's work. And Art, almost invariably, entails another concept - Nature. I am convinced that Erhard was not just a maker of kites but a maker of birds, of air-spirits - and a supreme representative of the "art of flight" - flight in itself, flight of anything that flies.

Erhard mentioned many times his admiration for anything that Leonardo da Vinci designed and made. Likewise, he studied flight in the sense that throughout his life he carefully observed "flight" virtually in all its manifestations. And the poet in him had to choose kites because kites *are* special - a special, unique art form which becomes art not particularly when kites are displayed in a room but when they are *flown*.

Erhard saw the art of kites and the "artistic" in kites. His designs undoubtedly show an aesthetical and sculptural quality that goes hand in hand with the search for efficiency, that is, the search and discovery of all the elements which will realize the artistic in kites - and that very special kind of art is their flight.

If we look again at one of the two prototypes that Erhard tested in England in 1986 and we linger with our eyes and our thoughts, we will have to admit that this creation is unique. What is it exactly? Is it a bird, an airplane, a glider, a kite? The answer is: it is a kite, and a bit of all the other "flying things" mentioned, but it is unlike anything that anyone else has done during the past 50 or 60 years in the realm of kite design. It is, and shall remain, utterly special and original.

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