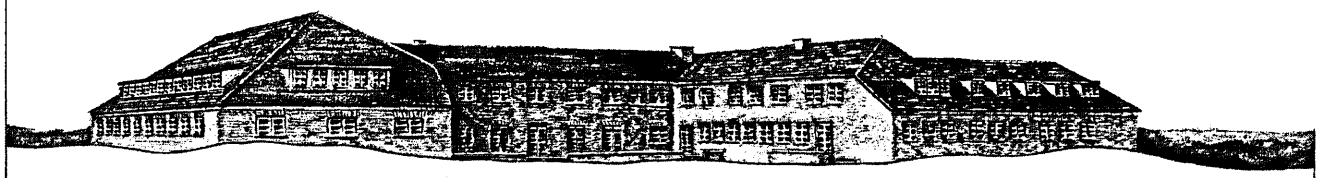

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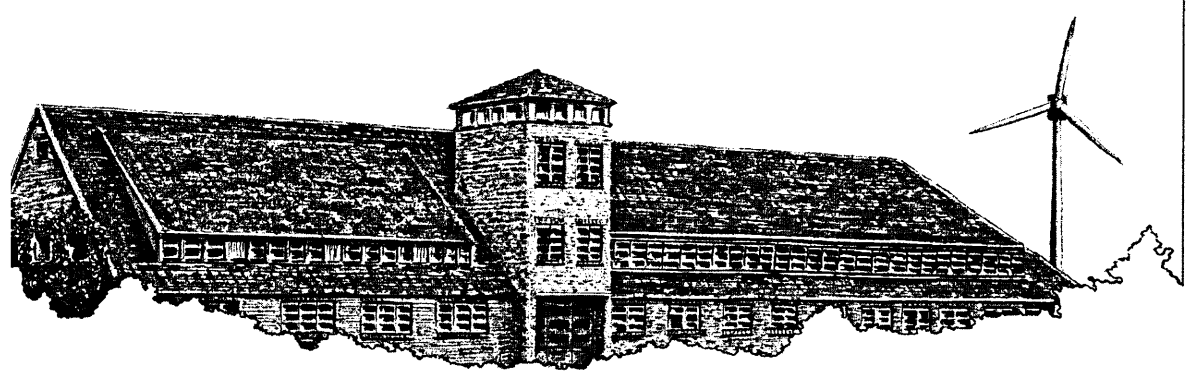
75 Jahre

HERMANN LIETZ SCHULE SPIEKEROOG



75 Jahre
Hermann Lietz-Schule
Spiekeroog

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"Wernher von Braun, the Hermann Lietz Schools, And the Dream of Spaceflight"

Perhaps the most famous, and certainly the most controversial, graduate of the Hermann Lietz-Schule Spiekeroog was a member of the pioneering class that opened the school in 1928: Dr. Wernher von Braun (1912-1977). Today he is remembered for his part in four historic achievements: 1) the development of the A4 (V2) ballistic missile, the world's first large rocket, in National Socialist Germany; 2) a campaign for spaceflight in the United States, beginning in the early 1950s, leading to important changes in public attitudes in America and the West; 3) the launching of the first American satellite, Explorer I, in early 1958, in response to the USSR's Sputnik I and II; and 4) the development of the gigantic Saturn V launch vehicle that sent the first manned landing expedition, Apollo 11, to the moon. But in recent years he is increasingly remembered as well for his compromises with the NS regime, in particular his SS membership and his participation in the exploitation of concentration-camp labor at the Mittelwerk underground V2 production plant. Some of the roots of his achievements, but also his compromises, can be found in his four-and-a-half years at the Hermann Lietz schools Ettersburg and Spiekeroog.

Wernher von Braun came from an old Prussian Junker background, which makes his choice of rocket engineering as a career even more unusual than it might otherwise have been. His father, Magnus Freiherr von Braun, was from an East Prussian landowning family, and had been a high civil servant until disciplined in 1920 for supporting the reactionary Kapp Putsch; thereafter he was a very successful banker in Berlin. His mother, Emmy von Quistorp, came from a West Pomeranian landed family with a strong intellectual tradition; her father was very interested in science. After moving to Berlin in 1920, the von Brauns enrolled their sons in the elite Wilhelms-Gymnasium, which soon merged into the Französisches Gymnasium, but Wernher found traditional classical education boring; even as a small child he was already much more interested in technology and working with his hands. By 1925 he was doing so poorly, ironically in mathematics and physics, that his parents transferred him to the Lietz middle school at Ettersburg near Weimar rather than have him repeat the Untertertia. The strong Lietz tradition of physical labor, craftsmanship and outdoor activities as a part of education was certainly a major reason for their decision.

It was at Ettersburg that Wernher von Braun found the passion of his life: spaceflight. Already an astronomy enthusiast after receiving a small telescope for his confirmation in spring 1925, early in 1926 he noticed an advertisement in a nature magazine for a small book called *Die Rakete zu den Planetenräumen*. The author, Hermann Oberth, was an obscure teacher from the German-speaking minority of Transylvania with some radical new ideas for the feasibility of spaceflight by means of the rocket. Von Braun excitedly sent away for his copy in the mail. „When the precious volume arrived I carried it to my room. Opening it I was aghast. Its pages were a hash of mathematical formulas. It was gibberish. I rushed to my teachers. 'How can I understand what this man is saying?' I demanded. They told me to study mathematics and physics, my two worst courses." Now motivated, he became more and more engrossed by the idea that he might fly in space, even land on the moon. At the same time, he carried out many dangerous but also sometimes hilarious experiments with fireworks rockets and explosive chemicals, both in Ettersburg and at home near the Tiergarten in Berlin. Although he was for a time torn, as his family strongly encouraged his interest in the much more respectable subjects of classical music and composing, by the time of his first term at Spiekeroog in summer 1928 he had definitely decided that rocketry and spaceflight would be his life's work. His decision was strongly influenced by a "rocket mania" *(Raketenrummel)* in the Weimar media that broke out April/May 1928 as a result of spectacular but unscientific rocket-car experiments by the automobile heir Fritz von Opel and others. Along with the stunts came the formation of a small but serious space travel advocacy movement centering on Oberth's ideas.

When Wernher von Braun came to Spiekeroog with that first class, which endured many challenges from the environment and the unfinished state of the school, he was entering the Obersekunda. According to former classmates, he was so obsessed with space that he*f* did not bathe properly; finally having enough, they dragged him out and gave him an enforced shower -although whether they used water or sand to scrub him off varies according to the teller. Heye Deepen, a native of the island who was often at the school, does not remember von Braun as one of those who went to the beach or village dances to pick up girls in the warm months, but rather as part of the group that always stayed at the school; it appears that his later career as a ladies' man did not start until he was well into university. In the afterglow of Apollo 11 in 1969, a former classmate, Dieter Pohl, recalled

einige Abende..., wenn ich Dich aus Deiner Bude herausholte, wo Du, umgeben von dicken Wälzen, an den Problemen [eines Mondfluges – der Verfasser] arbeitetest, um zur Ablenkung einen Spaziergang in die Dünen mit Dir zu machen.

Dabei hattest Du wohl versucht, mir die von Dir erahnten Möglichkeiten eines solchen Unternehmens klar zu machen, aber ich war ja so intensiv mit meiner Geigerei engagiert, dass all Deine Mühen vergeblich blieben. Wir haben dann abschließend, und das geschah mehrmals, zusammen in den Mond geguckt, wenn auch beide mit sehr verschiedenen Gedanken.

The two no doubt looked at the moon through the school's new telescope, which had been entirely

Wernher von Braun's doing. Showing the leadership skills that would later be central to his success as an engineering manager, he organized his own "guild" for astronomy, and instigated the purchase of a refractor with a 95 mm objective lens from a Berlin manufacturer, using funds he raised from the Lietz schools' benefactors' society. As he explained in a short article, "Die Sternwarte", in *Leben und Arbeit* in early 1929, the plan was to build a "little house" for the telescope and carry out serious scientific observations under the utterly dark sky of the North Sea coast, which occasionally had "extraordinarily good observing conditions." But the digging of the foundation for the square building with a removable roof had so far been delayed by the heavy frost of an unusually severe winter. Wernher and his classmates finally completed the concrete foundation and wooden structure in spring and summer 1929.

During his first year in Spiekeroog, von Braun was put into the "family" of Dr. Alfred Andreesen, who ran Spiekeroog himself until that terrible winter underlined the difficulties of also heading the Lietz school foundation from a remote island. The two developed a special relationship, as Andreesen had trained as a mathematician, and von Braun had become seriously involved in the subject in his last period at Ettersburg – at least as it applied to rocketry and astronomy. Under Andreesen's personal tutelage, he developed into something of a prodigy in math and science. In spring 1929, because he was so far ahead, he was given permission to spend his class time working on special problems, or on an independent project of calculations relating to rocketry.

The surviving partial manuscript "Zur Theorie der Fernrakete" is very likely a product of this work. In it, von Braun begins to derive the trajectory equations, based on the laws of Newton and Kepler, for a rocket travelling from point-to-point on the earth. Presumably the "long-range rocket" was intended for the transport of mail and passengers, a popular idea in the spaceflight movement of the time, as he mentions that ranges under 300 km were probably not "profitable". But he was certainly also aware that it could be used to transport high explosives or poison gas for attacking enemy cities, ideas explicitly discussed by his hero, Hermann Oberth, in *Wege zur Raumschiffahrt* in mid-1929. The military uses of rocket and space technology did not particularly engage Wernher von Braun, but neither did he resist such a prospect. Coming from a conservative nationalist family, and receiving a conservative nationalist education from both the Gymnasia and the Lietz schools, he would hardly have thought twice about it – especially if it were to benefit Germany.

In the summer 1929, his increasingly prodigious mathematical and scientific performance, and his relationship to Andreesen, would result in the sudden acceleration of his graduation. He had already become somewhat legendary in the school; one frequently told anecdote is that he was sitting in the back of the class working on problems while the mathematics teacher, or a substitute from the mainland, covered three chalkboards with equations. He suddenly called on Wernher von Braun to explain how he achieved the result he did, which did not agree with the book; the seventeen-year-old glanced up, went to the board, rubbed out a sign, corrected it, and explained where the teacher had gone astray. When the mathematics teacher took ill, von Braun, with the permission of Andreesen, took over teaching the Oberprima class, even though he was still in the Unterprima. "Suddenly it became my responsibility to see that every classmate should get a passing mark. By day I taught. By night I tutored. Between times I studied my own lessons." According to Elisabeth Kutzer, his German, French and English teacher in his last year in Spiekeroog, he was a success, covering the material at an appropriate pace; he won his schoolmates' respect. Because of this performance, he was promoted to the Oberprima in mid-year, and told that he should try to pass the Prussian Abitur at the end of the fall/winter term in March 1930. His parents were more than pleasantly surprised.

In his last weeks at Spiekeroog, his obsession with flying in space had a final, comic impact on his classmates. For carnival (Fasching) 1930, the students put together a movie influenced by Fritz Lang's Frau im Mond, the realistic space film that had opened with a spectacular Berlin premiere on 15 October; Oberth had been the scientific advisor. Elisabeth Kutzer explains:

Und nun stellten die Schüler diesen Montagefilm her aus der Texten (Stummfilm!), Fotos mit aufgeklebten Köpfen von Heimschülern, Zeichnungen u. dgl., der zeigen sollte, wie man auf der Suche nach einer „frauenfreien" Insel (damals eine aktuelle Frage!) das Heim erst auf ein Schiff verlud und zu einer Südseeinsel fuhr, wo man bei der Anpassung an die Landessitten aber auch auf die Weiblichkeit stieß, so daß das Heim schließlich auf eine Rakete aufgelagert und auf den Mond geschossen wurde. Da man aber dort auf „die Frau im Mond" stieß, mußte die Suche nach einem "unbescholtenen Planeten" weiter fortgesetzt werden. Wernher half selbstverständlich bei den einschlägigen Zeichnungen und Fotos.

The film was meant to be a joke, but it reveals the masculine values that the culture of a boys' school then took for granted.

Before Wernher von Braun could take his graduation exams in March 1930, the Prussian school authority in Hanover had to approve his admission to them a year earlier than normal. It did so because of his "unusual accomplishments" – presumably in learning and teaching mathematics. For the same reason, he received permission to graduate without writing a "thesis" (Jahresarbeit) which was normally required for the Abitur. After a grueling series of written and oral examinations, he passed, of course. Yet his results were far from stellar, and signify both his single-minded concentration on his areas of interest, and the cost of going early. In the four-grade system then in effect "very good", "good", "satisfactory" and "unsatisfactory" – he got "very good" only in math and physics, and "good" in religion, German and French. All the rest of his grades were "satisfactory": history and civics, geography, chemistry, bio-

logy, English, Latin, physical education, music, drawing, and "practical work." His overall grade was "good." The committee, which included Andreesen and Kutzer, signed his graduation certificate on 3 April 1930.

Von Braun returned to Berlin, where he began preparing for the diploma engineer program at the Technische Hochschule Berlin-Charlottenburg (now the TU Berlin). At the same time he became deeply immersed in the local spaceflight movement, leading to the formation of the Raketenflugplatz Berlin in September 1930, an amateur group experimenting with liquid-fuel rockets, which Oberth thought was the only way to get into space. Von Braun spent one semester at the Eidgenössische Technische Hochschule in Zürich, Summer 1931, but returned to Berlin and to the underfunded but immensely enjoyable work on evening and weekends at the Raketenflugplatz. That is where he first met three officers from the Reichswehr in spring 1932, who were investigating the possibilities of the rocket, both as a short-range, solid-fuel battlefield weapon, and as a revolutionary liquid-fuel ballistic missile. The leader of this group was a genial Bavarian, Col. Dr.-Ing. Karl Becker, chief of the ballistics and munitions division of the Army Ordnance Office (Heereswaffenamt). Becker pictured a surprise weapon that Germany, greatly weakened by the Versailles Treaty, might be able to spring on opponents, and thus wanted rocket development done in the deepest secrecy. He and his associates decided that while the Raketenflugplatz group was not to be taken seriously, they were very impressed with the brilliant young student Wernher von Braun. In fall 1932, Becker arranged to have him transferred to the Institute of Physics at the University of Berlin (now the Humboldt University), where he would begin work on a secret doctoral dissertation even though he had only four semesters of engineering education. Von Braun's experimental development of liquid-fuel rockets would be carried out at the Army Research Center Kummersdorf, south of Berlin.

When he began work there at the beginning of December 1932, it was really the beginning of a Faustian bargain with the German Army and with the Third Reich. Only two months later, Hitler came to power, and greatly increased resources soon flowed to the military for rearmament. Becker developed a close relationship to the "Führer" and was rapidly promoted, becoming chief of Army Ordnance in 1938. Von Braun, for his part, had taken a very pragmatic attitude to the offer of Army money – he saw that the amateur experiments were at a dead-end; the Reichwehr offered the only way forward to large-scale rocketry. Moreover, coming from a conservative-nationalist background – his father had been a reserve officer in the imperial period, and was Reich Agriculture Minister in the reactionary Papen and Schleicher cabinets of 1932-33 that proceeded the National Socialist seizure of power – Wernher von Braun had no political or moral objections to building rockets for military purposes, even if that was not his main interest. By nature rather apolitical and consumed by his love for science, technology and spaceflight, and influenced by his upbringing and education, he was largely indifferent to the National Socialist destruction of democracy and civil rights: "As a young fellow I was very little interested in the 'world around me,' and downright naïve in my views of political matters. For example, I did not consider Hitler's rise to power in 1933 as a thing of particular significance except, maybe, that my father lost his job in the process." As a result, Wernher von Braun thought little about the implications of his work for the army; rather, he was enthused by the rapidly increasing monetary support he received because of Hitler's push for rearmament.

His meteoric rise over the next decade, and that of his rocket program, is remarkable. By 1934, at age 22, he had completed his doctorate; three years later he was the technical director of a new secret ballistic-missile development center on the Baltic coast, at Peenemünde on Usedom. By age 30, in 1942, he was chief over five thousand people, and had succeeded in launching the world's first long-range missile, the A-4, later better known as the V-2. In the process he had to make concessions to the hegemony of the National Socialist system, becoming a member of the party in fall 1937, and an SS officer in spring 1940. He had no particular interest in NS racial ideology, but like so many others he was seduced by Hitler's achievements and conquests, and became a loyal and willing collaborator of Hitler's Reich.

Only belatedly, in 1943-44, did disillusionment start to set in. He first began to see that Hitler was leading the country to a disastrous defeat, then he became enmeshed in the exploitation of concentration-camp laborers to manufacture the V-2 underground, and finally he was briefly arrested by the Gestapo in early 1944 for his unwillingness to cooperate in a Himmler conspiracy to have the SS take over Peenemünde. The nominal cause for the arrest was remarks he and two colleagues made doubting the successful outcome of the war and expressing regret that the rocket had to be developed first as a weapon. By then it became clear to him that he was trapped by his bargain with the regime and must continue to work energetically to make the missile work to protect himself, but enthusiasm for the technology, his loyalty to the army and his superiors, and his nationalist beliefs also made it impossible to turn against the regime. In the process thousands of concentration-camp laborers died for reasons largely beyond his control, but he could not avoid entirely responsibility for their suffering. He believed that he had no choice but carry on to the end, waiting for a chance to surrender to the western Allies.

Like so many of his colleagues, he was an anti-Communist who feared Stalin's "eastern hordes" – the racially-loaded term he used with an American interrogator in June 1945. He thus was lucky to be able to surrender to the US Army, something he hoped would happen, but had little opportunity to influence. Surrender of course gave him into a new opportunity and career, developing nuclear-armed missiles for the United States in the Cold War, while advocating spaceflight in his spare time. But it was only at the end of the 1950s, after Sputnik, that he really

was able to work on his life's goal – aiming for the moon. With the transfer of his Army group to NASA he was given responsibility for developing the launch vehicles for the Apollo program, and thus made a central contribution to the triumph of 1969. But the aftermath was disappointing. The American public lost interest in expensive manned space programs, and he left NASA in 1972 for a private firm. He died of cancer only five years later.

Wernher von Braun's life was undeniably one of world-altering achievement. Although he was by no means the only important pioneer of spaceflight in the twentieth century – many Americans, Russians and others would need to be mentioned here – there is little doubt that he was one of the half dozen most influential. At the same time, he played a central role in the development of ballistic missiles, which have contributed both to nuclear deterrence and to the threat of catastrophic destruction since 1945. Along with his native talents, his upbringing and his earlier education, the Lietz schools at Ettersburg and Spiekeroog certainly contributed to this record of achievement, by encouraging von Braun's intellectual growth, his independent initiative and taste for a challenge. It was precisely during the years at the two schools that he blossomed into a scientific prodigy.

The troubling question is what those years might have also contributed to his political naiveté and unthinking nationalism. He slid so easily into accepting military money and serving an aggressive dictatorship. The masculine, anti-urban and often anti-democratic values of parts of the pre-1933 Lietz tradition certainly reinforced values that von Braun brought from his conservative-nationalist father, rather than bringing him to question them. Von Braun's mentor, Albert Andreesen, explicitly associated himself with the ideas of the so-called "conservative revolution" which had ideological affinities with the aims of National Socialism. These affinities eased Andreesen's rapid "coordination" (Gleichschaltung) of the Lietz schools in 1933, although his actions were no doubt also motivated by a desire to defend their independence.

While many aspects of Wernher von Braun's achievements in the exploration of space are admirable, his life is ultimately a cautionary tale. Blind enthusiasm for any technology can be dangerous, and can easily lead the engineer and the scientist into serving aggressive and oppressive political regimes willing to offer money, resources and power for the development of weapons. If the human race is to survive the challenges thrown up by its own technological achievements during the next decades and centuries, humanitarian and democratic values must play an integral part in any educational system.