

■ Introduction

*Classical psychoanalysis lacks the requisite curiosity in at least two respects: it does not account for the aesthetic character of the dream flight; it does not account for the efforts toward rationalization which shape and deform this fundamental dream.*¹

Gaston Bachelard

*All that can be said is that a really efficient machine is more intriguing than one that is a failure, and a polished pebble more than a mere scrap of stone. For certain forms are pleasant, others painful, and everything the intellect produces must be of interest to us. But starting from this point, to place the machine on the pedestal of great sculpture, seems to me blindness, silly snobbishness, and ridiculous also.*²

Amédée Ozenfant

*Machines can clearly evoke powerful emotions and sensual delight for men.*³

Judy Wajcman

From the beginning of aeronautics flying has been called beautiful. Reporting on an early balloon ascent in January 1784 the *Journal de Bruxelles* wrote: “It is impossible to describe that moment: the women in tears, the common people raising their hands toward the sky in deep silence; the passengers, leaning out of the gallery, waving and crying out in joy. . . you follow them with your eyes, you call to them as if they could hear, and the feeling of fright gives way to one of wonder. No one said anything but, ‘Great God, how beautiful!’”⁴

Similar feelings were expressed in almost the same tone in August 1908, when Wilbur Wright made his first flights in Europe. Franz Reichel, reporter for the Paris newspaper *Le Figaro* wrote: “Nothing can give an idea of the emotion

1 Gaston Bachelard, *L’Air et les Songes*. Paris: Librairie José Corti 1943. Translation from *On Poetic Imagination and Reverie*, selections from Gaston Bachelard, transl. by Colette Gaudin. Dallas: Spring Publications 1987, p. 65.

2 Ozenfant 1952, p. 155.

3 Wajcman 1991, p. 145.

4 A quotation in Robert Darnton’s book *Mesmerism and the End of the Enlightenment in France*. Cambridge, Mass. – London: Harvard University Press 1968, p. 20, with the original French on p. 193.

experienced and the impression felt, at this last flight, a flight of masterly assurance and incomparable elegance.” In 1908, however, Reichel was receptive not only to the miracle of flying but to the flying machine as well; he let his eyes rest upon the simple construction of the *Wright A*, and wrote: “How beautiful it is!”⁵

Start Ups

The spark for this work came from observations such as Franz Reichel’s. I was fascinated by that short moment of amazement which seemed to reveal something of the essence of the flying machine, and my first intention was to study how the concept of beauty was used in describing new technical innovations, especially aeroplanes.⁶ I was not alone in my feelings. Robert Wohl has pointed out in the beginning of his book *A Passion for Wings*, how the invention of the aeroplane was at first perceived by many as an aesthetic event.⁷ The idea still finds occasional support; it has even been suggested, using the making of the classic *Wright Flyer* of 1903 as an example, that technology in general could be read by the method developed in aesthetic criticism for literary texts.⁸ But as I proceeded from feelings to work, everything did not go as aesthetically as the crow flies. I had an idea about the direction but I often met turbulence *en route*, and more than once saw the whole textual apparatus glide over a strange territory. I soon found myself writing on an unexpected variety of things, and started to feel like the famous aviation reporter Harry Harper, whom “duty frequently took down the lunatic byways of aeronautics.”⁹ Therefore, let me begin by drawing a few lines of demarcation.

First of all, this is a study on flying but not on practical aviation; the emphasis rests on the machines which were merely *meant* to fly. Secondly, I am in the line of beauty, yet the subject of the present work is not aesthetics proper. Academic definitions notwithstanding, I feel quite content with Ozenfant’s maxim: “There are beautiful objects (not to be too difficult over the significance of the word ‘beauty’).”¹⁰ Throughout this work the word is taken as people use it in common language; when Wilbur Wright called a Rolls-Royce car beautiful he probably meant it, and was not saying something else. The same goes for technology; if I use the word it appears in the concrete meaning of “devices.” More philosophical definitions of technology, such as “practical implementation of intelligence,” given by Frederick Ferré, are problematic simply because many of the

5 As quoted in Wohl 1994, p. 7. The article by Franz Reichel was published on 11 August 1908. Later Reichel experienced the beauty of flying from another angle, flying with Wilbur Wright on 3 October 1908. See Peyrey 1909, p. 183.

6 The essence of the flying machine is of course not one and the same thing for everyone. See for example the articles in *The Wright Flyer. An Engineering Perspective* 1987. The writers describe the *Wright Flyer* in great detail but none of them uses the word “beautiful.”

7 Wohl 1994, p. 1.

8 Choe 1989, p. 2; on the *Wright Flyer*, pp. 29–37.

9 Wallace 1958, p. 66.

10 Ozenfant 1952, p. 155.

machines discussed in this work did not appear practical at all.¹¹ Yet it is not only beautiful devices, such as attempts at flying machines, but also people's thoughts and feelings about these machines that I am interested in. Flying, actual, potential, and dreamlike, has always implied more than a mechanism for overcoming gravity.¹² Consequently, the Pocus is not on the development of machines. On the following pages I will not write a history of technology but propose to read some of the ideas behind the flying machine in a wider context of visual culture. In his inspiring book *Super Constellation – Flugzeug und Raumrevolution* Christoph Asendorf has shown how rich in material are the twentieth-century intersections of art, architecture, and aviation. All three areas meet in this work, too, but whereas Asendorf set out to decide on the effect of aviation on modern art and culture, my starting point remains much more limited.¹³ In the course of this work I will be asking questions such as: What was it like to see a new technical invention for the first time? What were the conventions and contexts for displaying machines? And how did artists see the new machines? While looking for answers to these questions (and more) I will mostly study two kinds of things. On the one hand, my focus is on aeroplanes and proposals for flying apparatuses as they were shown in different kinds of European exhibitions between the years 1900 and 1935. On the other, I am interested in the personalities and thoughts of the inventors and artists who, during that time, worked with these machines or used them in expanding their view of the world. But there is a third aspect as well: the ambiguity of the thing under scrutiny. Why contemplate the history of machines which did not work?

In the evolution of technology the machines I have chosen to study have no great historical importance as such, but they illustrate approaches to construction – intrinsic rather than extrinsic – that interest me as an artist. It is clear that some of the apparatus builders discussed in this work were stubbornly following a vision rather than using large measures of conventional logic. In art this is acceptable, in technology usually not. One good thing about art is that it does not need to be progressive in the same way as science and technology are. Favouring vision, the inventor/artist enters a domain where art and technology overlap, where the quest to overcome a technical problem and the passion for beauty genuinely meet, and the latter usually wins. The resulting constructions – they often are the only ones of their kind – such as the “flying machines” by the French engineer Clément Ader or the Soviet artist Vladimir Tatlin, both of whom we will meet in the course of this study, did not further practical aviation, but they certainly contributed to the beautiful history of the age-old longing for flying.

11 Frederick Ferré, *Philosophy of Technology*. Athens, Ga. – London: The University of Georgia Press 1995, p. 26. In Ferré's definition, “practical” requires that they not be wholly ends in themselves.

12 Joseph J. Corn has rightly remarked that because the aviation books have usually been written within the tradition of aviation enthusiasm, the authors have not documented or analyzed the feelings, attitudes, and behaviour which characterize the phenomena (Corn 1983, vii–viii).

13 “[...] die Wirkung der Luftfahrt auf Kunst und Kultur der Moderne zu bestimmen [...]” Asendorf 1997, vi.

Structure

On the following pages, flying itself plays a minor part, and it remains an underlying fact that most of the machines to be discussed never left the ground. And yet it is important to note that those feeble constructions were often exhibited alongside planes that were successful, planes that made history. One could say that the failed machines I am writing about were nothing but beautiful daydreams.¹⁴ But even dreams follow a structure, and I have tried my best to do the same. Instead of first laying out the main points and then expanding on them, I have chosen a form that might be best described as a long takeoff. There are two reasons for doing this. The first is to acknowledge that cultural approaches to writing may, and should, vary even if texts are written using a *lingua franca*. The second emanates from the variety of the material itself. The present work is divided into three parts, the second of which has four independent chapters.

BEGINNING. The first third of the study concentrates mainly on pre-aeroplane developments in Britain and France and on the emergence of what is here called the beautiful machine. This means also taking a look at the underlying biological metaphors of the concept. It will also be suggested that the new kind of “mechanic” buildings and the early flying machines have some things in common. To begin with, I will circumscribe two important constructions of the era, the *Crystal Palace* and the *Palais des Machines*, and discuss contemporary notions of their dreamlike beauty, part of which radiates to the later chapters as well. On the way from the Great Exhibition of 1851 to the days of the first Futurist Manifesto I will map out some points of departure for the case studies in the succeeding chapters.

MIDDLE. The second third of the study builds on the themes introduced above and consists of four independent case-studies. Chapter One will introduce the French inventor Clément Ader and the prize-winning display of his *Avion III* at the *Exposition Universelle* in Paris in 1900. The case of Ader throws light on the contemporary uses of a rather stunning but altogether useless machine. Since his aeroplane never flew, it could imply flying only figuratively. As an exhibit at the *Musée des Arts et Métiers* in Paris the *Avion III* stands (or rather hangs) out as an exception. Its only function was, and still is, to represent an imaginative but non-functional machine. Chapter Two opens with a look at the public reactions to Louis Blériot’s Channel crossing aeroplane and moves then to the first major aeronautical exhibition in Paris in October 1909, and finally to the story of three artists – Constantin Brancusi, Marcel Duchamp, and Fernand Léger – visiting it. The focus is on the ways these artists perceived the

14 When talking about the main subject of this study I will use the word *aeroplane*, although it is not a proper expression for flapping-wing machines. The word (*aéroplane*) was coined by a little known French sculptor Joseph Pliné in 1855 and later in English in 1866 by F. W. Wenham, member of the Aeronautical Society of Great Britain. See Stubelius 1958, pp. 226–232. The history of the English names for all kinds of aircraft is well documented in the thorough studies of Stubelius 1958 and 1960.

been anticipated, for instance in the fantasies of the Russian poet Velimir Khlebnikov, but in the 1920s the flying architect's feeling of omnipotence throws a dark shadow over the old cities. The new architectural ideas for a better future have brutal stipulations written into them.

END. In the last third of the work many of the themes introduced in the preceding parts come together in the case of one individual. The focus is on the work of Vladimir Tatlin, the famous Russian artist, who in the 1920s and 1930s spent several years building a flapping-wing flying machine, the *Letatlin*. On the one hand, Tatlin's project will be studied in the context of the modern history of man-powered flying (for there really is such a history); on the other, the *Letatlin* will be discussed with reference to the wider social utopias of the time, especially those expressed in the works of the Soviet architects Ivan Leonidov and Konstantin Melnikov. *Letatlin's* role as an exhibition piece links it to the earlier examples like Ader's *Avion III* or Aarno's *Demoiselle*, while the poetic architectural dimension in its background is in stark contrast with the Corbusian visions of a future city. As the architectural theme reappears, the study loops back to the dreamlike constructions introduced in the first part. Towards the end of the work I will discuss dreams lost and dreams regained. It seems that the apparent impossibility at the heart of Tatlin's work does not require a logical explanation but a leap of faith.

Technology and Art

When reading Otto Lilienthal's classic work *Der Vogelflug als Grundlage der Fliegekunst* I was struck how, amid all diagrams and calculations, he suddenly decides to write a poem about the happiness of storks who fly in the blue and sunny sky.¹⁵ The German engineer did not hesitate to deviate from his logical course for a moment or two. In a similar, though less poetic way my reader will meet digressions, by-plots and by-talk: things jump out from the horizon on various scales. Rather than methodology, this is a matter of personal philosophy: this is how I see things in general. Somewhere underneath these clustering contingencies the reader can imagine the chronological history of modern aviation – the span of this work extends from the time preceding the invention of the aeroplane to the early days of regular long-distance air travel; the London – Capetown route opened in 1932 and the Berlin – Buenos Aires service started in 1934. Although the first part pushes the timeline back to the mid-nineteenth century, it seemed logical that the opening of this work should be the year 1900. As I will explain, an unsuccessful aeroplane was then for the first time shown to the public as an exhibition piece of some aesthetic value. Where to end was more unclear. There are, however, two good reasons for bringing this work to a close soon after the mid-1930s. First of all, it was then that Vladimir Tatlin was

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15 Lilienthal 1889, pp. 148–149.

forced to give up his dream of building a man-powered flying machine for every man. Secondly, the mid-1930s was the time when the concept of machine beauty became part of the mainstream and was no longer considered controversial. In 1934, the Museum of Modern Art in New York mounted its influential exhibition *Machine Art* and only a year later the Coldspot refrigerator designed by Raymond Loewy was advertised to millions with phrases like “Study its beauty.”¹⁶ A period of aestheticizing the flying machine finally culminated with Le Corbusier’s book *Aircraft* in 1935, two years before the bombing of Guernica.¹⁷

Flying can be related to many things. According to historians like Clive Hart, images of ascension permeate the whole of Western culture.¹⁸ This I consider in passing. Although I began with a quote from Bachelard, flying will not be discussed here in psychoanalytical terms. In all it seems that my study falls somewhere between the history of technology and the history of art – but perhaps there is no exact name for this topic. Historians of art and historians of technology rarely mix, and Melvin Kranzberg has even suggested which half should be blamed: “Perhaps most guilty of neglecting technology are those concerned with the history of the arts and with the entire panoply of humanistic concerns. Indeed, in many cases they are disdainful of technology, regarding it as somehow opposed to the humanities. This might be because they regard technology solely in terms of mechanical devices and do not even begin to comprehend the complex nature of technological developments and their direct influences on the arts, to say nothing of their direct influence on mankind’s humanistic endeavors.”¹⁹ Kranzberg’s colleague, Cyril Stanley Smith, goes further: “Humanists have shown a widespread disregard for technology’s role in human affairs [...]”²⁰

If the situation really is that bad, then this work will not change things in the least. I have already joined the guilty ones by reading technology as “devices.”²¹ I do agree with scholars like Kranzberg and Smith that a lot of work remains to be done in this field; I feel that artists at least have always been much readier to

16 Raymond Loewy, *Industrial Design*. London: Lawrence King 2000, p. 99. Before *Machine Art* there was of course the seminal *Machine Age* exhibition in 1927, exploring a wide spectrum of modern phenomena. The difference is that *Machine Art* concentrated fully on industrial products and philosophized about their beauty.

17 Needless to say, the material I have chosen for this work is only a fragment of all the interaction between art and aeroplanes in the course of the first thirty-five years of heavier-than-air aviation. Many interesting cases from Kazimir Malevich to the Italian Aeropainters have been omitted.

18 See his book *Images of Flight*. Berkeley – Los Angeles– London: University of California Press 1988.

19 *In Context. History and the History of Technology* 1989, p. 252. The problem is apparent even in terms of mechanical devices, as one writer complained: “It is rare to find in fine-art magazines serious coverage of technological products.” (Durgnat 1972, p. 130.)

20 Smith 1981, p. 191.

21 In my mind this does not eliminate the possibility of talking about aesthetics, as has been suggested for example by Wolhee Choe: “Too often, technological artefacts are regarded merely as instruments rather than as objects that communicate meaning. This attitude toward technological objects undermines the possibility of aesthetic criticism and evaluation. ‘Do the objects inspire intelligence, thought, creativity?’ is replaced with simply ‘Are they efficient?’” (Choe 1989, p. 7.)

use technology than technicians have been ready to use art. As if to support this point of view, Smith has uttered some comforting words: “The artist, if not every art historian, has always known that technology is a basically important human activity.”²²

History and Dreams

When Vladimir Tatlin had to find a way of explaining his inert flying machine in 1932, he said: “I have made it as an artist.”²³ It is not always easy to reach the original goal, even a more modest one than Tatlin’s, and sometimes it is difficult even to know what the real goal was. As the art historian Ivan Matsu wrote in the 1970s, constructive ideas do not become “constructivist” by miracles and sensations, but are rather the posing of yet unanswered questions. According to Matsu, they are explorations, or experiments, in which the final aim is often not quite clear even to the artist himself.²⁴ Indeed, what does the need to build a flying machine indicate? What can be learned from the history of this dream? Writing on the history of technology, Ulrich Wengenroth points out that as a branch of knowledge (*Wissenschaft*) history is ideographic, that is descriptive (“*ideographisch*”, *d.h. beschreibend*), and that in descriptive narratives events follow each other without a predictable order: “[...] they are open to the unexplained and alien, to the contingent. Lately no regulating laws are found, whereby we could know the conclusion of a history, whether in the singular or in the plural, from its beginning.”²⁵ I have felt that the lack of regulating laws holds true, if not with Tatlin’s project, at least with the present work, the original plan of which implied neither the end, nor the beginning. But as Wengenroth later remarks: “Our need to write history, however, is often greater than our ability to do it following scientific norms; the value of history is not only in its verifiability [...] The motive for taking an interest in history is the search for an indivisible identity.”²⁶

Seen in that light, much of this work – rather a study on gravity than on levitation – is about personal dreams. The three quotations chosen for the opening above illustrate my interests from different angles. The aesthetic character of the dream flight, mentioned by Bachelard, has always been my

22 Smith 1981, p. 217 and pp. 232–233.

23 Zelinsky 1968, p. 78.

24 I. Matsu, “Constructivism: an historical and artistic appraisal,” *Studio International*, April 1972, p. 142.

25 “[...] blieb dabei jedoch immer offen für Unerklärbares und Fremdes, für Kontingenz. Es konnte letztlich keine Regel gefunden werden, wonach das Ende einer Geschichte, ob im Singular oder im Plural, aus deren Anfang ableitbar gewesen wäre.” Wengenroth 1998, p. 2.

26 “Unser Bedürfnis nach Geschichte und Geschichten ist allemal grösser als unsere Fähigkeit zur wissenschaftlichen Durchdringung der Vergangenheit; und die faktische Überprüfbarkeit einer Geschichte ist nicht das einzige Kriterium ihres Wertes. [...] Zumal die Motivation für das Betreiben von Geschichte die Suche nach unteilbarer Identität ist.” *Ibid.* As he says this Wengenroth also underlines that in the writing of history both academic writing and fictional writing are legitimate as long as they are not confused with each other. Whether this is possible is not my concern here.

starting point, and I fully agree with Wacjman about the powerful emotions and the sensual delight evoked by the rationalized results of that dream, the machines themselves. The question of the aesthetic value of these machines, as put forward by Ozenfant, is important too, since it implies another, larger question about “great sculpture,” that is, about art, its values, and its place in the society. The emblematic *Letatlin*, in which all the themes of this work eventually meet, is still a good test for all three approaches. Is it a failed machine or a piece of great sculpture, a mere aesthetic dream or a telling symbol of the condition of man? I do not propose to give a full answer but to tell a story. It aims to be, above all, a story true to the dream of flight.