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MAX VALIER - A PIONEER  
OF SPACE TRAVEL

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VDI-Verlag GmbH  
Düsseldorf, 1968



NATIONAL AERONAUTICS AND SPACE ADMINISTRATION • WASHINGTON, D. C. • NOVEMBER 1976



Appendix 5

Hermann Ganswindt's "Weltenfahrzeug"  
(interplanetary vehicle)

a) Copy of Ganswindt's letter to Valier:

"Schöneberg bei Berlin, March 25, 1925  
Tempelhoferstr. 7

Mr. Max Valier, physicist,  
Munich

Dear Sir,

I have learned from retired lieutenant-colonel von Laffert (author of the novel "Fanale am Himmel" published in the Berliner Lokalanzeiger) - whom I called to account because he copied in his novel all the essential details of my invention, made public several decades ago and known all over the world, of a rocket vehicle for travelling to other planets, without any reference to me, the actual inventor - that Prof. Oberth has used this idea in his recently published book "Die Rakete zu den Planetenräumen", although he may have done so indirectly, and that von Laffert made use of his book in writing his novel.

However, he wrote to me saying that, having been convinced by the documents I sent him that these were my inventions, which have simply leaked out all over the place (my son-in-law, for instance, previously a professor of physics and now head of a department in this town's biggest firm of world-wide reputation, told me that at the scientists' conference in Innsbruck last summer, where he gave a lecture, he also heard someone there speaking about the rocket vehicle, who referred to my invention, albeit ineptly) - he would have made good the omission of my name had not his novel already been printed out. But he will in any case do so in future editions.

While looking for Prof. Oberth's book in the book stores I also found your book, from which I see that you follow Oberth and also mention Professor Goddard, but that you too make no mention whatsoever of me. I daresay that you too, in accordance with the conventions in scientific circles, will mention me as the first and only inventor of the rocket vehicle in the copies of your book which are still attainable, but in any case in the next edition, if necessary by appending an additional page. The American professor Goddard is of course also only another plagiarizer of my invention; whether or not he makes any mention of my name still remains for me to ascertain. In any case, in the enclosed newspaper "Der Berliner Westen", in which I read an announcement about him, I showed him to be a charlatan ad absurdum.

When in 1891 I began to give a series of several hundred public lectures (I had already given a number of sporadic lectures on the subject ever since 1883) on the three problems: the dirigible balloon, the airplane and the rocket vehicle, which latter I called the "Weltenfahrzeug" or interplanetary vehicle (this will never be able to become a ship, but at most a long train coupled up outside of the atmosphere), all three problems were then still held

to be unsolvable. A few individuals were willing to listen to reason so far as the dirigible balloon and the airplane were concerned, but an aircraft able to travel to other stars was inconceivable to all. Nobody had ever yet seriously considered such a flight to be possible - not even Jules Verne, who, by the way, came forward with his purely fantastic view of a human cannon later than I did with my serious project of a rocket vehicle, which I made known to my circles of acquaintances in the seventies.

Virtually all the newspapers in the world reported on my lecture on these three problems given on May 27, 1893, in the Berlin Philharmonic Hall before an audience of about 1,000 for an entrance fee of 1-5 marks, but most did so skeptically. The "Berliner Lokalanzeiger" of Sunday, May 28, 1893, gave what was by far the most objective account, entitled 'FLIEGENDE MENSCHEN - Ein Blick in die Zukunft' (Flying men - a glance into the future), in which one can read what follows: ... 'The ancient myth tells of the valiant inventor Icarus. ... Icarus did not die ... and yesterday (Saturday) we saw him in the flesh and as large as life, that valiant and ambitious spirit, who soars up beyond the realms of time and space, seeking to storm the skies. As common sense would have it, this is excentric, to put it mildly! But anyone who knows the history of mankind and who is blessed - or rather, punished - with a more fertile imagination, will be very hesitant about adopting such an expression. For after all, everything is possible; mankind has experienced quite a few surprises and has seen many things thought to be inconceivable and impossible come true in the finest of manners. He (the new Icarus) is known by the civil name of Hermann Ganswindt. As the inventor of a dirigible balloon and a flying machine he invited the public to the Philharmonic Hall yesterday in the most up-to-date manner, by using large posters. ... Those who turned up were highly stimulated by much that they saw and heard. Mr. Ganswindt is the very embodiment of what one would expect an inventor to look like. A slim, sinewy figure of a man with an interesting head. His physiognomy, with its sparse, deep-blond beard and flashing, quite deep-set eyes, has a rather sullen but very energetic expression. The forehead is strikingly high and prominent, a real thinker's brow, behind which a very lively imagination is at work. This imagination has led him far beyond the confines of this world. It is coupled in unusual audacity with dry, matter-of-fact learning; the fruits of this union make the dreams of a Jules Verne look like mere child's play. As we have already pointed out, Mr. Ganswindt has invented flying machines, but he is in the process of perfecting and constructing these flying machines in such a way that he hopes to be able to venture upon a stupendous flight through outer space; indeed, he is quite confident about this and is thinking of visiting Mars and resplendent Venus some day, which are millions of miles away. According to his calculations, a journey to Mars will take only a few days. The vehicle is quite comfortable, a steel cylinder surrounded by steel pipes containing compressed air. In the warm compartment of the cylinder one is protected from the cold of outer space, travelling through space at the speed of the heavenly bodies, the necessary momentum being imparted to the vehicle by means of centrifugal force on leaving the earth's atmosphere. As the ether does not pose an obstacle, the astronaut may even rush towards his destination at a speed faster than that of the heavenly bodies. For the modern Icarus this is no dream, but blunt fact and firm resolution. ... It would be very rash to form an opinion on Mr. Ganswindt's invention on the basis of the models demonstrated. The models did what they were supposed to do (i.e. they flew up into the air!).'

This lecture was printed in my book "Das jüngste Gericht", a presentation copy of which was requisitioned from me by the royal library. It was also reprinted in full by the "Volkserzieher", the "Kritik" and a series of journals. The book is still available in the national library and is much read. I was unfortunately unable to publish further editions of this book, as I had to promise my friend and wealthy patron, Baron von Gorsdorff, chamberlain and owner of entailed property, etc. (for information on him see: "Briefe Nietzsches", Vol. I) not to do so, since I had, through my rocket vehicle, incurred the displeasure of the Emperor and of the nobles, and so too, being my patron, had the baron. Indeed, the baron later even threw himself out of the window for this very reason, and the baroness shot herself! -- Because of my rocket vehicle invention, the Ministry of War ceased to show any interest in my other inventions too, and proceeded to ruin me by all the means and trumped-up denials it could muster. Even on October 17, 1901, when my helicopters had long been flying in the air with people on board, the ministry wrote to me under No. 454/10.01 Al.u.A: The Ministry of War cannot possibly seriously consider your idea of flying to the planet Mars and back in a vehicle in 48 hours. ... The Ministry of War therefore suggests, in your own interest, that you desist from addressing any further petitions containing such unworkable plans to this or other military authorities in the future. Nota bene: I had merely mentioned in passing that I could not make the purchase price for my aircraft - which was already airborne and carrying people on board - any lower than 20 million marks, because I also wanted to build the rocket vehicle with this money. So, in order to prevent my aircraft from possibly being bought by another country (France), I was simply cast into prison "pending trial", by a police inspector who, it has been proven, had been bribed, and I was abused beyond all bounds by the corrupted press. The "Berliner Tagesblatt" regularly had to print defamatory articles quoting the Ministry of War, in which it was said, among other things, that one could gather "how the 'inventor' Ganswindt frittered away money" from the way he, unlike everyone else, fired his cannon downwards rather than forwards in order to shoot himself up to Mars. The "Ulk" brought out a long satirical poem on my rocket vehicle, recounting how I wanted to spit down upon my enemies from the moon, etc. This all happened in 1902, even though the physics professor Roman Baron Goszkowski had already written in the Viennese "Die Zeit" of July 28, 1900, a five-column article on my interplanetary vehicle, entitled "Ein moderner Ikarus", in which he said, among other things: 'These arguments (in my book) are of a nature that attracts our attention. Following them, no contradiction can apparently be found, and yet it is difficult for us to think of it being possible for his ideas to be realized. We instinctively feel that Ganswindt is striving toward something quite singular and altogether unusual, and that he is trying to persuade us that he is thinking unthinkable things. But our judgement lacks certainty. The flaw which must be present in the reasoning of Ganswindt's arguments if our hunch is true, is simply not evident.' Prof. Goszkowski then attempts to limit the action of radius of my rocket vehicle by computation, but he proceeds from false assumptions since at that time (1900) he did not yet take into account my auxiliary agent, the airplane, which is to lift the rocket vehicle right up to the edge of the atmosphere; I had already invented this aircraft at that time, even though it only became airborne in practice a year later (1901). In the same journal on August 25, 1900, engineer Ludwig Loos then wrote an equally erroneous reply to Goszkowski's article, entitled 'Ikarus auf der Rakete'.

What a sensation my invention created throughout the scientific world can also be deduced from the fact that in August 1900, the "Verein zur Förderung des physikalischen Unterrichts" (society for the promotion of the teaching of physics), to which all prominent people in this field belonged, visited me in corpore in my establishment, where I explained my inventions with practical experiments, as far as possible. This awakened so much interest in many physicists that they remained to discuss matters from 3 p.m. to midnight, finishing off the evening in the restaurant in my exhibition; among those present were Counsellor Spiess, the later director of the Urania, and Reinhold Begas, who visited me frequently. I regularly gave such lectures for many years.

On January 25, 1920, I had four witnesses - the author Dost, the manufacturer and former member of the Reichstag Jakobsen, the reciter Labios and the government architect G. Hippel - certify that it was I who first had the idea that in the course of centuries of rocket traffic between the various stopping places around the earth, the supplies and waste products left behind at these stopping places would form rings around our earth which - viewed from the neighboring planets - would look like the rings around Saturn, which must have formed in the same way since, for the astronomical reasons adduced by me, they could not be of geological or saturnological origin, but must be of intellectual origin.

Finally, on April 21 and May 5, 1920 I gave public lectures on this invention, which were also mentioned in the press (see the appended printed account), and on March 5, 1924, in the enclosed newspaper "Der Berliner Westen", I published the criticism of Prof. Goddard's shot to the man. I had been interviewed a few weeks earlier at the beginning of February by American journalists, one of whom gave me a copy of the account he sent to American newspapers, entitled "Dirigible of Tomorrow", in which my rocket vehicle is also mentioned: 'Given to fantastic schemes, the claims and projects of Hermann Ganswindt have often gone almost beyond the range of imagination. His pet fancy is to build some complicated flying machine to carry passengers on a round trip to the moon and other planets. -- It can be done, he says. To the lay mind his system for touring the starry vault seems merely a breathtaking fiction to be smiled over. But it is dangerous to laugh at inventors. You never can tell. Solomon would probably have laughed at a Marconi born out of his time. -- The first requisite for a vacation sightseeing among the stars, according to Ganswindt, is an airship built to whizz out to the dim borders of the atmosphere surrounding the earth. This outpost reached, the propeller is drawn in and a series of explosions sends the machine forward like a rocket.'

There follows a description of my vehicle and of the events occurring during the trip and on the stopping places. Of Saturn's rings he then writes humorously: 'One quaint hypothesis the inventor holds is that the ring around Saturn is merely a line of air ship stations established by enterprising Saturnites through the ages. They, he intends, revolve around the planet along with the sardine cans, peanut hulls and orange peels which the travellers have thrown from their machines!' --

I simply cannot allow my priority in this invention, for the sake of which I have battled against stupidity for 40 years, suffering greatly, losing

millions of gold marks and sustaining the most dreadful tragedies, to be simply brushed aside. It would be as if Cortez or Pizarro, or those others who sailed to America and pillaged the country were to say that it was they, not Columbus, who had discovered America.

I presume that you will most certainly do me justice already in the still accessible copies of your book, by inserting an explanation in a supplementary appendix, which will spare me the trouble of taking further steps to look after my interests.

What Berlin's "Zeit" said on November 12, 1924 about my relationship to Zeppelin also holds for my relationship to whoever deals with the rocket vehicle problem after me. It is written in the "Zeit" under the title "Deutsche Tragödie" (referring to me): 'Meanwhile, however, there were and are men in the background, without whom Zeppelin could not have become what he is - men who, before him, fought and suffered for the idea, who discovered its first laws, who popularized the idea and engendered the belief in it which alone is capable of bringing about its accomplishment. Hermann Ganswindt was one of these men.'

Many novels depicting travel in the universe appeared after my lecture given 32 years ago in the Berlin Philharmonic Hall; so too, later on, did the movie picture 'Das Himmelschiff'. This also led thinkers to show interest in the problem, who would otherwise never have done so. By the way, the method of rocket propulsion which you propose is not yet the most efficient. But this I can only make public once I have applied for the patents.

Looking forward to hearing from you soon, and in the hope that you will be so kind as to return the enclosures, I remain

Yours Truly,

Hermann Ganswindt."

As in this letter Ganswindt named his major publication and also a library in which the book was available which contained his lecture of the year 1893 with authentic data from the previous years, Valier was able to verify Ganswindt's assertions. He satisfied himself that Ganswindt really had asked himself, already in the previous century, whether space travel was technically feasible, and that he had based the project he had worked out in that time upon explosion reaction as the propulsive force.

This is why, in the chapter entitled "Projects of the Present" in his book "Raketenfahrt" (Rocket Travel) (p. 161-163), Valier described Ganswindt's plan in detail as follows:

"The man who is now to come first on our list is still alive today and has by no means given up the battle for success in the contest between researchers.

b) Hermann Ganswindt's interplanetary vehicle (since 1881).

The private research Hermann Ganswindt, born on June 12, 1856, already unfolded his plan of an interplanetary vehicle propelled by rocket power

(see Fig. 42) in 1881, on the occasion of a lecture given in the Philharmonic Hall in Berlin. This probably makes him the first man to have supported the idea that an interplanetary vehicle is technically feasible and to have presented a fully thought-out construction for the same:

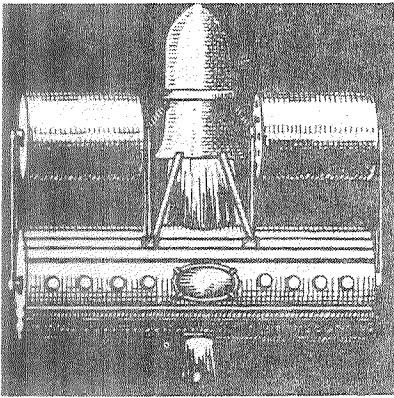


Figure 34. (from "Raketenfahrt", Fig. 42).

The propulsion system Ganswindt had in mind consisted of a thick-walled block of steel hollowed out in the shape of a bell, which was intended at the same time to act as a gyrating mass for absorbing and equalizing the shocks of the individual explosions. The propulsive force was to be provided by the exhaust of gases from an explosive (initially thought of as solid but also possible in the liquid form) of the greatest possible energy content, accommodated in cartridges made to explode in rapid succession inside the cavity of the gyrating block. Ganswindt keeps the chemical composition of the propellant charge secret. The same also holds for the device intended to automatically hurl the thousands of cartridges carried along in large revolving drums on either side of the gyrating block into the center of the gyrating bell in rapid succession, where they are to be exploded by a reliable ignition. Further cartridge supplies are not to be kept in an enclosed space but are to be trailed in the vehicle's wake, strung in bunches on cables. From this description, Ganswindt's contrivance is of the intermittent powder rocket type.

With this propulsive system the passenger chamber which in the form of a cylindrical, hermetically sealed tube with windows and outer shells, should be as narrow as possible owing to the internal excess pressure, was to be attached to the gyrating bell by a spring suspension in order to equalize the still very jerky and irregular motion of the bell still more. The chamber was to be heated by the explosion gases passing through it in a kind of stovepipe. Ganswindt was also quite aware of the need to maintain normal atmospheric pressure and to provide for renewal of the air used up in breathing.

The equilibrium of the vehicle is stable at all times as the point of application of force always lies before the center of mass; Ganswindt considers this to be essential and has based his construction upon it. He also lays



claim to the priority of the idea of making up for the occupants' sensation of weightlessness, which sets in after the explosions have ceased, by rotating the whole ship about its longitudinal axis so that the centrifugal force presses the occupants against the surfaces of the cylindrical chamber, which thus become floors, with a force equal to their weight on earth. If the ship had several occupants, therefore, the case could arise where they would be standing diametrically opposite one another, head to head, i.e. with their heads in the ship's longitudinal axis.

According to Ganswindt, the necessary longitudinal rotation of the ship is to be brought about by a few explosions exhausting laterally, and is to be halted by similar but oppositely orientated explosions, since otherwise the ship would continue to rotate all the time.

Ganswindt also already thought of the possibility of connecting up two spaceships by a cable of appropriate length and of setting them spinning about their common center of mass in order to produce a centrifugal counter-pressure.

Ganswindt pictured the takeoff to space flight as follows:

The machine was first to be carried up as close as possible to the edge of the atmosphere by helicopters. He said that this was necessary because his interplanetary vehicle was not able to ascend through the atmosphere at high speed on its own power, owing to its unfavorable aerodynamic form. The explosion apparatus was then to be put into operation. Ganswindt knew, already in 1881, that the efficiency of a rocket-like prime mover is only favorable at very high flight speeds, but that these can only be reached gradually, in consideration of the counterpressure to be borne by the occupants. He therefore did not wish the starting acceleration to become greater than twice the force of gravity.

Further penetration of interstellar space can be made possible, according to Ganswindt, by setting up supply stations on the way. He considers our real moon to be rather unsuitable for serving as a fueling station, as compared with the advantages of small artificial moons, the proper gravitational fields of which are imperceptible. If sufficient provisions were to be made, Ganswindt even thinks it would be possible to reach other fixed-star systems such as Alpha Centauri, but the acceleration would then have to be ten times the force of gravity and would have to be maintained for a very long time. For this reason he doubts whether the occupants would be able to endure such a flight.

Hindered by adverse circumstances, Ganswindt was unable even to complete a model of his interplanetary vehicle. But he confirmed, as late as 1927, that he had nothing essential to add to his original project, but that the diagram first published in 1881 was to be considered merely as a sketch and not as a working drawing, and that he reserved himself the patent rights for a series of special component parts."