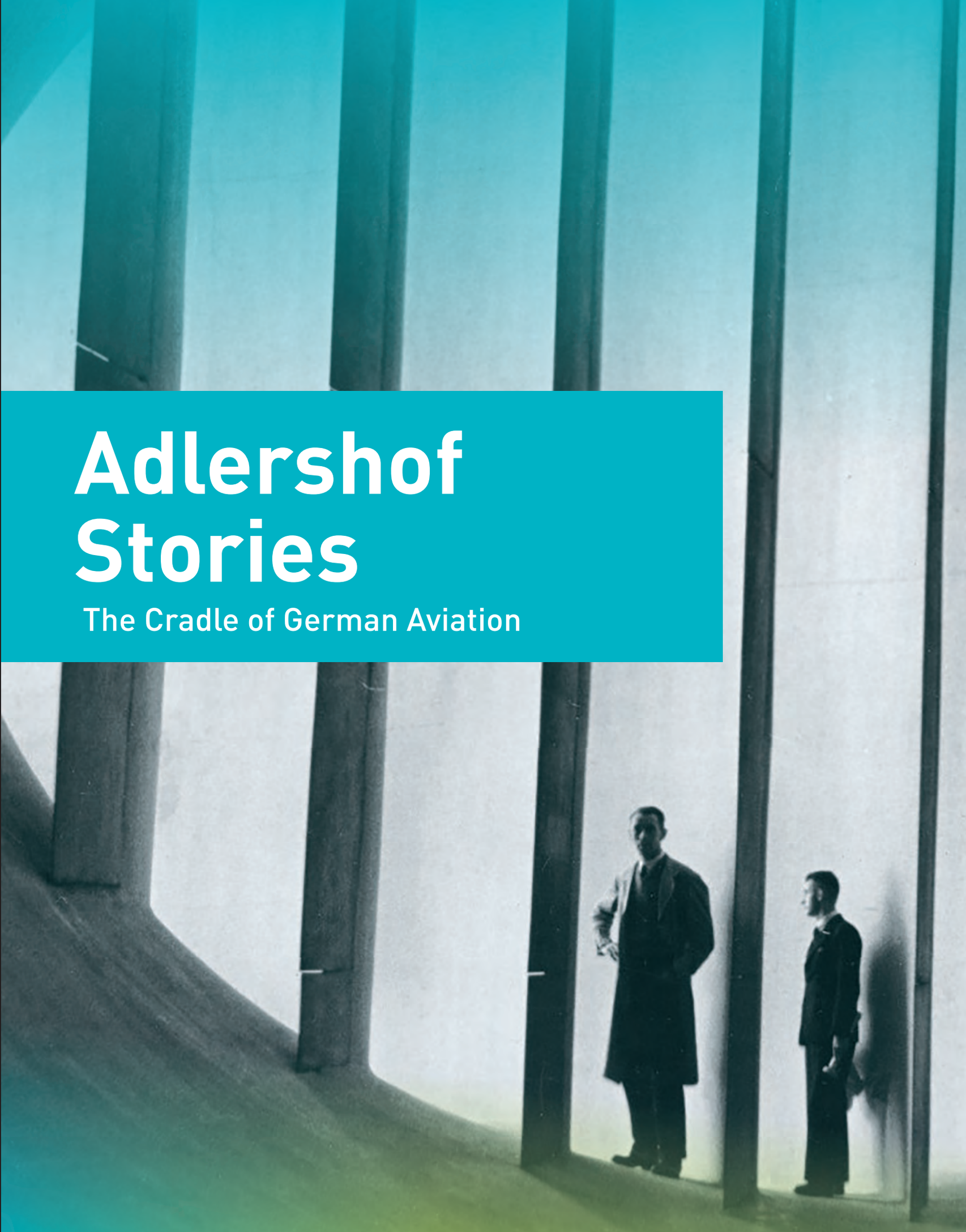

Adlershof Stories

The Cradle of German Aviation

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Preface

Science and technology have a long-standing tradition in Adlershof. The area once bore a different name, Johannisthal, and was home to an airfield. It was taken into operation as Germany's first-ever airfield on September 26, 1909. In 1912, the German Research Institute for Aviation (Deutsche Versuchsanstalt für Luftfahrt, DVL) was founded in Adlershof. The airfield and the aviation industry experienced an upswing due to World War I, followed by a precipitous tailspin after 1918. However, Johannisthal remained a place of industry, where cars were built instead of planes and the empty hangars were used for producing films. During the "Third Reich", Adlershof served the military rearmament in the air. Immediately after World War II, the Soviet victors dismantled the DVL facilities and shut down the airfield. Adlershof survived, however, albeit with new tasks and responsibilities. East German television made "Adlershof" a household name, a synonym for the area and an entire medium. The Ministry for State Security (Ministerium für Staatssicherheit, MfS) seized parts of the premises and stationed its guards regiment „Feliks Dzierzynski" there. Furthermore, the Academy of the Sciences (Akademie der Wissenschaften, AdW) was established. Until 1989, Adlershof was home to nine scientific institutes focusing on physics and chemistry. In autumn 1989 alone, 5,600 people worked there. German reunification marked the site's second and arguably most incisive turning point. The guards regiment was disbanded and the Unification Treaty sealed the fate of the Academy and GDR television.

When, on March 12, 1991, a conference of undersecretaries from Berlin's government decided to develop an „integrated landscape of research and industry" in Adlershof, the area's history as a technology site already seemed long gone. However, this turning point, too, was endured.

Eight of the eleven non-university research institutes based in Adlershof today were spin-offs from East Germany's former Academy of the Sciences, founded in 1992 and integrated into the research landscape of unified Germany. Between 1997 and 2003, they were complemented by the six natural science institutes of Berlin's Humboldt-Universität. Modern technology and start-up centres were set up to attract innovative companies. Today, one hundred years after the first engine-powered planes took of here, Adlershof has become one of Germany's most successful locations for high-technology. It is now home to an integrated site for research, industry, and media, embedded into an overall urban development concept covering an area of 460 hectares. Its core is made up of a science and technology park with 1,200 companies, ten non-university research institutes, and six natural science institutes of Humboldt-Universität zu Berlin. 24,500 people work here in 2022. Adding to this number are 6,600 students.

The story of Adlershof is one of continuous change and great transformations. It shows that the people living and working on this site have always had a knack for accepting the challenges brought about by historical turning points, and major changes as opportunities to build something new. The story of Adlershof is thus the story of 100 years of continuous innovation.

This brings us full circle as to why we wrote this history down. It provides us with insights into Adlershof's roots, helping us to draw conclusions about the present. But not only that: It also helps us to shape Adlershof's future.

Roland Sillmann
CEO of WISTA Management GmbH

The Cradle of German Aviation

When the first aeroplanes soared noisily to the sky over the just completed airfield in Berlin-Johannisthal on September 26, 1909, this essentially marked the birth of German aviation. Johannisthal was the first airfield for powered flight in Germany and the second worldwide, since the first airfield in the world was opened four weeks earlier in the French Bétheny near Reims.

Only shortly after Hans Grade and August Euler were the first Germans to successfully perform short flights with an engine-powered aircraft in October and November 1908, German aviation had found it's home in Johannisthal. Now, with Johannisthal as a home base, there was no holding back for the advancement of aviation.

First Aviation Week 1909

The opening of Johannisthal was celebrated with a spectacular Aviation Week. Actually, the field, or rather the air, was clearly dominated by foreign pilots, first and foremost Henry Farman, Louis Blériot and Hubert Latham from France. The latter delighted the audience with the first cross-country flight in Germany from Tempelhofer Feld to Johannisthal. (The Berlin police, on the other hand, was unamazed by this and – allegedly - fined him a 150 mark ticket for "public nuisance".) Blériot circled smoothly around the turning point and collected 20,000 mark prize money. His fellow countryman Farman amazed the spectators by flying extremely short of the ground and the winner of the long-duration flight competition – Hubert Latham – was able to hold his aircraft in the air for 2 hours and 41 minutes. In comparison, the performance of Hermann Dorner, the only German participant in Johannisthal at the time, was almost lacklustre. Dorner and his plane did not deliver more than a few jerky leaps in the air.

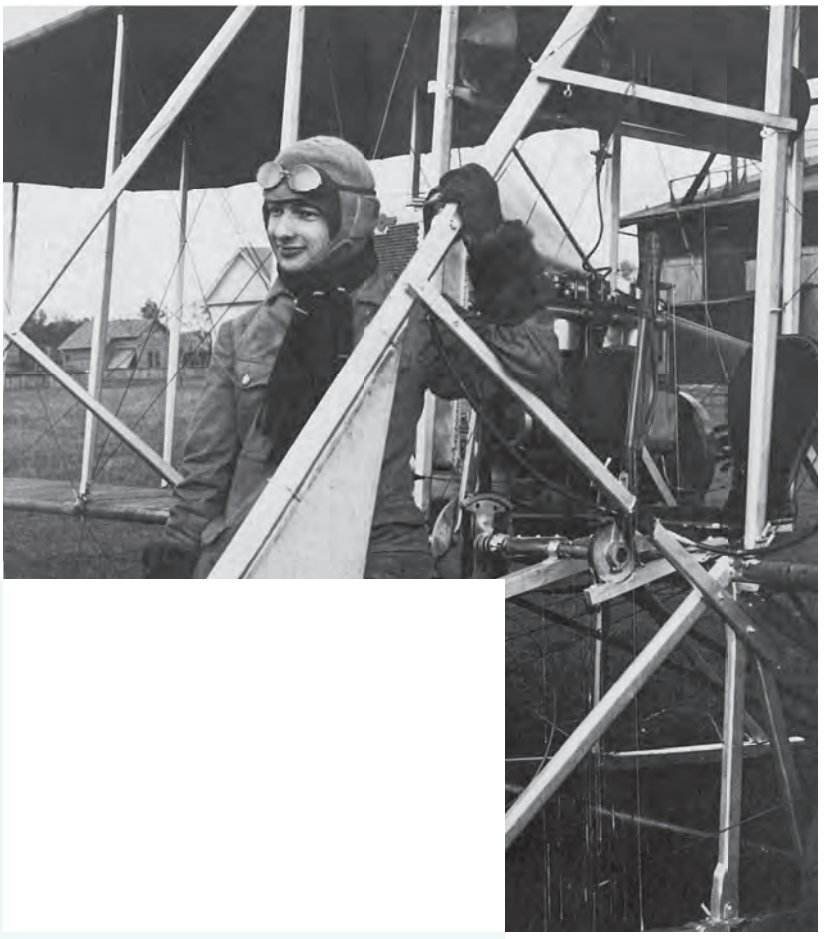
Poster for the first Flying Week from 26 September until 3 October 1909

French and British aviation was in the lead

The French and British lead regarding aircraft construction was closely connected to the fact that Germany, and especially its military, favoured the concept of "lighter than air", the airship or zeppelin. In the US and France, however, amateur engineers had already started constructing and testing powered aeroplanes at the turn of the 20th century, although two pioneering innovations from Germany – the glider of Otto Lilienthal (1891) and the combustion engine of Gottlieb Daimler (1883) and Carl Benz (1879) – provided essential technological prerequisites. The brothers Wilbur and Orville Wright heralded the beginning of an age of aviation with the construction of a biplane in the United States on December 17, 1903. At about the same time, there were also first attempts of powered flight in Europe, most notably in France.

In Germany, private associations were the ones advancing aviation. Officers, inventors and technophiliac entrepreneurs, who realised the flying machines were more than just a funfair attraction, got together within these associations. They perceived the fact that all aviation records at the time were held by French pilots as nothing less than a national disgrace.

View of the take-off site and referees' tribune around 1911



Gerhard Sedlmayr as a trainee pilot with the Wright Company in Adlershof in 1911. In 1919, he founded the company "Autoflug"(now located in Rellingen) in the same locality. In the background left, engine test beds of the German Laboratory for Aviation and the laboratory building that still exists today

Arthur Müller

* 1871 in Stuhm/West Prussia
† January 19, 1935 in Berlin

Arthur Müller was a key historical figure of the aviation and industry site Johannisthal/ Adlershof.

Born a son of Jewish parents under the name Aron Cohn, Müller completed a commercial apprenticeship in Poznan before embarking on animal feed trade. After achieving great commercial success with "Müllers Mais-Melasse" he turned to constructing lightweight barns in 1902. These could also be used as aircraft hangars and were provided by Müller to the first aviation exhibition in Frankfurt a. M. in 1909. Convinced of the technical and economic opportunities of the incipient aviation, he founded Air and Sportsfield Berlin-Johannisthal Ltd. in 1909. With that he became one of the most important investors and initiators of Johannisthal as an aviation site. The Air-Traffic-Company (Luftverkehrsgesellschaft, LVG), which he founded in 1912, was the largest manufacturer of aeroplanes in Germany in the years before 1918.

When the Treaty of Versailles put an end to the production of aeroplanes, Müller successfully committed himself to manufacturing vendor parts for the automobile industry as of 1926.

Until his death in 1935, Müller was increasingly subject to bullying after the Nazis had seized power in 1933. His companies and properties were dispossessed and "aryanised".

Müller's widow and his two sons were able to escape the Nazis by a hair's breadth and went into emigration virtually penniless.

Georg von Tschudi, one of the founders of theair field Johannisthal/Adlershof, he succeeded Arthur Müller as director of the airfield company

The initiators Arthur Müller and Georg von Tschudi

The building contractors Arthur Müller and Major Georg von Tschudi played a prominent role in establishing and building the Johannisthal Airfield. Originally from a Westprussian Jewish family and a modest social background, Arthur Müller (1871-1935) worked his way up with ingenuity and perseverance. He devised a method of lightweight construction for barns which was eventually applied to the construction of aircraft hangars. This way he came into contact with many of the aviation pioneers, among them Major von Tschudi, a former military aeronaut who worked as the managing director of the Internationale Luftschifffahrt Ausstellung (ILA, International Aviation Exhibition) in Frankfurt/M. Between 1906 and 1908, he was a leading designer and engineer in Marocco. Von Tschudi was also a member of the German Aero Club, the principal meeting place for aviation lobbyists at the time.

It was von Tschudi who carried the news of a prospective airfield in or near Berlin to the diligent entrepreneur Müller. The project's initiator Eduard von Pustau, a former naval captain, who vigorously promoted the concept of aviation as a writer, was not able to finance a suitable, let alone affordable plot of land. Among other options, using one of the existing horse racing tracks in Berlin was up for discussion. But then, horse racing and flying did not seem like a good match after all.

Until then, the first aircrafts in Berlin took off from the artillery training grounds in Tegel. In view of the prospective future of aviation, an airfield had to meet further requirements. Moreover, the military opposed a civil use of the premises.

That was when Arthur Müller came into play. He negotiated an attractive tenancy agreement with the Forestry Commission over a 300 ha area between Adlershof and Johannisthal. The clearing and planation was carried out by soldiers of the Royal-Prussian Train Brigade and the construction work commenced in July 1909.

Meanwhile, Müller, together with von Tschudi and other partners, founded the Deutsche Flugplatzgesellschaft (German Airfield Company) which was soon merged with the newly founded Flug- und Sportplatz GmbH Berlin-Johannisthal (Air and Sportsfield Berlin-Johannisthal Ltd.) after it had piled up some considerable debt. Müller handed over management to von Tschudi as of January 1, 1910. The building contract was awarded to Arthur Müller Land- und Industriebauten AG (Arthur Müller Agricultural and Industrial Buildings Corp.) which meant that Müller basically awarded this lucrative contract to himself.

But, to Müller, it was not primarily about contruction contracts. He foresaw a great future for powered flight: "When the Wright brothers made their first successful flying attempts in France in 1908, I was seized by a fever for this new form of transportation that is the art of flying and I told myself: the first successful attempts prove that flying is possible and so it will necessarily advance with giant strides."

Pastoral Berlin

At the time of the airfield's opening in 1909, Johannisthal was a suburb of Berlin with roughly 2,700 inhabitants. The neighbouring Adlershof counted about 8,000 residents. Both towns had undergone a striking development when Berlin's industry started moving towards the periphery in the three previous decades. As late as 1871, the founding year of the German Empire, Adlershof and Johannisthal could still be considered "in the middle of nowhere" or JWD, as the Berliners say ("janz weit draußen", German for "very far afield" in the Berlin dialect). Both located in the densely wooded Bruch Valley area, the local population amounted to merely 400 inhabitants. The settlements were originally founded under the reign of Frederick II in the mid-18th century. Its inhabitants, mostly immigrants from Bohemia and Saxony, lived off agriculture and small trade.

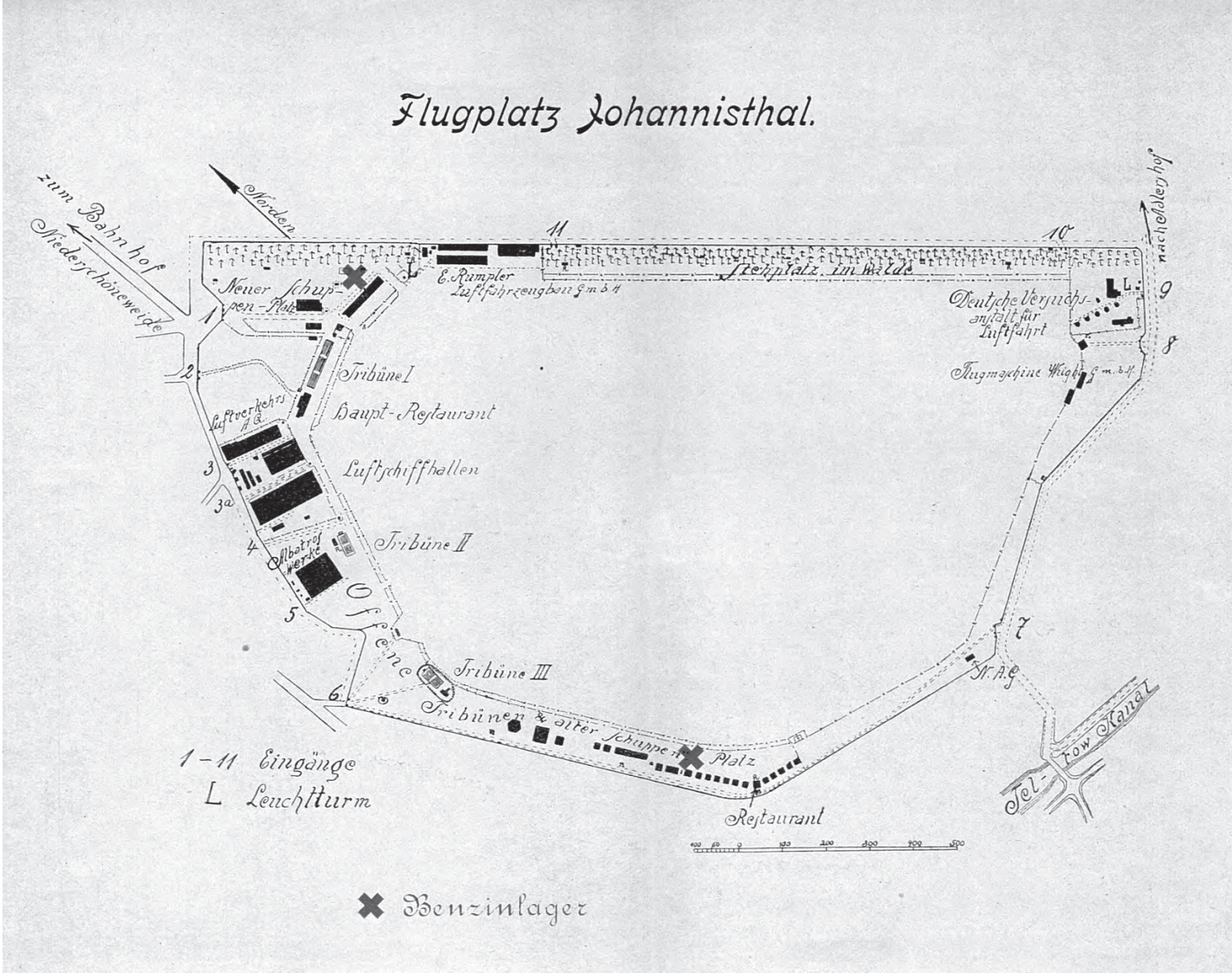
Recreation gained importance in the last third of the 19th century providing Johannisthal with a new source of income. Berlin at the time of rapid industrial expansion, the so-called Gründerzeit, was not only the capital city of the emergent and dynamic German Empire, but also its main industrial center with soaring output figures and a fast-growing population. Berlin registered unprecedented growth, unparalleled in Europe at the time. The construction of a multitude of large factories and tenement houses and the city's increasing importance as a traffic hub changed its pace of life dramatically. More and more Berliners felt a need to escape the tumultous urban life for at least a few hours and drove by carriage or train to the leafy surroundings of the city. Karl Trützschler von Falkenstein, a landowner from Johannisthal and offspring of a Prussian officer's family, realised this was a promising business opportunity. He founded a constructing company and bought the Johannisthal estate for a substantial sum of money. Then, he successfully campaigned for Johannisthal to receive its own railway stop in 1874 enabling Berliners to travel there conveniently from then on. The construction company quickly fell victim to an economic crisis, the so-called Gründerkrise of 1873. However, Trützschler did not give up and instead acquired the plot of land and proceeded with the building project on his own account. His vision was to reinvent Johannisthal as an elegant suburb at the gates of the prosperous capital of Berlin. With this in mind, Trützschler ordered the construction of bathhouses and casinos and thus in 1884, the town was awarded the name "Bad Johannisthal" (Spa Town Johannisthal).

Adlershof/Johannisthal caught in the landslide of industrialisation

The building of the train line Berlin-Görlitz (1866/67) and the completion of the circle line (Ringbahn, 1877) and the city line (Stadtbahn, 1882) soon put an end to this pastoral tranquility. Berlin's industry began to migrate to the periphery and, with that, quickly seized the areas Johannisthal and Adlershof. Soon, labour-intensive industries lacked space in the inner-city and so many companies relocated their production facilities to the outskirts and rural surroundings of the city. This resulted in a significant increase in land prices.

The heirs of Karl Trützschler von Falkenstein divested their share in the estate after 1891. From then on, the public construction company for Adlershof began erecting tenement blocks occupied predominantly by factory workers. The dream of Johannisthal/Adlershof as a health spa location was shattered by the effects of a rampant industrialisation.

Adlershof was seized by the incoming industry even more rapidly than Johannisthal. Already in 1879, the country estate was dissolved and Adlershof was declared an urban municipality. Large building plots were designated on the eastern side of the train line to Görlitz and along Adlergestell, used mainly by companies of the electric industry, mechanical engineering and the chemical industry. The second wave of relocation that followed clearly favoured sites in close proximity to waterways. The construction of the Teltow Canal (1906) was of vital importance for the boom of the southeast industrial region which now included Adlershof and Johannisthal.



Airfield plan from 1913 – on the right is Rudower Chaussee, to the left is todays Segelfliegerdamm

Johannisthal Airfield: "The cradle of German aviation"

The first German airfield was originally conceived as a temporary solution. Built within a few weeks, it covered an area of approximately 2.1 sq km. In the beginning, the runway was 800 m long and 500 m wide. In order to better demonstrate flight characteristics, four turnaround pylons were put up marking ranges of 2.5 km. The take-off site and the booth for the finish line judge was located in the Western part of the compound which was also home to the first aeroplane shelters. The opening of the first German airfield was officially marked by a spectacular Aviation Week on September 26, 1909. It was postponed by a week, hoping to make the front pages before the air show at the International Aviation Exhibition (ILA, Internationale Luftschifffahrt-Ausstellung) in Frankfurt a. M. This was accomplished thanks to the previously depicted, outstanding performances of Latham, Blériot and others. Although Germany now had its own airfield in Johannisthal, the second in the world, and despite the aviation pioneers' daring feats, the future of powered flight and the concept of "heavier-than-air" remained controversial for some time. Among the sceptics was the senior civil servant Dietrich, professor at the Technical University Berlin, who was convinced that "these machines will never advance to become safe means of transport. Apart from their military use, they will remain a type of sport, albeit one destroying more human lifes than any other known type of sport."

Hans Grade

* May 17, 1879 Köslin/Pomerania (now Koszalin)
† October 22, 1946 in Borkheide

Hans Grade was the first to fly a heavier-than-air flying machine made up completely of parts produced in Germany, including the engine and materials. He was honoured with the "Lanz-Preis der Lüfte" (Lanz-Prize of the Skies) for his pioneering deed in 1909.

In 1903, while still studying at the Technische Hochschule Berlin-Charlottenburg, Grade built his first motorbike. Very early on he was fascinated by the possibilities aviation had to offer. In 1907, he began work on his first flying machine, a triplane, during his time in military service with the army engineers battalion.

In 1909, Grade moved to Bork in der Mark (now Borkheide) where he absolved his first test flights with his newly constructed monoplane "Dragonfly". With this plane he applied to the "Lanz-Prize of the Skies" which beckoned with 40,000 mark prize money. Karl Lanz, an industrialist and aviation enthusiast from Mannheim, tendered this price for the first German aviationist to fly around two pylons with a distance of 1,000 m in a recumbent eight and fly back 500 m to the starting line. Hans Grade offhandedly accomplished this task on the Johannisthal Airfield on October 30, 1909. In September 1910, he already established a new long duration flight record by keeping his monoplane in the air for 4 hours and 30 minutes.

Grade invested the prize money in the expansion of his aircraft factory and his own flight training school. After divesting his company in 1917, Grade turned to producing about 2,000 so-called Grade-car in a small part of his former factories.

The factory was forced to shut down in 1927. Henceforth, Grade took on external research contracts.

Hans Grade in front of his monoplane in Adlershof - however not in 1909, but in 1934, in preparation of shooting a film about his Lanz-Prize flight

Hans Grade with his monoplane during a competition – he won the "Lanz-Prize of the Skies" (Lanz-Prize of the Skies) on October 30, 1909, with an aircraft of the same type

Hans Grade wins "Lanz-Prize of the Skies" in 1909

Such opinions did not discourage Karl Lanz, an industrialist from Mannheim. Staunchly convinced of the new technology and rankled by the fact that French aviation was still leading the way, he offered a 40,000 mark prize for the first German to fly a "recumbent eight" with a German machine. This was accomplished by the aviation pioneer and designing engineer Hans Grade in Bork (now Borkheide) near Potsdam in August 1909. He flew a self-constructed monoplane which combined a simple structure with outstanding flight characteristics. Grade had already successfully performed the first powered flight in Germany, in Magdeburg on November 2, 1908. He flew a 36 bhp triplane he had designed and constructed himself. After this breakthrough, he moved his workshop to Bork.

The members of the Berliner Verein für Luftschifffahrt (Aviation Association Berlin) were disgruntled by the fact that Hans Grade had met the prize conditions in Bork near Potsdam and not in Johannisthal. They pulled a few strings and managed to persuade him to pack his constructions up and move them to Johannisthal. There, on October 30, 1909, he repeated his prized performance of a "recumbent eight" and went down in German aviation history as the first aircraft designer in Germany and the Aviation Association Berlin gained the publicity it had so long sought after.

In the following year, Arthur Müller acquired the airfield grounds in Johannisthal for the "Terrain Corp." (Tagafia) which would turn out to be a farsighted move. The Forestry Commission granted the prolific businessman the option of buying the airfield, not the airfield company which found itself in an enduring financial squeeze. By this time it was apparent that extending the airfield would also lead to the further development of Johannisthal and Adlershof with modern functional and residential buildings. These were to be constructed along the Görlitz train line between Johannisthal and Adlershof. However, the Tagafia was forced to assign a third of the area to the Adlershof and Johannisthal municipalities without charge for communal buildings.

Obstacles on the way for the expansion

In this initial phase, many experts consulted by Tagafia offered bright prospects for the airfield's future development as well as its surrounding towns. As the Royal Construction Councillor Jaffé declared: "It is only natural that an industrial country such as this one should be favoured among the leading companies in aviation and aeronautics. All the more so since the airfield will surely develop into a centre for aeronautics and aviation like it never existed before...it might possibly result in a complete transformation of traffic in the entire world." The realisation of the land-use plan did not proceed without problems. The local governments and building inspection departments set out numerous requirements. Moreover, Müllers adversaries wanted to defame him as a speculator. Some newspapers took up these accusations and joined in the slander against his good name. Even the Russian revolutionary leader Wladimir I. Lenin read the articles on the "Tagafia" scandals at the time and later wrote of the "terrific fraud" Müller had supposedly staged. This was one of the reasons why later GDR historians did not dare to adequately acknowledge Müller's accomplishments for the development of the first German aviation site in Johannisthal/Adlershof.

The grand stand during an event, in the background is the Parseval airship hangar established by Arthur Müller

Franz Tolinski's "Fliegerheim" in the Friedrichstraße in Johannisthal, one of the main meeting places for aviationists next to Café Senftleben, famous for its collection of crash wrecks

Work on a timekeeping tower for flying competitions

Aviation weeks and air shows

It was not possible to finance the costly infrastructure demanded by an airfield, as well as prize money and appearance fees for air shows from entrance fees alone and soon the airfield company was drowning in deep red ink. Moreover, the airfield and its buildings were, to a greater extent, a makeshift solution.

Main entrance of the Airfield Johannisthal and pay booth, around 1912

On the lift-off site, the clock tower on the left, behind it the Rumpler Aircraft Works around 1912

The referees' tribune during the German Flight Tour 1911 – von Parseval (second from right), von Tschudi (right)

Thus after 1910, airfield director Georg von Tschudi invested much effort into repairing its structural deficiencies. New take-off sites and entrances were set up, tribunes and administrative buildings were built and wind gauges and humidifiers were installed. The elaborate modifications stood the test and completely changed the airfield's overall character.

First flight tour over Berlin

On May 23, 1910, Alfred Frey from Württemberg made a remarkable flying performance from Johannisthal and thus reached another milestone in the development of German aviation: he ventured a flight tour over Berlin, in the course of which he flew over the Tempelhofer Feld, along Potsdamer Straße to Potsdamer Platz, around the Berlin Victory Column at a height of 300 m, past the Reichtag building and the Hohenzollern Castle and, in the end, landed back in Johannisthal safe and sound. This spectacular flight just above the rooftops of the city caused a stir among the people of Berlin. Crowds of people ran to the streets and public squares and city traffic grinded to a halt. Alfred Frey's flight over the city had impressively demonstrated the potential of the new technology. In the period that followed, multitudes of spectators from Berlin flocked to Johannisthal to witness ever new pioneering feats of the audacious pilots. Just three months after the international Aviation Week received only muted response, the "National Aviation Week" in August 1910 was a tremendous success. Many other aviation weeks and soaring visitor numbers followed. Incidentally, why was the airfield called Johannisthal Airfield? By way of association, it should have seemed natural to name it after the district of "Adlershof". However, the train ride from Berlin to Johannisthal was ten minutes shorter and thus ten pfennig cheaper. This had to be taken into account for marketing reasons and so the name "Johannisthal" was maintained.

Stampede for the Germany flight 1911 in Johannisthal

On June 11, 1911, the wild enthusiasm for aviation reached an unprecedented peak. On this day, Johannisthal was the starting point for the largest aviation event to date, the "Deutscher Rundflug" (German Flight Tour) with an overall length of 1,854 km which were flown in stages over 13 days. Twentyfive pilots took part in the flight which included the cities Magdeburg, Schwerin, Hamburg, Hannover, Cologne, Dortmund and Halberstadt. On the first day of this huge and sensational event, according to some estimates, up to 600,000 men, women and children poured into Johannisthal - more visitors than ever before. Already early in the morning, the suburban railway was overcrowded and many visitors freerode on the footsteps and roofs of the train carriages.

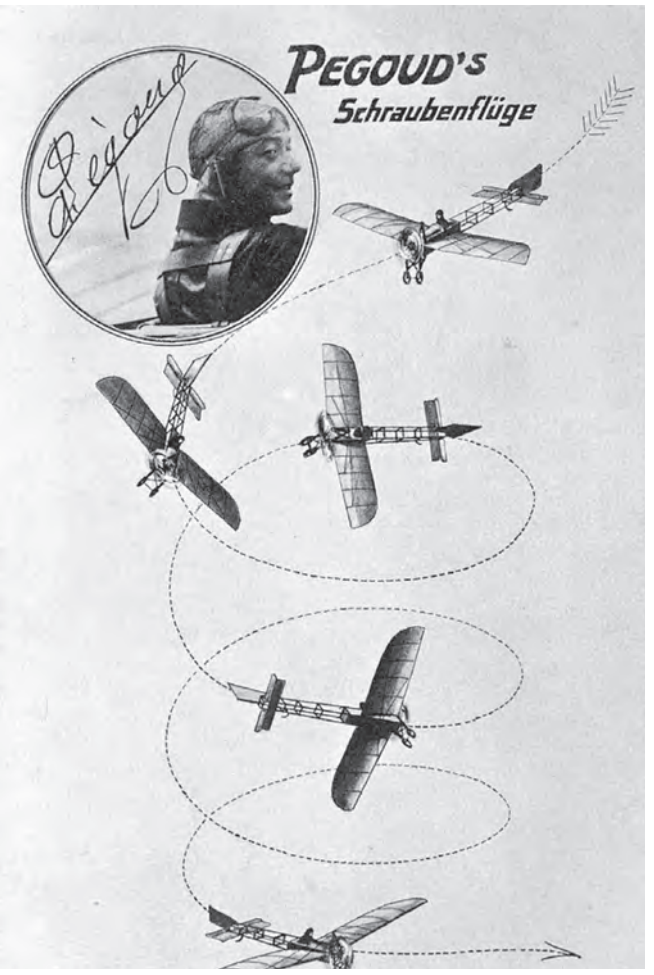
The Prussian State Railway had misjudged the public interest and had not sent out enough trains. The "Vossische Zeitung" described the chaos as follows: "In the train's compartments, 30 to 36 people were standing and sitting, yes, lying in the luggage net and under the benches. Numerous women and girls fainted and had to be brought out of the trains at intermediate stations." Wagons and cars backed up on the access roads and all traffic came to a halt. The available 6,500 seats on the terraces and the space for 100,000 people standing up were occupied in a flash. Yet another 400,000 people broke through the boundary fence and came pouring into the where it was all happening.

Risky flight manoeuvres

The Berliners were aglow with enthusiasm for aviation. Hundreds of thousands were drawn to Johannisthal in October 1913, when the French pilot Adolphe Pégoud performed dangerous nosedives, loopings, spirals and low-level flights. Johannisthal had long since become known for its emerging aviation scene. The number of lift-offs from Johannisthal rose from an average 26 to 138 per day between 1911 and 1914. But it was not just technology enthusiasm that attracted great numbers of people to the air displays. The thrill of likely accidents also played an important part. The pilots then acted as a type of modern gladiators. As in ancient Rome, they were hailed as heroes, but risked their lifes for it. No small number of machines crashed just after lifting off because the complex technology of aviation was still in its early stages. Hardly a day went by without "firewood". The pilots abhorred the sensationalism of the crowds. Gerhard Sedlmayr, for instance, after being fortunate enough to survive a crash, was shocked: "Everything that is not nailed down is stolen from us poor pilots. Thus, I never saw my cap and goggles again, Captain Engelhard was missing a valuable tie pin. I think this is crude body-snatching and nothing else." Paul Engelhard died on this flight in 1911. The chase for new records continued nevertheless.

The first flights with radio equipment took off from Johannisthal in spring 1912. For this, the Telefunken Company equipped an Albatros-biplane with a receiver and a transmitter. At an altitude of 500 m and a distance of 150 km, the aero plane could submit radio signals to the ground station in Nauen.

Pégoud during a vertical spin above the Johannisthal airfield



Pégouds famous spin or corkscrew, a popular figure of the first aviationists

This is what it looked like when the spectators swarmed to flying events (here the flying performance of Adolphe Pégoud)

Pégouds machine on the take-off site, behind it a billboard for Rumpler and Carl Berg, the largest manufacturer of aluminium at the time, supplier for the airships of Count Zeppelin (1913)

Benno König, an archetypical aviationist of the early years of aviation

Alfred Friedrich. He was the first aviator to fly the route Berlin–Paris–London and back in August/September 1913

Deadly crash of Paul Engelhard with a Wright-flyer on September 29, 1911, his disciple Sedlmayr is slightly injured
.

Transporting an aeroplane (Wright-flyer) from assembly to flying in, here on Rudower Chaussee

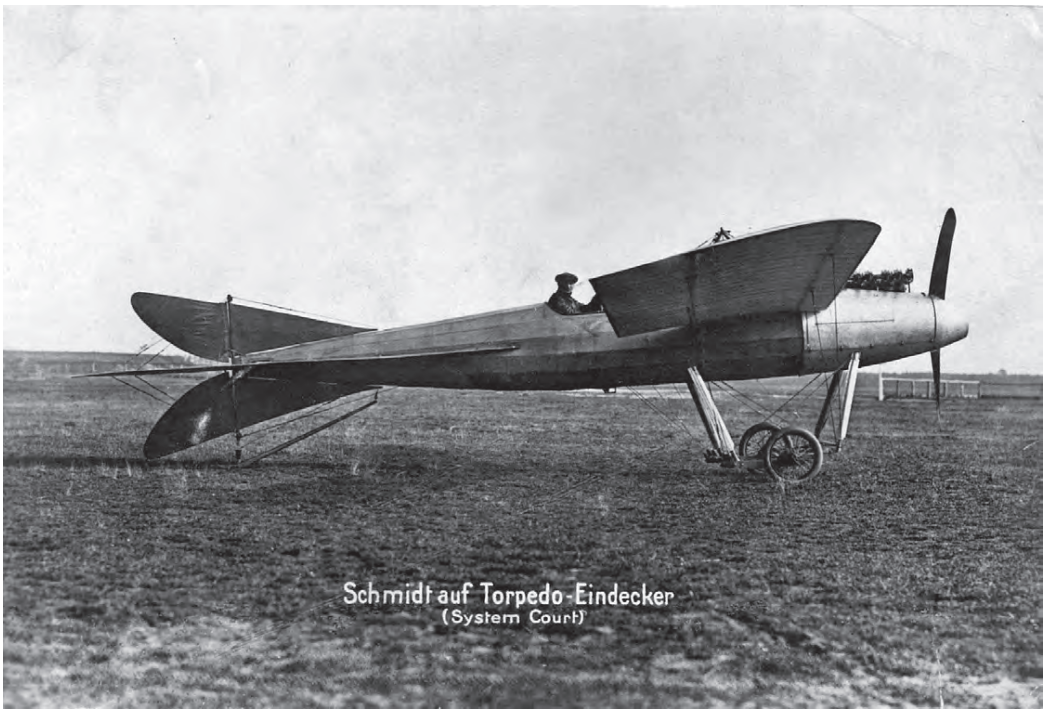
Johannisthal becomes the centre of German aviation

Just before the First World War, the airfield in Johannisthal reached its prime as the centre of aviation in Germany. Every second German aviation event took place here and the winners of almost all the competitions were pilots from Johannisthal.

A whole range of factors contributed to this resounding success: the affinity towards new technologies of large parts of Wilhelmine society (a sentiment that could also be found similarly in France and Great Britain) and the passion and courage found in the pioneers of aviation and aircraft construction. Furthermore, the immediate proximity to the dynamic capital of Berlin with its emerging innovative industry, but also a smart strategy regarding marketing and funding of the Johannisthal airfield, for which Arthur Müller has to be given credit, and the international appeal of the flying events all contributed to this. Johannisthal became a central meeting place for European pilots. The first German airfield soon became a focal point for the emerging aeroplane industry as the most important manufacturers in aviation and aeronautics settled down here.

Hermann Reichelt with his machine (original signature from August 26, 1913)

Orville Wright (third from the right) in front of his flyer in September 1909, on the right next to him Hart O. Berg and Richard von Kehler (the photo was taken on Tempelhofer Feld)



Richard Schmidt in a Torpedo-monoplane around 1912

A new industry emerges

Bruno Hanuschke

* March 12, 1892 in Berlin
† 1922

At the age of 15, Bruno Hanuschke built a biplane glider together with his brother Willi. At the age of 18, he tried to become self-employed as an aeroplane engineer in Johannisthal.

After failed attempts with a biplane, he took a self-constructed monoplane to the skies which he equipped with a 25hp-Anzani-engine. With that he succeeded in getting the pilot's license Nr. 35 on October 8, 1910.

He founded a flying school in Johannisthal which, unlike many others, he was able to uphold until the outbreak of World War I in 1914. Hanuschke soon advanced to being one of the most popular German aviators and a renowned producer of aeroplanes with soaring sales numbers at home and abroad. An important factor to his success was the use of a fuselage made of welded steel tubing.

Hanuschke's popularity can be credited to his unconventional style of flying and his willingness to fly even in the worst weather conditions. That is why he was known as one of the first „Sturmflieger" (Storm pilots) in Johannisthal.

Bruno Hanuschke died in 1922 in a sanatorium as a result of pneumonia.

Gutav Otto, son of the inventor of the four-stroke engine, founded the Otto-Flugmaschinenwerke which later became the Bayrische Flugzeugwerke (Bavarian Aeroplane Works), followed by the Bayrische Motorenwerke (BMW, Bavarian Motor Works)

At first, domestic and foreign amateur engineers, adventurers and very small companies shared the warehouses on the "old starting grid" in Johannisthal. The first flying machines were designed there with little money and much enthusiasm and, at times, slightly hazardous results. Most of these pioneering designers failed early due to insufficient capital or immature blueprints.

Entrepreneurs and inventors

Nevertheless, many of these pioneering aviators, such as Bruno Hanuschke, Max Schüler, Hermann Dorner und the brothers Otto and Paul Timm, successfully designed structures which were groundbreaking for the further development of aircraft design.

In 1912, Hermann Dorner built the first bimotored seaplane in the world. The certified naval architect had constructed a glider as early as 1907 and had thoroughly tested its stability and navigation capabilities. With that, Dorner was the second German since Otto Lilienthal with the capacity to take a steerable heavier-than-air construction to the skies. In the epoch-making Aviation Week in September 1909, where he took part also with his own design, a parasol-winged monoplane with a self-constructed 4-cylinder engine, Dorner was the only German participant. He founded the "Dorner-Aeroplane-Company Ltd." in 1910 and was the one of the first aviation pioneers to receive financial support from the Prussian War Ministry. However, his planes turned out to be inappropriate for military purposes which only precipitated the closing down of his company.

Bruno Hanuschke was only 18-years-old when he started designing and producing aircrafts in Johannisthal in 1910. He was able to claim some economic success with his monoplane construction which was equipped with a 25hp-Anzani-engine. His aero planes sold well on the German and European markets for quite a while which, among other things, can be credited to the sturdy steel tubing he used in the construction of the fuselage.

There was another company, apart from Dorner's, that was not able to prolong its success: the "AGO Aircraft Works" (Aviator Gustav Otto). The company was founded in Munich in 1911 by the aviation pioneer and mechanical engineer Gustav Otto, son of Nikolaus Otto, the inventor of the four-stroke engine.

A year later, Otto opened a regional branch in Johannisthal, but the AGO's production line in Johannisthal remained insignificant.

Other establishments lasted longer than those pioneering companies and would later make up the core of a thriving aviation industry in Johannisthal and Adlershof. Among those were the Wright Aircraft Ltd., the Albatros-Works, Fokker Aeroplane Construction and the Rumpler-Aircraft Works.

Wilbur and Orville Wright

Wilbur:
* April 16, 1867 in Melville, Indiana
† May 30, 1912 in Dayton, Ohio

Orville:
* August 19, 1871 in Dayton, Ohio
† January 30, 1948 in Dayton, Ohio

The Wright Brothers descended from a protestant churchman. They did not have the money to go to university, so the brothers started off founding a printery. They then operated a bicycle factory which had noteworthy economic success. Here, they gained first experiences with the construction of sturdy, but light structures. Soon, their enthusiasm for aviation was sparked and they began with focussing on gliding flight. They sought to achieve controlled, powered flight. After many failed attempts, they were successful at last on December 17, 1903. In a remote area near Kitty Hawk on the Atlantic, they performed four flights with their "Flyer" and a 12-hp-engine they manufactured themselves. The longest flight lasted 59 seconds covering a total distance of 260 m. In the U.S., they received only muted response and so left for England and France and, in 1909, went to Germany. Tens of thousands stood in awe during Orville Wright's flying shows on the Tempelhofer Feld in Berlin. Also in 1909, Orville founded the Wright Flugmaschine GmbH (Wright Flying Machine Ltd.) which relocated from Reinickendorf to Johannisthal in 1910. Soon, almost two thirds of all Wright-built machines were manufactured there. The Wright-Flyer produced in Johannisthal became the standard machine of the early years of German aviation along with the "Rumpler-Taube" (Rumpler-Pigeon). Long-term economic success could not be achieved because the technology used in the Wright-biplane was soon outdated. The company declared bankruptcy in 1913.

Orville Wright found late recognition in the U.S. and was appointed a member of the National Academy of Sciences in 1929.

The 20 first German aviation pioneers, the first of the "Old Eagles"

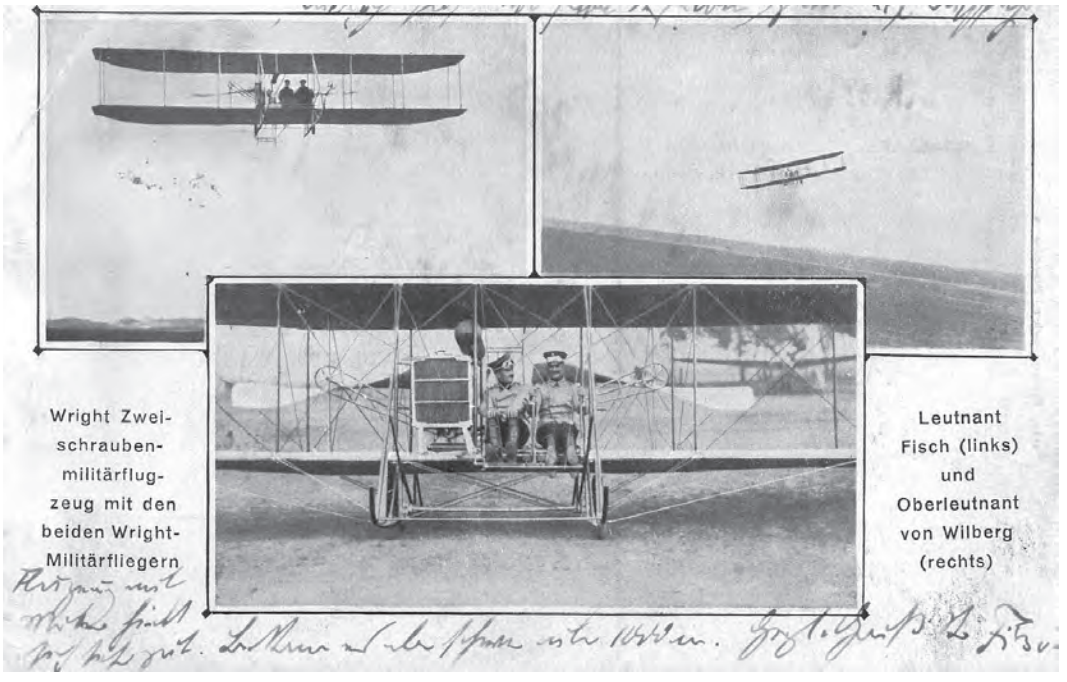
The Wright Brothers also produced in Adlershof

As of the year 1910, some of the most important aeroplane producers started settling down in Johannisthal/Adlershof, mostly on the area of the "new take-off site" on the northern margin of the airfield. Among them were the most renowned names of aeroplane production worldwide and their presence provided the newly opened Johannisthal Airfield with a touch of international radiance. So, the Wright Brothers from Dayton (Ohio), who had run an aeroplane company in Berlin-Reinickendorf since 1909, moved their company to Adlershof shortly after the airfield opened.

This was an immense increase in prestige for the newly-built airfield because the two Americans were the most celebrated aviation pioneers in the world at the time. Wright Aircraft Ltd. built around 60 of its legendary biplanes in Adlershof until the end of 1913. However, the company was not able to establish itself in the long term. The main reason for this was that although the aeroplanes they produced initiated the era of powered flight in 1903, the technology was by then outdated. While the competition advanced to using a closed fuselage with the engine in front, the Wright Brothers decided not to follow this trend. The propellers of the Wright machines used a chain drive powered by the motor shaft. This and other structural details made the machines more fragile than others.

When the famous Wright-pilot Paul Engelhard died in a crash over Johannisthal on September 29, 1911, scepticism toward the technical reliability of the Wright machines grew.

The Dutch aircraft engineer Anthony Fokker also went to Johannisthal in 1912 where he founded an aviation workshop and produced 25 aircrafts. However, before the year ended, he relocated his factories to Schwerin. The machines built by the "Flying Dutchman" quickly became legendary.



The Wright Company also made efforts to receive orders from the military, albeit without success

A "Fokker-Spider" over the hangar of Anthony Fokker

A so-called Flieger-Denkmal (Aviator's Memorial), this time not as a result of a failed landing, but caused by a wind gust

The famous Anthony Fokker, prodigious pilot and designing engineer, in front of his monoplane equipped with a rotatry engine. This model later became the first German fighter plane equipped with a syn-chronised machine gun that could shoot through the propeller

Anton (Anthony) Herman Gerard Fokker

* April 6, 1890 at Java
† December 23, 1939 in New York

Fokker counts among the most able aircraft designers and best pilots of his time. The Dutchman started his flying career in Germany where he studied automobile and aircraft design in Bingen and Mainz. He acquired the pilot's license with the number 88 on June 7, 1911, in a "Fokker-Spider" which he designed himself.

He founded his own company "A.H.G. Fokker Aeroplane Construction", producing the "Spider", in February 1912 in Johannisthal. He relocated his firm to Schwerin in summer 1913 in order to acquire military contracts more easily. There, he achieved a breakthrough economically thanks to large orders for military aircraft.

When the war began, his firma expanded rapidly and new branches of his company were established in Schwerin and Berlin, as well as an engine factory in Oberursel in the Taunus area. The synchronizing mechanism developed to a large part by Fokker, made it possible for machineguns to shoot through the arcs of the spinning propellers giving the German fighter pilots a temporary advantage over the allies.

Fokker, who had become a German citizen in 1915, frequently travelled to the front lines to speak personally to the pilots about design improvements of his planes.

After the First World War, Fokker moved the majority of his factories to the Netherlands owing to the arms limitations of the Treaty of Versailles. There he founded the "N.V. Koninklijke Nederlandse Vliegtuigenfabriek Fokker". In 1922, he emigrated to the US and founded the "Fokker Aircraft Corporation".

Flight schools in Johannisthal and Adlershof

More than a dozen flight schools were opened up in Johannisthal, often linked to engineering firms and production facilities. Some of these became quite well-known such as the school of the painter Hermann Reichelt from Dresden, the school Melli Beese Ltd. and Sports-Flyer Ltd.

Hermann Reichelt had already experimented with designing aircrafts in Leipzig before he moved to Johannisthal in 1912. His "Aero Aircraft Manufacturing Ltd." was a small firm that focused on reproducing licensed models. In September 1913, Reichelt flew 1,025 km from Johannisthal via Brussels to Paris, thus remaining airborne for more than eight hours. But the joy over this record did not last. Reichelt was killed in an accident during an air display near Dresden in April 1914.

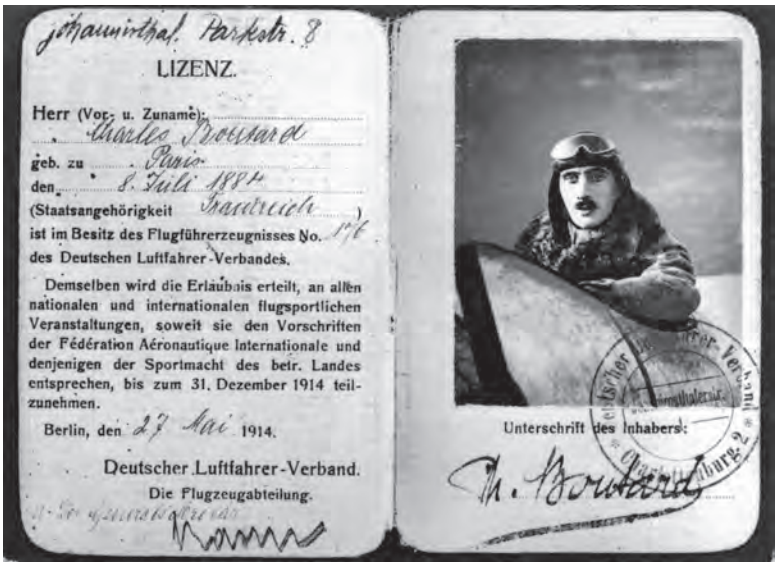
The first woman in a cockpit

Amelie Hedwig (Melli) Beese was no less liked and loved. She came from a wealthy family and was the first woman to acquire a "private pilot license" undeterred by the obstacles and social conventions of the time. Many of her male colleagues were not prepared to accept this at first. While in the air, they would provoke her with reckless maneuvres. Some did not even refrain from manipulating her plane. However, during her first public appearance she set two new records in high-altitude- and long-duration flight and subsequently founded her own flight school together with the French pilot Charles Boutard and Hermann Reichelt. But her life soon met a tragic end.

German-French Pilot's Marriage

With her marriage to Boutard, she became a French citizen and so the outbreak of World War I made her an enemy alien. She was no longer permitted to teach or to do business. The war basically destroyed her life's work and the following separation from her husband drove her into committing suicide on December 21, 1925.

In 1911, the first German flight school was founded in Adlershof and found a home in a wing of a school building on Radickestraße. Among the first teachers were the engineer Robert Thelen, the noted airship designer August von Parseval and, as of 1913, the designing engineer Hermann Dorner.



The German pilot's license of the French aviationist Charles Boutard. He and Melli Beese married in January 1913

Melli Beese and her mechanic working on a "Pigeon"

Amelie Hedwig Beese, known as Melli Beese

* 13. September 1886 in Dresden
† 22. Dezember 1925 in Berlin

Melli Beese grew up as the only child of wealthy parents and was fostered in many ways. She studied sculpture in Stockholm from 1906-1909. She was soon intruiged by the nascent aviation.

She returned to Germany in 1910 and went to Johannisthal to acquire a pilot's license which, for a woman, was not without trouble. She was turned away several times until she concluded her training with Hellmuth Hirth from the "Rumpler-Werke" (Rumpler-Works). It took some time – and Melli Beese much strength – to assert herself against prejudices of her male colleagues.

She married the French aviator Charles Boutard and assumed French citizenship in 1913. A year before, Melli Beese founded the "Flugschule Meeli Beese GmbH"(Flight School Melli Beese Ltd.) with Hermann Reichelt in Johannisthal, which quickly became very popular.

She successfully went into designing and worked on the modification of the "Rumpler-Taube" (Rumpler-Pigeon), converting it into the "Beese-Taube", and the construction of a flying plane.

When the First World War broke out, her marriage to a Frenchman and assumption of French citizenship brought her into great trouble. Her company was seized and she was temporarily detained.

The airforce ban of the Treaty of Versailles prevented her from starting her company anew after 1918. Melli Beese fought long for compensation of the damages she had suffered during the war and received them eventually. In the years that followed, several attempts of getting back into the aviation business failed. After breaking up with her husband, it seems the morphine-addicted Melli Beese had lost her will to live completely. She committed suicide in December 1925.

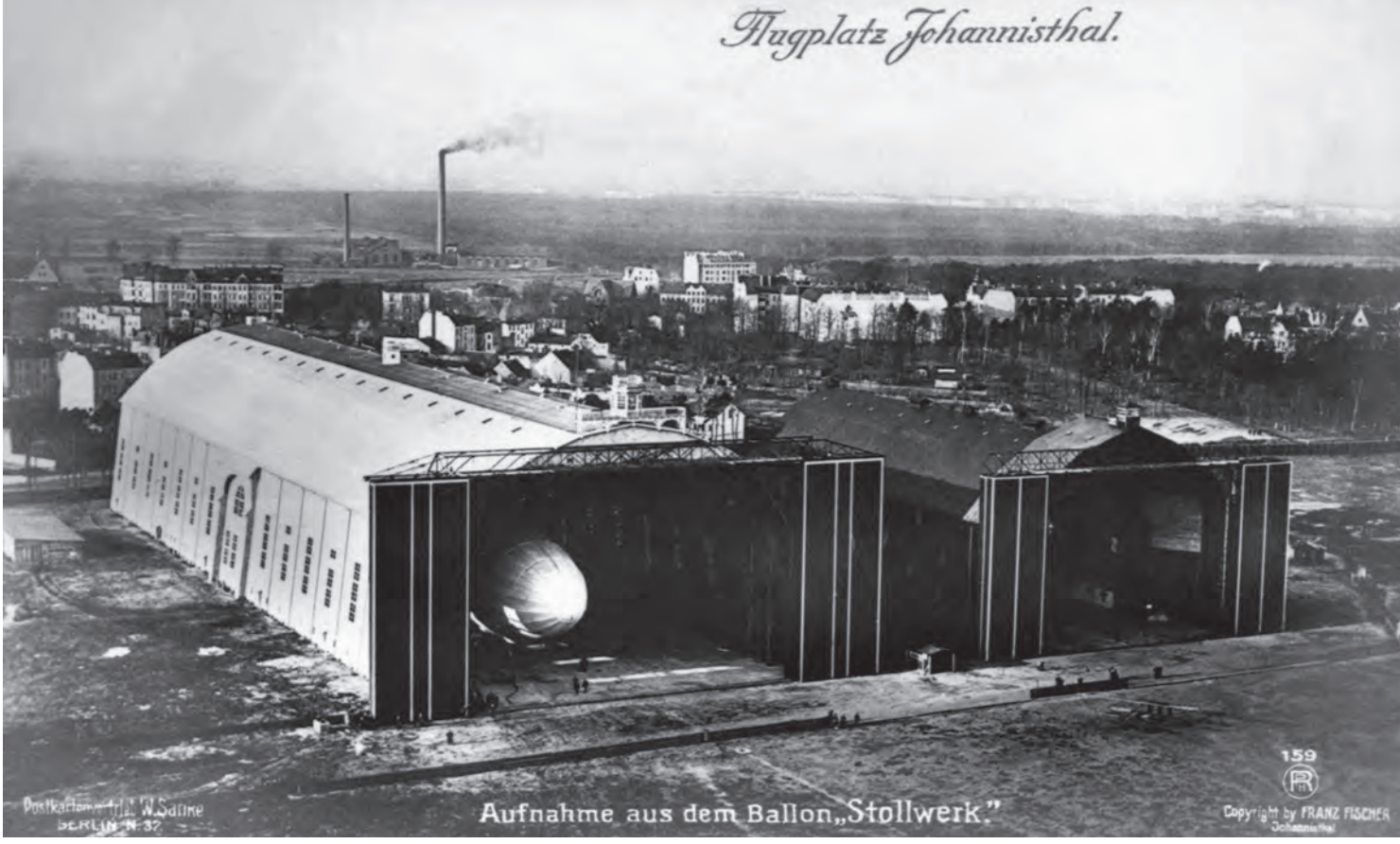
Melli Beese – first woman to become a German pilot, attractive and confident, due to her tragic fate she went down in aviation history

The short-lived era of airships in Johannisthal

For a long time, the airship – built according to the "lighter-than-air" principle – dominated the development of aviation in Germany. This was not least due to the support the airship received from certain "influential circles".

Emperor Wilhelm II. (Kaiser) was particularly supportive, and the lobby work done so adeptly by Count Ferdinand von Zeppelin contributed to this. Moreover, the Kaiser's military could rely more on the "Zeppelin" than on the still fragile "heavier-than-air" aircrafts.

In Johannisthal airship construction was just a brief spell. Nevertheless, the public was greatly impressed by the colossal elegance of the airships, whereby two aristocratic aviation pioneers competed for the most efficient and reliable structure, as well as the Kaiser's goodwill: the retired General Count Ferdinand von Zeppelin from Württemberg and the retired Major Count August von Parseval.

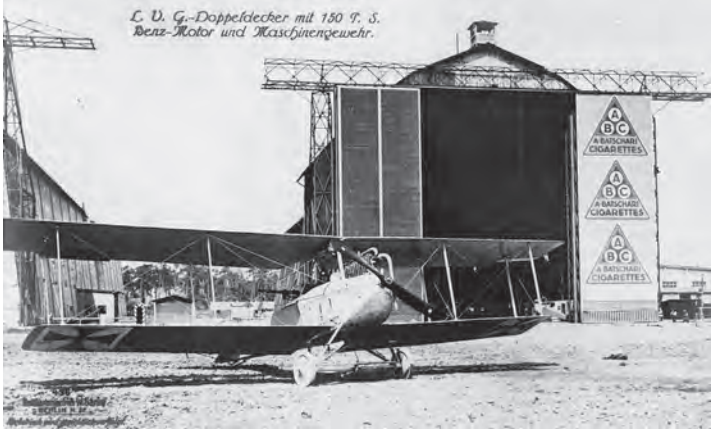


Twin hangars from Zeppelin (left) and the Parseval-Hangar (right)

"Heavier-than-air" or "lighter-than-air"?

Count Zeppelin, probably one of the most famous Germans of the early 20th century, built the first workable rigid airship and took it to the sky in Friedrichshafen near Lake Constance (Bodensee) in July 1900. Persevals blueprints for a non-rigid airship, a so-called blimp, were implemented by the Aircraft-Company Ltd. (Luftfahrzeug-Gesellschaft, LFG) founded in Berlin in 1908. One of the airships this company produced was acquired by the Air Traffic Company (Luftfahrzeug-Gesellschaft m.b.H., LVG), Berlin-based company that Arthur Müller had a determining influence on. Müller went on building a large airship hangar on the northern part of the airfield. The "Parseval" airship was supposed to be the first one to cruise over Berlin. How-ever, since the production work was not concluded until the early summer of 1910, Count Zeppelin stole the LFG's show. The result was that the 70-metre-long "Parseval" airship was then mainly used for passenger flights and advertising, glowing above the streets like a giant lantern. Yet business was not profitable enough because the airship technology was prone to accidents and malfunction. The LVG was able to escape bankruptcy only by focusing on the construction of planes. The former LVG office building can still be seen today on Segelfliegerdamm. The Zeppelin Airship Construction Ltd. (Luftschiffbau Zeppelin GmbH) reacted by building a separate hangar, twice as large, right next to the Parseval-Hangar in Johannisthal. But the Zeppelin-airships did not stay in Johannisthal for long after the site witnessed a disaster with grave consequences. On October 17, 1913, the naval airship L 2 caught fire directly over Johannisthal and crashed. Twenty-eight people were killed in the event.

The Parseval airship hangar on the western margin of the airfield (even at the time, the tobacco industry was already an attractive advertising customer)



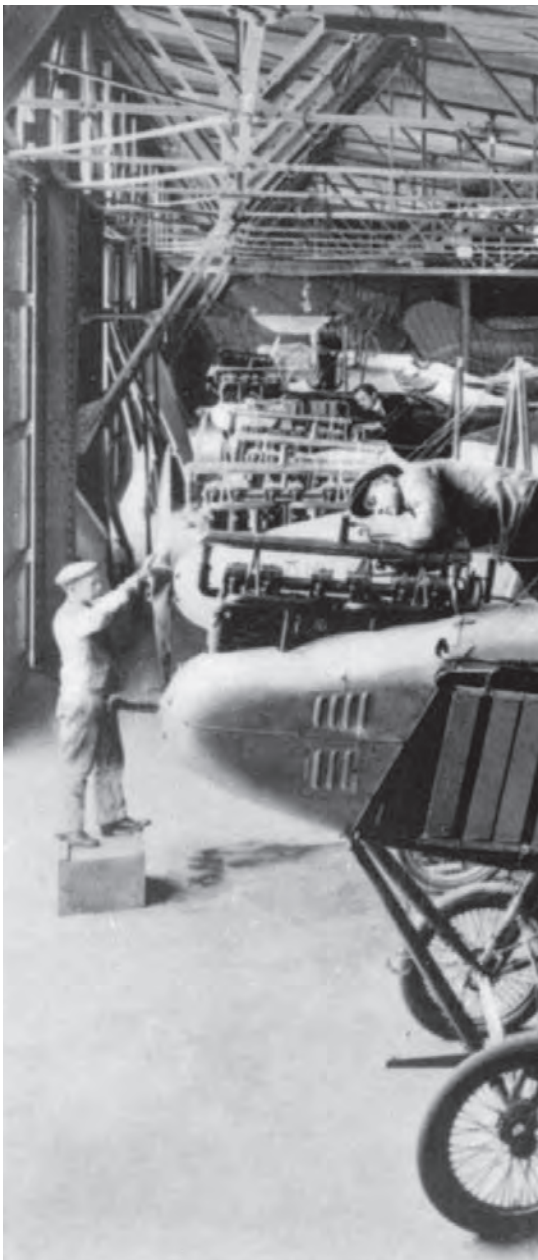
Aeroplane production in Johannisthal and Adlershof

In the end, it were not the resounding names from the pioneering period of airship construction and engineering that fulfilled the site‘s potential. Instead it were the many young companies such as Albatros and Rumpler who committed themselves to designing and constructing aircrafts with audacity and ingenuity. In December 1909, Dr. Walter Huth founded Albatros Aircraft Works Ltd. (Albatros-Flugzeugwerke GmbH).

Huth started off by re-producing foreign models and opening up a flight school. Both firms had a hard time surviving in the pioneering years. And so in 1913, readers of the magazine "The Critic" could read the following: "Amateurs cannot quite tell the difference between 'Albatros' (the firm) and 'Pilot' (the flight school). But if a creditor has something to claim from the company, he will soon learn from the uncollectible money judgment that neither the one nor the other firm owns anything according to the requirements."

The reversal of this process was brought about with orders from the military improving the company's situation with much-needed capital and long-term sales potential. Albatros was the first to become the official aircraft supplier to the German armed forces. Moreover, the Albatros flight school took on pilot training for officers.

At the end of 1912, Huth transferred management of the factory to Otto Wiener and instead assumed chairmanship of the supervisory board. Otto Wiener soon became Arthur Müller's most fierce competitor and has been noted to have carried tales of Müller's alleged financial self-enrichment to the German chancellor and thus put him in a bad light. The pioneers of aviation were still a more or less united community of technology enthusiasts, but the company owners were certainly not anymore. They jostled for contracts and influence by any means necessary and permanently got in each other's way.



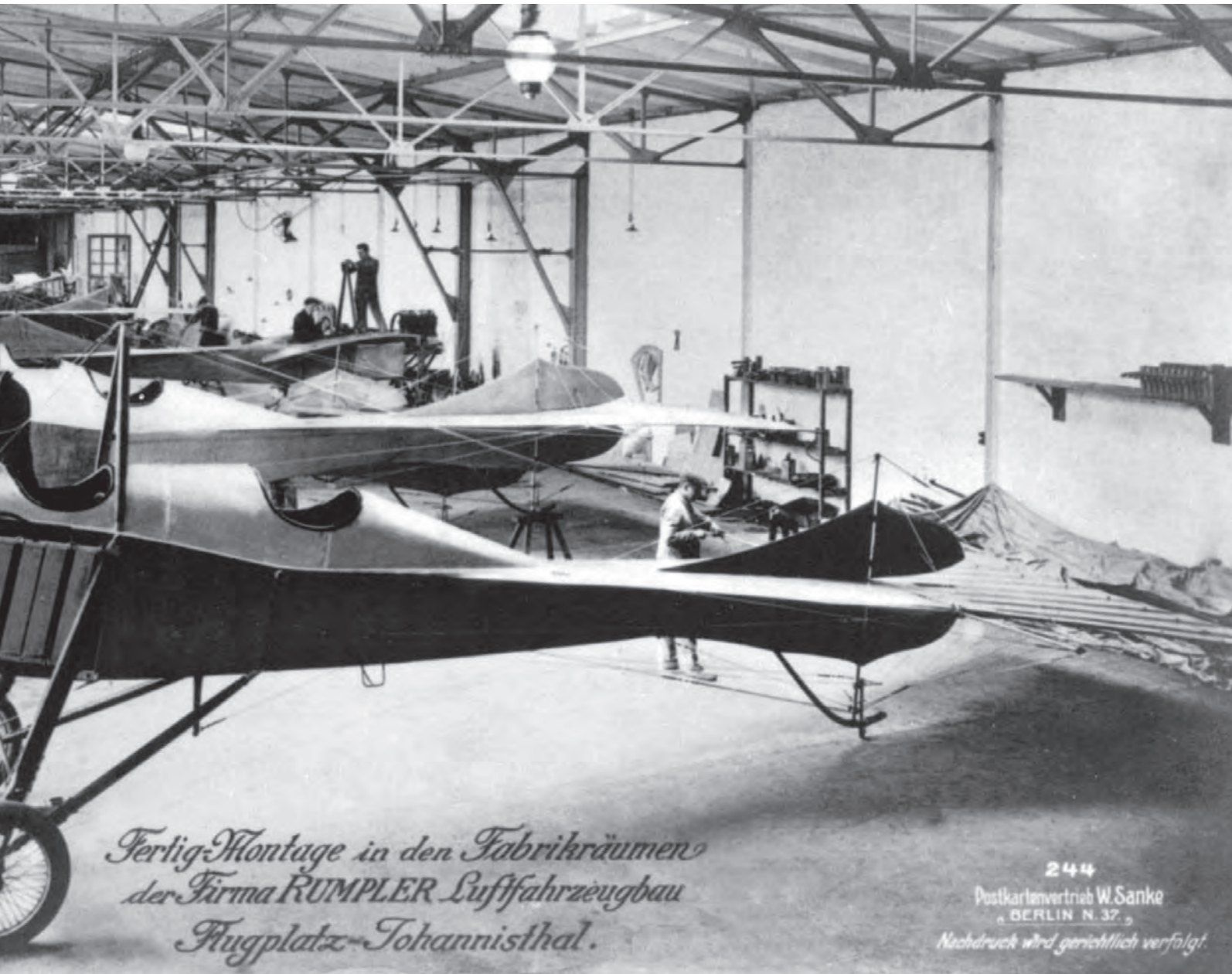
A view of the production hall of the "Pigeons" in the Rumpler-Works

Albatros und „Rumpler-Taube“

First, Albatros was a licensed constructor of French Antoinette aeroplanes, but as of 1913 they developed their own brand of aircraft. Ernst Heinkel earned his stripes as an engineer in this period and contributed much to the company's success until he retired in 1915. A number of Albatros-planes reached some impressive records in competitions. Already before 1914, the Albatros Aircraft Works had developed into the largest German aircraft factory.

The mechanical engineer Edmund Rumpler came to Johannisthal a short while after Huth. He founded a technical office in Berlin in 1906 to which he added a department for aircraft design in 1908. His attempts at designing his own aircraft engine could hardly be called fruitful. Rumpler was an exception among the aviation pioneers, not only because he descended from a well-to-do Jewish family from Vienna, but also because he was a better businessman than most of his rivals. Rumpler's focus was not primarily on designing ever-new planes and testing their capabilities - he never had pilot's license - but on gaining economic success. Thus, he focused on realising tried and tested production and design concepts. Germany, he wrote in retrospect, "invented too much and produced too little."

Rumpler focused on producing and refining a model designed by the Viennese engineer Igo Etrich. The "Etrich-Pigeon" (Etrich-Taube) was equipped with a 60-hp-engine built by Ferdinand Porsche, the director of the Daimler factories in Vienna New Town at the time. Later, Rumpler made use of a patent dispute to be able to produce and sell the "Etrich-Pigeon" under the name "Rumpler-Pigeon". The "Pigeons" soon became legendary. They were the safest and best aeroplanes of their time. No other aircraft enjoyed comparable popularity which was expressed even in hit songs such as "Flieg du kleine Rumpler-Taube, flieg in meine Wolkenlaube" ("Fly you little Rumpler-Pigeon, fly into my house of clouds") and



Industrial Serial Production at the Rumpler-Works

"Ich glaube, ich glaube, da oben fliegt ‚ne Taube" ("I think, I think, there is a pigeon flying in the air") - both written by Paul Lincke.

The Rumpler-Works' chief pilot Hellmuth Hirth soon became a celebrity. With Hirth at the top, Rumpler's flight school progressed and became one of the most successful institutions in flight training. Hirth achieved lasting fame by flying from Munich to Berlin in June 1911. Countless congratulatory telegrams arrived in Johannisthal afterwards. In 1912, Hirth was the shining star of almost every large flight competition and with that became the most successful and renowned aviator from Johannisthal. He changed employers in early 1913 and then became the chief technology officer of the Albatros-Works.

When the Albatros-Works were the first German aviation company to become a supplier for the military, Rumplers success also increasingly depended on acquiring orders from the armed forces. The War Ministry ordered the construction of Rumpler's famous "Pigeon" as a surveillance and training plane. He invested the profit yielded from aircraft sales in the extension of his factory. By concluding the transition to serial production of aeroplanes in 1912, Rumpler practically established aircraft production on an industrial scale in Germany. Part of this transition was to outsource individual production steps. Thus, the main components that made up the "Rumpler Pigeon" were produced in the production sites the company maintained in Berlin-Lichtenberg while the final assembly took place in Johannisthal. This standardized procedure reduced the cost of production. Rumpler was filled with an euphoric belief in progress. The realization of his own claim, according to which technological progress did not solely depend on inventions, but also on perfecting their production and making it cheaper, put him in front of most of the aviation pioneers.

His adversaries soon criticised his aggressive business conduct and the alleged exploitation of his employees. He was increasingly bullied by the Nazi regime after 1933 due to his Jewish ancestry. The once highly-decorated entrepreneur lost his entire fortune and passed away on September 7, 1940.

Rumpler's business rivals followed his example and proceeded to industrial-scale aeroplane production. To their great advantage, they found everything they needed in Johannisthal: open space for production sites and hangars, an established local management firm, as well as public attention. Skilled workers could be recruited in Berlin which was home to a renowned Technische Universität and other exceptional institutions for technicians and engineers.

The building complex of the Rumpler-Werke on the northern margin of the airfield, the pinewood reached up to the train line Berlin-Cottbus on the Adlergestell

Early cooperation of aviation industry and science

A network of companies, drawing offices, scientists, and others who worked in their specific field on a joint project, evolved around the premises of the Johannisthal Airfield in the southwest of Berlin. These were the beginnings of German aviation and the German aviation industry in particular.

Modern economists refer to this phenomenon as "clustering". This concept is characterised by networks comprising producers, supply firms, research institutions and service companies which are located in a certain vicinity to each other and develop along shared trade relationships and value creation. In order to form such an agglomerate of productive players, or "clusters", a critical mass of companies is needed. This was the case with aviation in Johannisthal in 1912. While the economic effects of this whole new line of business were very positive for the capital city Berlin, what was happening on the airfield went unnoticed by the people living in Johannisthal and Adlershof. Local businesses near the airfield were neglected for the most part in the public procurement process. Not only the respective business owners, but also local politicians lamented the fact. Hence the polemic remarks of some that their communities did not gain much from the rapidly developing aviation industry other than a considerable increase in traffic.

Hellmut Hirth, aviation pioneer and chief engineer at Rumpler, chief technology officer at Albatros, Founder of the "Hirth Engine Works"(his name is misspelled on the photograph)

Edmund Rumpler

* January 4, 1872 in Vienna
† September 7, 1940 in Neu Tollow near Wismar

After studying engineering in Vienna and Berlin-Charlottenburg from 1890-1895, Edmund Rumpler worked as a design engineer for several German car companies. In 1900, he entered the Daimler-Motoren-Gesellschaft (Daimler Motors Corporation) as a design engineer, switched to the Adler-Works in Frankfurt a. M., and founded his first own engineering office in 1906 in Berlin. He began constructing his own aircrafts in 1908 and established an aircraft factory in Johannisthal.

He achieved his breakthrough in 1910 by making use of the promising preliminary work of his fellow countryman Igo Etrich from whom he acquired the license for manufacturing for the "Etrich-Taube" (Etrich-Pigeon) after long negotiations. It should later become famous as the "Rumpler-Pigeon", a monoplane with until then unequalled stability properties. This construction enabled German pilots to successfully compete with those of other European nations.

Rumpler started producing a number of aeroplanes for Army and Navy in the First World War, not only in Johannisthal, but also in a newly-opened branch called "Bavarian-Rumpler-Works" in Augsburg. When the First World War ended, Rumpler also switched to civil production and turned to car manufacturing. He designed and produced one of the first cars with a streamlined car body which he presented to the public in 1921. Although technologically advanced, the "Rumpler-Tropfenwagen" was unsuccessful on the market. When the Nazis took power, Rumpler was subject to discrimination and bullying. He died in Neu-Tollow (today Züsow) near Wismar in 1940.

The German Research Institute for Aviation

Meanwhile, the airfield, and Johannisthal as an industrial town, developed rapidly. In March 1911, the Verein Deutscher Flugzeugindustrieller (Association of German Aviation Industrialists) was founded with much involvement of companies based in Johannisthal, as well as industrialists and financiers from Berlin.

The lobby work done by the association was soon paying off. Meanwhile, convinced by the strategic capabilities of the aeroplane and afraid of military inferiority, the War Ministry agreed to the further extension of the flying corps.

In April 1912, the General Aircraft Exhibition (Allgemeine Luftfahrzeug-Austellung, ALA) took place by the zoological gardens. Appealing to the crowds, Prince Henry of Prussia called for a "national aviation donation" on the opening day. Prince Henry had long favoured the production of aeroplanes, in contrast to his brother Emperor Wilhelm II who was a proponent of the zeppelin technology. Appealing to patriotism had always been a fruitful method, as was the case when the navy was due to be modernised – among other things, new battleships (dreadnoughts, battle cruisers) had to be constructed in order to challenge British sea power – and when the first ever European street exclusively for cars was built (the car highway and training road Avus in Berlin which was taken into operation in 1921). The German Empire wanted to lead (military) progress on land, sea and in the air. Until the end of that year, more than 7.5 million gold mark were collected in support of aviation. Furthermore, the German Emperor endowed a 50,000 mark prize for the best German aircraft engine.

Inside a wood workshop of the DVL (termed Testing Facility and Aircraft Yard [Prüfanstalt und Werft, P&W] in the First World War)

Military armaments orders boosted the aviation industry

While many aviation pioneers in Johannisthal were hoping for support of their civilian activities, the lion's share of the money flowed directly into the armament of the airforce to the benefit of a small number of established firms such as Albatros and Rumpler. The protests of smaller companies went unheard.

The War Ministry put great stress on using German products. Though one had to acknowledge that the planes designed and produced by Anthony Fokker had outstanding flight charactersistics, the "joy (however) is only a limited one, because this brave aviator is a Dutchman."

The progress of German aviation was greatly inhibited by the lack of corresponding research and testing facilities at the time. As early as 1909, Count Zeppelin had already encouraged the established of a publicly financed research institution in Friedrichshafen. The imperial ministries thwarted the plans nevertheless in view of the tense financial situation of the German Empire resulting from an overly ambitious navy build-up. It was not until the German Emperor Wilhelm II was convinced first hand by the advantages of aviation at the Imperial Manoeuvres – in contrast to the slightly sluggish zeppelins – that his attitude turned around.

Max Schüler in an AGO-biplane before a Sturmflug to the airbase Döberitz

Testing aircraft engines and aircraft strength

Apart from the engines department, there was an aeroplane department dealing with strength testing of aircraft components and a physics department which, among other things, built the first wind tunnel in Adlershof. A technical committee determined the schedule of activities which then required the German chancellor's consent to become effective.

The year 1912 marked a turning point in the history of Adlershof/Johannisthal and German aviation altogether. The large manufacturers concluded the transition to serial production and henceforth worked almost exclusively for the military.

This was a time of a rapid increase in prosperity for the whole area. In mid-1914, the Johannisthal Airfield was home to 57 engineering workshops and flight schools, 15 medium-sized aviation companies, nine large aircraft factories, 40 hangars and two large hangars for airships, the Zeppelin-Hangar and the Parseval-Hangar next to it.

A key institution of German aviation research

From then on, the project of a "Deutsche Versuchsanstalt für Luftfahrt" (DVL, German Research Institute for Aviation) was taken on with full force. On April 20, 1912, it was founded in the Imperial Ministry of the Interior and Dr. Friedrich Bendemann became first director. The immediate vicinity to Johannisthal Airfield, the railway connection and the Technische Universität in Berlin-Charlottenburg were determining factors for the decision to locate the DVL in Adlershof.

Conceived in the form of an association (Verein), the DVL became the central authority for resolving scientific problems of the developing aviation technology. It was financed by the Imperial Treasury (Reichsschatzamt), the industry itself and the Kaiser Wilhelm Society for the Advancement of Science (Kaiser-Wilhelm-Gesellschaft, KWG). By opting for the legal form of an association, the DVL received greater freedom in the choice of its research priorities, as well as the management of its internal affairs. Since the field of aviation was an immensely complex research area, it required highly skilled staff in large numbers and had to maintain full equipment with the necessary materials.

Later however, the attempted incorporation into the KWG failed and with that, its incorporation into the academic sphere. Once the institute moved into its newly-constructed buildings on Rudower Chaussee on the Adlershof-side of the airfield, the DVL's first major task was to test aircraft engines for the competition over the "Imperial Prize for the best German Aircraft Engine".

The "Manoli-Tower" (named after a brand of cigarettes), at its head, the electric beacon for night landings

Military production in World War I

The German-Prussian Chief of the German General Staff Helmuth von Moltke determinedly declared in 1912: "With the new zeppelin airships we have an instrument of war that is superior to the ones of our enemies". Indeed the German Empire had more and better airships at their command than its European neighbours (and potential adversaries in a military conflict).

The AGO Aircraft Works, right: the "Manoli-Tower"

Aviaton pioneer Otto Reichardt in uniform

But the instrument of war in the air, which the German General Staff placed so much confidence in, had already become much less significant in the face of the rapid development of the aeroplane in those years. Compared to the German Empire, France and Great Britain had a considerable advantage in aviation technology.

When the Austrian heir to the throne Franz Ferdinand and his wife were murdered in the Bosnian city of Sarajevo, a military conflict unleashed that should quickly grow into a world war. With German support, Austria-Hungary declared war on Serbia in August 1914. The existing system of hostile alliances in Europe – the central powers Germany and Austria-Hungary on the one side and the Entente with France, England and Russia on the other – developed into a fatal cataclysm. As of August 1914, the great powers of Europe were enemies in a devastating war, raising a storm of never before seen destructive forces in the following four years. Because of this, World War I had been rightfully called the "the great seminal catastrophe of this century".

The military sets the agenda

When the war broke out, the militarisation of the "cradle of German aviation" also reached new heights. The Airfield Johannisthal was put under military surveillance. Small flight schools and workshops were forced to shut down. The airfield company's authority was repealed.

The training of fighter pilots took place on the north side of the airfield. The numerous shacks and the often ingenious, sometimes hazardous designs of the inventors and craftsmen had to make way for the industrial production of war planes. Eleven highly productive aviation and motor production companies remained in Johannisthal:

- Albatros Aircraft Works Ltd.
- AGO Aircraft Works Ltd.
- Emil Jeannin Aeroplane Production Ltd. (LFG)
- Air Traffic Company (LVG)
- Air Torpedo Company (LTG)
- Rumpler Aircraft Works Ltd.
- Sablatnig Aircraft Production Ltd.
- Richard-Goetze-Aircraft-Works KG
- Siemens Schuckert Works, Department for Aircraft Construction
- Mercur Motor Construction Ltd.
- Benz Motor Construction Ltd.

A lesser-known fact is that Johannisthal was home to an approx. 500 men strong navy flight training division. During the revolution of 1918 and the fighting in 1919, large parts of the "people's navy" were recruited from here. The first division commander Mate Paul Wieczorek also came from Johannisthal

Early on, planes were used for administrative tasks. Here, an air surveying squad goes on board the Rumpler C VI (D54)

Technical Excellence

The German military pushed vehemently for the procurement of new types of powerful planes which the people in Johannisthal and Adlershof worked on at maximum capacity. Consequently, the technological development of German aviation during the war made a quantum leap forward. With dedicated use of engineering skills and materials, all segments of aeroplane production were advanced from the fuselage and wing design to motor production.

The Albatros D VII, to name one example, was the most powerful military aircraft in the First World War and was developed in Adlershof.

However, the enemy troops outmanned the Germans and compelled them to focus on further developing the aeroplane technology. This entailed extensive work on development and testing. Particularly on the fields of radio technology and photography, they succeeded in gaining an advantage and retaining it.

In the course of the war, aircraft production in Johannisthal greatly expanded and several branches were established in other cities. The Albatros-Works were the largest producer in Johannisthal, followed by Rumpler and LVG.

The Albatros-Works increased their on-site staff from 560 in 1914 to 2,300 workers and 350 clerks in 1918. Alabatros established branch factories in Friedrichshagen, Warsaw and the West Prussian Schneidemühl (today: Pila).

The development of the Rumpler-Works proceeded in a similarly fast-paced way during the war. The number of employees rose from approximately 400 to over 2,300, more than half of which worked in Johannisthal. Soon, the airfield grounds could not hold the expanding military production. The Rumpler-Works set up additional production facilities in park restaurants. The material value of production rose from 1.7 million mark in 1914 to 14 million mark in 1918.

The LVG employed approximately 3,600 workers in 1918, but was not able to achieve the same productivity and with that not the same quantities as the Rumpler-Works.

The aviation department of AEG, the company that had acquired the AGO production facilities at the beginning of 1918, specialised in building large bomber aircrafts.

From reconnaissance planes to fighters and bombers

While in the first phase of the war, Johannisthal produced mainly reconnaissance planes and spotters – mostly single-engined, two-seat, unarmed biplanes – the focus of production changed after 1915. By request of the military, increasingly light and also heavier fighter planes, ground attack aeroplanes and multi-engined bomber aircraft were built.

Johannisthal became the most important centre of German military rearmament after 1914. Between 1914 and 1918, roughly every third military plane was produced by the companies from Johannisthal and their affiliates. Altogether, Johannisthal produced 16,500 aeroplanes in the course of World War I, including the planes built in branch factories.

The scientists, technicians and engineers working in Johannisthal were highly skilled members of their trade. The German Research Institute for Aviation (Deutsche Versuchsanstalt für Luftfahrt, DVL) was taken by surprise when the war broke out in 1914 in the middle of initial phase of establishment. Its research and experimental activities were temporarily disrupted, because important staff was drafted for military service and parts of the compound were used for other purposes – for building a repair yard and establishing a spare parts depot,

Military defeat and German Revolution 1918

as well as a scraper site. In the second half of 1915, the DVL managed to bring the majority of its experts back from the front to Adlershof and took up its full research capacities once more. Despite the ongoing war, the research institute was also greatly expanded in those years. Several new buildings and testing facilities were built.

Despite all the effort to increase military production, the German Empire and its allies could not withstand the superior economic potential of its wartime enemy (Entente) for long. The American entry into the war on the part of the Entente in April 1917 had a significant impact. In the face of the inevitable defeat, after a final offensive failed in mid-1918, the newly-established German government sought after a truce. The guns fell silent on November 11, 1918. The defeat of the German troops only mediated the monarchy's demise. On November 9, 1918, the social democratic politician Philipp Scheidemann proclaimed the republic in Berlin. Members of a marine unit seized control of the Johannisthal area. In the following days, revolutionary sailors marched to the centre of Berlin to fight on the side of radical left-wing groups for the establishment of a German council republic.

An AGO-biplane with a boat (cased cockpit) in front of a hangar; here, too, cigarette advertising

Picture of the assembly hangar of the Alabatros-Works around 1922/1923. Conversions of former military planes are available for civil use after the requirements of the Treaty of Versailles were relaxed

After the defeat of 1918: transition to civil production

Immediately after the end of World War I, the airfield and the aviation industry of Johannisthal experienced an existential crisis. Since 1914, the entire capacities of local aviation companies were used for producing military aircraft. Now, the airfield was an aeroplane cemetary. How would it go on now that military contracts were no longer available?

Many conversion strategies were considered in this situation. Some Johannisthal companies expressed the wish to switch directly from military to civil production and to continue to produce aircraft, albeit in smaller numbers. Similarly, there were also plans to take up regular passenger traffic and airmail duties. The greatest problem regarding these concepts was the general political situation that remained unresolved. As long as it remained unclear which limitations would be imposed on German air traffic and aeroplane production by the victorious powers in the course of a peace treaty, the risks for a transition to civil aviation were too high and could not be overcome without government aid.

Film studios in former hangars

Other companies relied on finding new ways of using their hangars, workshops and technical infrastructure. Especially the state railway (Reichsbahn) and the film industry appreciated extensive premises with spacious halls and warehouses. Finally, in the midst of this transition phase from a war economy to a civil economy rife with insecurity, the site's international reputation should finally pay off. Arthur Müller, who had ensured the survival of the airfield company before, would play an important part in securing the Johannisthal/Adlershof site's future again. However, he gave up the aviation business. In summer 1919, he merged alls of his companies into a new cooperation, the AMBI-Works. The name stood for "Arthur Müller Bauten- und Industriewerke" (Arthur Müller Construction and Manufacturing Works). In the course of the 1920s, it would become the largest sheet steel company in Germany supplying most large car manufacturers – and based in Johannisthal.

Expansion of Infrastructure

American car manufacturers, particularly Chrysler, also invested in Johannisthal. The Ambi-Works initially focused on repairing train carriages for the state railway. The large hangars of AEG and Rumpler were used for this purpose. Already during the war, Müller had begun connecting his business premises to the railway system. The next step was to connect the rails with the Teltow Canal. In later years, Müller expanded his territory to the North and the South, including the towns Johannisthal, Adlershof and Altglienicke. In the course of reorganization and due to further investments, a whole new industrial conglomerate for metalworking and machine building developed in Johannisthal/Adlershof.

A common sight after the Treaty of Versailles was implemented – wrecked military aviaton equipment lying in a corner of a hangar in Johannisthal

Civil Aviation in Adlershof

In a way, the First World War promoted civil aviation in terms of technology, but also psychologically. The technical aspect was the enormous short-term increase in productivity, whereas the psychological aspect was the German defeat. If nothing else, the beaten nation longed for brushing up its damaged self-esteem, at least on the field of civil aviation.

Moreover, certain circles considered civil aviation as a possible starting point for a renewed military aviation industry in the future. These calculations should prove to be legitimate just two decades later with disastrous consequences.

Immediately after the truce came into effect on November 11, 1918, all military aviation resources were transferred to the Imperial Treasury. The ministry sold the planes for civil purposes, even more so as the peace negotiations dragged on. There were no enemy soldiers left on German soil which left the government, at least this was what they thought, with some leeway. Until the peace treaty became effective on January 10, 1920, at a time when international law was still full of grey areas, more than 600 former military aircraft were approved for civil aviation. By this time, there were seven airline companies in Berlin alone.

View of the "Deutsche Luft-Reederei" (DLR, German Aeronautical Company) (the hangar is still there today), in front: G- and R-planes which were used for sophisticated flights towards the East

Production of civil aircraft in the "peacetime economy"

Three manufacturers based in Johannisthal also tried to gain entrance into civil aviation: AEG, Sablatnig and Rumpler. The AEG had particularly ambitious plans. Already in December 1917, the electrical company's aviation department had founded the "Deutsche Luft-Reederei" (DLR, German Aeronautical Company) together with the Zeppelin company in order to prepare for "the return to a peaceful economy" and for re-entry into civil aviation, as the company director Walter Rathenau required.

The advent of airline traffic

The moment arrived on the morning of February 5, 1919 when the DLR-produced AEG J II plane lifted of the ground in Johannisthal. It's destination: Weimar, home to the German national assembly. The establishment of a civil airline between the imperial capital and Weimar was closely connected to the political situation in Germany. In the light of political unrest and recurrent strikes, which frequently brought trains to a standstill, aeroplanes were the safest way of travelling.

Brisk traffic developed between Berlin and Weimar in the period that followed, the airline was used by more and more politicians of all parties. The DLR took up passenger and mail flight two months later. Altogether, 71 commercial planes and mail planes were based and repaired in Johannisthal. For reasons of profitability, AEG had to give up its aviation plans very quickly. Its involvement with AGO was concluded in the same year. The DLR moved its airline operations from Johanissthal to Staaken in 1920; a sour loss for the cradle of German aviation. Short time after, the DLR was merged with Aero-Union which in turn was merged with Aero-Lloyd Corp. The German Lufthansa was founded out of this joint venture in 1926.

Before the DLR, the active designer and aviation pioneer Dr. Joseph Sablatnig had engaged in civil aviation in Johannisthal since 1910. He opened the air route Berlin-Warnemünde at the beginning of 1919. Apart from the Junkers F13, his company was one of the first to build civil aeroplanes in Johannisthal based completely on air traffic considerations.

Like Sablatnig-Aircraft Production Ltd., Rumpler did not get beyond modest beginnings with regard to civil aviation. However, he has to be credited for establishing an airline between Prussia and Bavaria in March 1919.

Daring passengers with warm clothing

Despite substantial government aid and high prices for tickets, it turned out to be highly difficult to run a feasible airline company in this initial period. For a long time, flying remained an adventurous experience for the passengers. "The passengers were heroes in the octavo format. They were dressed in special clothing and given a safety helmet (one never knows!); wrapped in leather and wool they were dragged into the plane. Before that, everybody proudly has their picture taken in front of the aeroplane."

The Treaty of Versailles from 1920 imposed harsh peace conditions on the German Empire which caused unanimous indignation among the population regardless of their other political affiliation. It was mainly directed against the so-called "War Guilt Clause", laying the sole blame for the out-break of the First World War on Germany, and the 132 billion mark in reparations that entailed. The Treaty of Versailles enforced strict restrictions on the armed forces, limiting them to max. 100,000 men and prohibiting upkeep of an air force. Existing units had to be disbanded and the materials were handed over to the victors or destroyed. The Germans tried to avoid these restrictions in various ways. As a result, the allies toughened their stance and prohibited production and import of aircraft parts altogether.

This total ban on production was repealed in May 1922, but most of the other restrictions were upheld. The severe consequences of hyperinflation in 1922/23 did not improve the situation. Until November 1923, the German currency deteriorated at fast pace due to high war debts and reparation charges. While a small group of people profited from the monetary decay, including land owners and entrepreneurs who could rid themselves of their debt, the majority of the population lost its entire savings.

Another look at the equipment of the first passengers: Here, it is a family flying with the Rumpler-Airline, the so-called Seaside Resort Line (Seebäderverkehr)

Sablatnig sets new altitude record with five passengers in Johannisthal

Winner of the Deutscher Rundflug 1925, on the right Ernst Udet, with Carl Hochmuth, in front of the victorious Udet-monoplane

The company "Autoflug" around 1930. Rudower Chaussee in the background

Competition from Tempelhof Airport

The survival of the Johannisthal airfield was at stake not only due to the requirements of the Treaty of Versailles, but also due to decisions made in traffic policy. By incorporating surrounding towns, Berlin had grown considerably by 1920. Johannisthal and Adlershof were henceforth part of the Empire's capital whose population had doubled from 1.9 m to 3.8 m inhabitants. The head of the Berlin traffic department Leonard Adler vigorously advocated the expansion of Tempelhof as the central airport for Greater Berlin. His main argument was Tempelhof's inner-city location. Johannisthal, however, was 12 km away from the city centre. Adler gained support for the extension of Tempelhof from the two most important aviation companies at the time: Junkers Airline Compa-

Joseph Sablatnig

* February 9, 1886 in Klagenfurt
† 1945 (reported as missing)

Joseph Sablatnig studied mechanical and electrical engineering in Graz and Brünn (Brno). He completed his pilot's training in the company Wright Flying Machine Ltd. in Johannisthal in 1909.

Sablatnig, who is deemed to be the first pilot worldwide to fly at night, set several records in high-altitude flight in Johannisthal in September 1913. He was involved in the foundation of the "Union-Flugzeugwerke Gmbh" (Union Aircraft Works Ltd.) in Teltow near Berlin where he took part in constructing new aircraft types as Head of Engineering.

Sablatnig enlisted in the Imperial German Navy and was deployed as a navy pilot on the western front. He was put on leave from the front in order to construct a number of highly successful floatplanes. He acquired shares of the "Richard-Goetze-Flugzeugwerke KG" (Richard-Goetze-Aircraft-Works) in Berlin-Treptow where he produced masses of navy, fighter and training planes. After the First World War, Sablatnig quickly readapted to producing conversions of military aircraft into civil aircraft and new constructions of airliners. Sablatnigs original constructions SAB P 1, P 2 and P3 were groundbreaking in aircraft construction and were used, first, on the line Berlin-Warnemünde and as of April 21, 1919 on the first German lines leading outside Germany to Kopenhagen and Stockholm. His airline "Lloyd Luftverkehr-Sablatnig-Gesellschaft" (Lloyd Air Traffic Sablatnig Company), based in Johannisthal, was merged with the "Deutsche Luft-Reederei" (DLR, German Aeronautical Company) and Deruluft into Deutsche Aero Lloyd, which became Lufthansa in 1926 after merging with Junkers.

In the 1930s and 1940s, Sablatnig took an active part in technological developments in the fields of acoustics and loudspeaker construction. When the Germans surrendered in May 1945, Sablatnig was taken under arrest by the Soviets. His trace is lost in an unknown Soviet camp.

ny and Aero Lloyd. With that, the die was cast. Tempelhof was turned into the central airport after 1923. Airline operations in Johannisthal declined more and more until air traffic ceased completely in 1925.

As of the mid-1920s, only the German Research Institute for Aviation (DVL) and a handful of smaller design and production facilities for light aircraft and accessories remained from the first centre of German aviation with its innovative aircraft factories and groundbreaking research institutions. Among them was the "Autoflug" company founded by aviation pioneer Gerhard Sedlmayr in 1919 which developed and produced security systems for the aviation and auto industry.

The company was reestablished by the founder's son Dr. Gerhard Sedlmayr in Hamburg in 1955 and gained international acclaim for developing an improved ejection seat for the German Air Force fighter „Starfighter" to which many pilots owe their lifes.

In 1919, Johannisthal was the birthplace of the first passenger airline between Berlin and Weimar (for members of parliament). The DLR started operations with former military aircraft so the passengers had to dress according to the planes and the weather conditions (entering the plane is a member of parliament). It is worth remarking that there is still an iron cross on the fuselage

Gerhard Sedlmayr

* Juli 2, 1891 in Straßburg
† August 31, 1952 in Goslar

Gerhard Sedlmayr acquired his pilot's license in a Wright-biplane in Johannisthal in 1912. His teacher was Paul Engelhard, chief pilot of the "Wright Flying Machines GmbH". Sedlmayr had started working there as a volunteer as early as March 1911.

He went to the Albatros-Works, based in Adlershof, where he worked as a pilot for training and acceptance purposes in Summer 1912. In addition, he was a flight instructor for military pilots. He successfully took part in many competitions and set several records which provided him with a considerable income.

When the First World War broke out in August 1914, Sedlymayr enlisted in the Flying Squad (Fliegertruppe) and was transferred to the western front as a civil pilots. Later, he was responsible for training pilots. He went back to Johannisthal to Albatros as a pilot for product acceptance while the war was still on and later to the AGO Aircraft Works.

Like many other pilots, civil or military, Sedlmayr had to find a new occupation after demobilisation and the discontinuation of air traffic of all kinds took place.

In October 1919, he founded the company "Autoflug – Spezialhaus für das Automobil und Luftfahrtswesen, Gerhard Sedlmayr" (Autoflug – Specialised Store for Automobiles and Aviation) in Johannisthal. In the following decades, the company was highly successful in developing and producing component parts for the automobile and aviation industry. In 1945, his company shares, all located in the Soviet occupation zone, were expropriated. Aviation and aeroplane manufacturing were prohibited in Germany until 1955, so Sedlmayrs "Autoflug" activities were obsolete.

After 1955, the sons and grandsons of Sedlmayr successfully reopened the company of their late father, or grandfather, respectively.

The beginnings of the film industry in Adlershof

After the First World War ended, there were first attempts to use the Johannisthal site for other purposes besides aviation. Walter Huth had the idea of converting some of the factory buildings into film studios. Not lacking grandiloquence, he proclaimed that by owning the "Johannisthal Film Institute" (Johannisthaler Filmanstalten, JOFA) he owned the "largest film studio in the world". Indeed, the JOFA had two impressive studios with glass roofs and approximately 2,900 m² of floor space.

A standard gauge railway led through the studios so that a train could easily drive inside in order to transport bulky props.

A centre of German film-making

The entrepreneurial skills of Hans Otto, who assumed management in 1921, were equally important to the success of the film studios as the existing technical infrastructure.

By the 1930s, four hundred films had been shot in Johannisthal, including successful films as "Daton" (1921, directed by: Dimitri Buchowetzki) with Emil Jannings playing the leading part, "Nosferatu" (1921/1922, directed by: Friedrich Wilhelm Murnau), "Friedericus Rex" (1927) and "Mutter Krausens Fahrt ins Glück" (Mother Krause's Journey to Happiness, 1929, directed by: Phil Jutzi).

The transition to talkie films took place in 1929. The film studios were thus modified and divided into three groups with one large and one smaller studio each. Tobis and Klangfilm GmbH (Sound Film Ltd.) became the co-owners. After Albatros Ltd. was shut down, Tobis acquired all the studios.

A generous layout, state-of-the-art film and sound technology, as well as skilled staff and creative directors, actors and screenwriters were a few of the reasons for the good reputation the film studios in Johannisthal enjoyed. Adlershof had developed into an important site for film-making and media.

Transformation of the Johannisthal/Adlershof area

After the First World War, due partly to arms control regulations layed out by the Treaty of Versailles, the site was forced to undergo a radical process of readaption. The Johannisthal airfield, which had experienced such a rapid economical upturn in the five years after 1914, was now history.

Only vestiges remained of the aviation industry. All the pivotal aircraft manufacturers from Johannisthal – Albatros, Rumpler, LVG and the Aeronautical divison of AEG – had to give up business or change their profile completely. However, the German Research Institute for Aviation (Deutsche Versuchsanstalt für Luftfahrt, DVL) stayed in Adlershof and was able to draw on investments from the years of war. Thanks to the DVL, Johannisthal remained an important centre for aviation research after 1920.

The conversion of a site producing exclusively for the military to a site for industry and media was successful in the middle term despite all the problems on the way. A decisive factor for this development was the availability of qualified employees and a good infrastructure. This structural change manifested itself in the development of the Ambi-Works and the Jofa Film Studios.

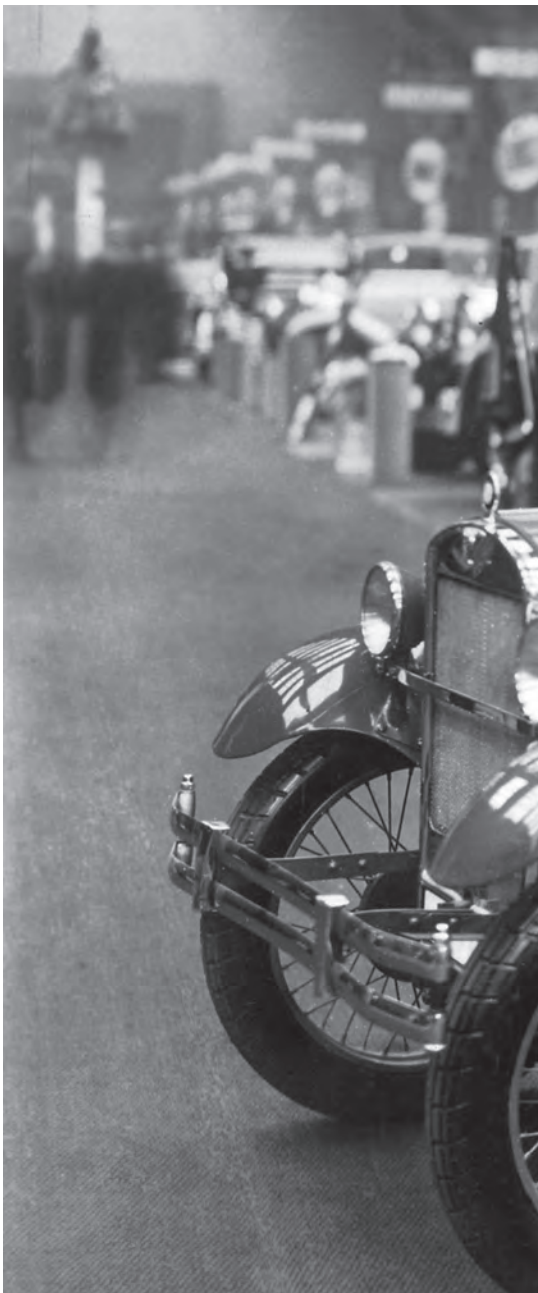
The vampire movie „Nosferatu: A Symphony of Horror", a milestone in film history, shot in 1921/22 in the Carpathian Mountains and the studios of the Johannisthal Film Institute (Jofa), among other locations

Aviation and car manufacturing: Adlershof in the 1920s

The prohibition of German aeroplane production and the relocation of airline traffic to other places, especially Tempelhof, made it necessary to develop new concepts for Johannisthal/Adlershof in the mid-1920s. Take, for example, the case of the Terrain-Company founded by Arthur Müller which planned a conversion of the airfield into an extensive residential complex. Many politicans disagreed with his plans. They opted for a further expansion of the DVL and Müller‘s construction plans were scrapped.

Car body manufacturing and BMW “Dixi“

In mid-1929, it looked as if a revival of the airfield was within reach, when the city council of Berlin acquired the premises in order to use it as a standby airfield, or for private aviation respectively. It did not take long and the first aviation enthusiasts prepared a large air display honouring the spectacular flight shows before the First World War, scheduled to take place in August 1930. However, there was another, highly-promoted air display to take place in Tempelhof which also attracted masses of people. The magistrate of Berlin subsequently barred any kind of aviation activity in Johannisthal.



Assembling the first BMW cars of the model 3/15 PS DA 2 Limousine in Johannisthal, 1929

International companies produce in Adlershof

Aeroplane production came to a halt and Johannisthal was henceforth characterised by facilities of the car industry and engineering companies. Among them grand names of – predominantly American – global companies such as "Chrysler Company", "Graham-Paige", „Willys Overland" and "Ambi-Budd" who produced mainly car bodies and components for automobile manufacturing. Ambi-Budd, a cooperative between the American company Budd and Arthur Müller's AMBI, started producing car bodies for a number of German and European carmakers on the premises of the former Rumpler-Works in 1926. The American company pioneered the manufacturing of all-steel car bodies and introduced this technology to Germany where a mixed method of construction was still prevalent, employing a wooden structure with a metal sheet covering. The "Bayrische Motorenwerke" (Bavarian Motor Works, BMW) established a production facility in Johannisthal where the successful model BMW "Dixi" (BMW 3/15 DA) was assembled. The body of the car was conveniently produced in the neighbouring Ambi-Budd factory.

The first BMW "Dixi" left the factory hall in Johannisthal in 1929

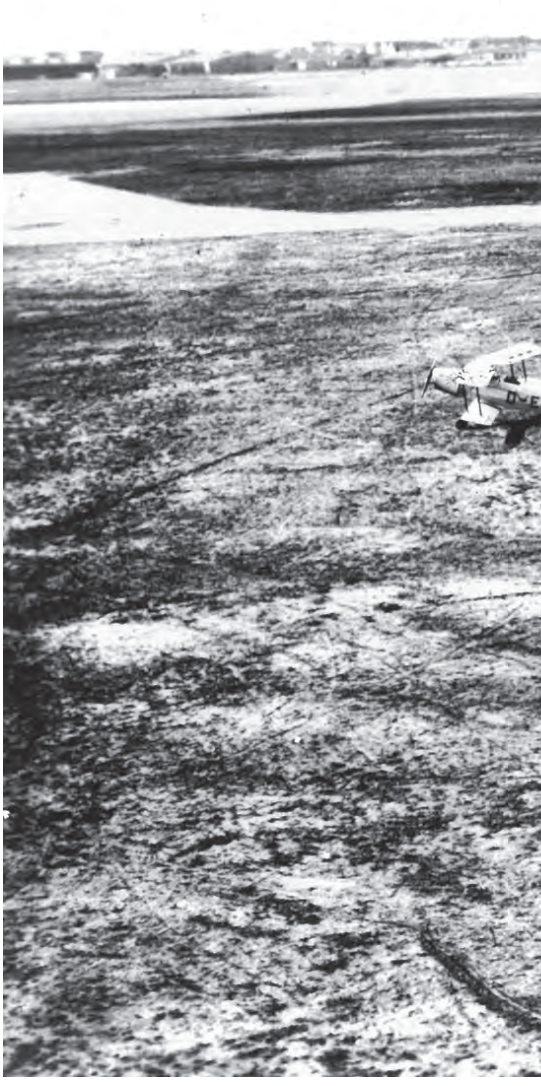
A new beginning under the banner of rearmament after 1933

When the Nazis assumed power in January 1933, the airfield premises was secured by the military and developed into the central location for the military armament in the air. Several German companies opened up production facilities in Johannisthal/Adlershof, including the Henschel-Flugzeugwerke AG (Henschel-Aircraft Works Corp., relocated to Schönefeld in 1934). Focke-Wulf-Flugzeugbau AG (Focke-Wulf-Aeroplane-Manufacturing Corp.) had located its business in Johannisthal already in 1932 and acquired the former Albatros-Works.

Courier aircraft and helicopters

In October 1934, Carl Clemens Bücker founded the Bücker-Flugzeugbau GmbH (Bücker-Aircraft-Manufacturing Ltd.) in Johannisthal which soon became one of the largest manufacturers of sports planes. Bücker's planes Bü 131 "Jungmann", Bü 133 „Jungmeister" and Bü 138 "Bestmann" were particularly successful on the world market. The Bücker plane Bü 181 was employed as the standard training plane of the Luftwaffe (the German airforce) in the Thirties and Forties. Numerous Bücker planes were in use as courier aircraft for the military. Bücker relocated his company to Rangsdorf in the south of Berlin in 1935 due to a necessary capacity expansion.

The helicopter manufacturer Flettner-Flugzeugbau (Flettner-Aircraft-Manufacturing), a slightly more exotic company at the time, also settled down in Johannisthal. The designer Anton Flettner realized the potential of this type of aircraft and produced some groundbreaking developments. His compact helicopter Fl 282, the preferred helicopter of the Kriegsmarine (German navy, 1935-1945) for observation and reconnaissance purposes, was particularly successful.



The production line where the Bü131 was produced in Johannisthal; the company had to move it due to space constraints in 1935 and established a new production site in Rangsdorf

The first serial helicopter in the world, the Fl 282 "Kolibri", was built in Johannisthal since 1941. Twentyfour were built in Berlin altogether which were employed by the navy in the Baltic Sea and the Mediterranean

In 1935, the airfield is hardly recognisable – among others, the Bücker-Works produce their famous training planes here (shown on the picture is a squadron [three chains] of Bü 131 A "Jungmann" ready for distribution)

The extension of the DVL in the Thirties

The fact that Johannisthal/Adlershof was able to become the central location of the aviation industry, massively funded by the National Socialist regime after 1933, was essentially due to the activities and accomplishments of the Deutsche Versuchsanstalt für Luftfahrt (DVL, German Research Institute for Aviation). Although it was also heavily affected by the requirements of the Treaty of Versailles (arms control, ban on German aviation industry) and inflation, its basic structures were preserved.

The DVL was extended continously after 1924. This resulted in increasing numbers of employees which rose from 23 in 1923 to 114 (1925) to 543 in 1928. There was much debate in those years whether to relocate the DVL to Berlin-Britz or even Stuttgart, but a decision in favour of the Adlershof location was made in the end. Due to this decision, the unused Johannisthal airfield was repaired after 1931 and used for DVL test flights.

Incidentally, the DVL also took part in Germany's efforts – also in cooperation with the Soviet Union – trying to evade the Treaty of Versailles by way of secret rearmament. This "black army" (Schwarze Reichswehr) was denounced by left-wing publicists, among them Carl von Ossietzky, leading to serious political controversies.

From the beginning, aviation research was based on theoretical analysis and experimental research. However, technical experimenting and testing required complex equipment like wind tunnels which the DVL could not provide at first.

The situation changed considerably in 1932, when the "Small Wind Tunnel" (Kleiner Windkanal), the first fully operative wind tunnel, was set up on the Adlershof premises. With a nozzle diameter of 1.2 m, the Small Wind Tunnel was used for testing single aircraft components or aircraft models. Additionally, it was used for the analysis of aerodynamic problems, for example the aerodynamic drag on balls. Further examinations included series of measurements on the pressure distribution of aerofoil or the interaction of the propeller and aerofoil in an air stream.

Aerial image of the DVL premises in the mid-1930s

Great Wind Tunnel, tailspin wind tunnel and engine test beds

The Great Wind Tunnel, taken into operation in 1934, was one of the most advanced in the world and largest low-speed wind tunnels of its kind.

As the newly-constructed military aeroplanes became increasingly fast, they were also increasingly demanding of the experimenting and testing facilities. For this reason, a new high-velocity wind tunnel was built in Adlershof between 1936 and 1938 which was able to reach almost sonic air current speed (Mach 1).

The air guide's diameter was about 7.5 m and was equipped with a smooth interior surface. The tailspin wind tunnel, as well as the noise-reduced engine test bed and the high-altitude testing facility all used state-of-the-art technology. The noise-reduced engine test bed, taken into operation in 1935, immediately recognizable by its two reinforced concrete towers, was used for testing aircraft engines with propellers and their performance and operating behaviour. The tailspin wind tunnel, completed in 1936 as the world's largest facility of its kind, was used for testing dangerous flight attitudes like tailspins.

This phenomenon had repeatedly led to dangerous in-flight situations and numerous crashs. Models were used in the test series which served to clarify the aerodynamic processes, thus improving designs and avoiding hazardous situations.

The architects Hermann Brenner and Werner Deutschmann designed the DVL's main building (today: WISTA's main building), built on the south side of the premises between 1936 and 1938. The premises was home to the management and administration offices, technical offices and laboratories.

The driving unit of the "Great Wind Tunnel" spanning 8.5 m. The power generated by the engine reached 2,000 KWH

Scientists in front of the rotor of the "Great Wind Tunnel" (Großer Windkanal), completed in 1934

The DVL: one of the leading aviation institutes worldwide

Having been equipped with state-of-the-art testing facilities since the mid-1930s, the DVL advanced some groundbreaking developments in aircraft and engine technology in the following years. Adlershof became one of the leading aviation research institutions worldwide. After 1933, however, the entire DVL research was to serve military rearmament, a process precipitated by the Nazis.

The DVLs main research focus was on decreasing air drag on aircraft, a pivotal problem of aviation as flight speed and fuel consumption depended on it. The smoothening of the fuselage and wing surface was essential for reducing friction. The DVL developed a surface design with thin lengthway wires that had the capacity of significantly decreasing turbulent friction on the surface. This particular construction was not viable in practice, but the under-lying principle was groundbreaking with regard to frictionless surfaces in aviation.

Other basic research was also successfully conducted in Adlershof in the field of engineering in the Thirties and Forties, particularly on the problem of fuel injection. Here, it was essential to clarifiy the

The entrance to the DVL main building, mid-1930s (Architects: Hermann Brenner and Werner Deutschmann)

Director Carl Clemens Bücker (left) and the DVL test pilot Joachim von Köppen in front of the prototype V-1, the Bü 131 "Jungmann"

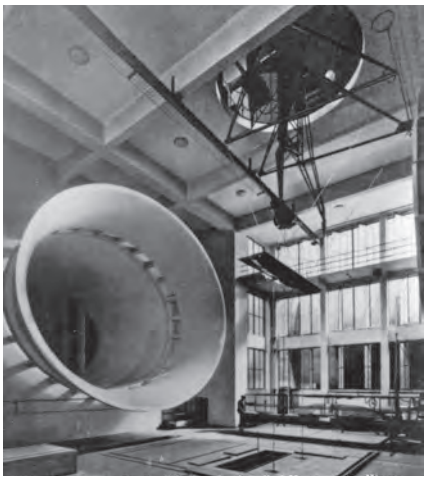
under-lying physical processes in order to increase performance of injection engines. The DVL developed optical measurement methods for this purpose which could determine the structure and behaviour of fuel spray. While the luminous exposure had to be very short, the light intensity had to be very high which was accomplished by discharging a coupled condenser with a high-tension fuse.

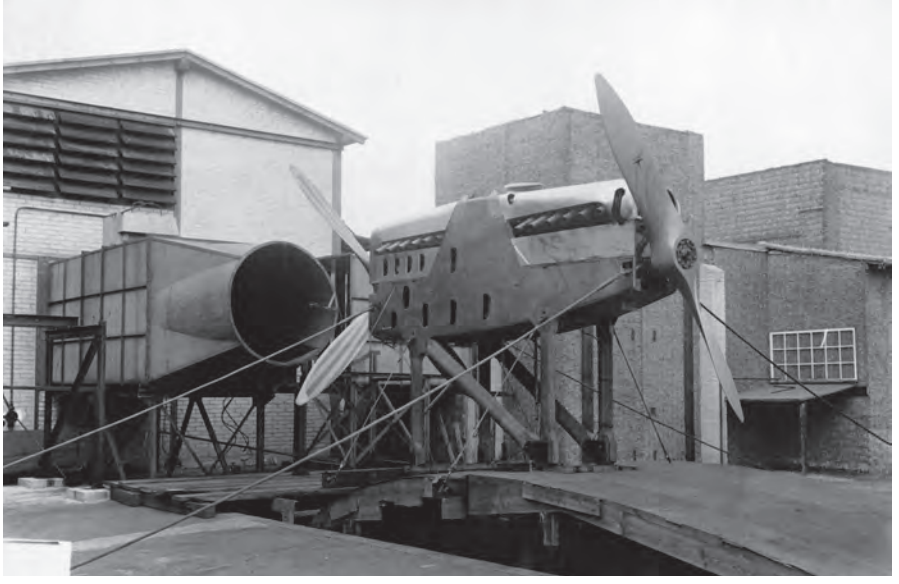
Refined measurement technology

The DVL in Adlershof pioneered research on the fields of measurement technology, as well as data collection and data evaluation. A method was devised in Adlershof in 1936 which could electronically record data from the six-component scale of the Great Wind Tunnel in a central measuring station. At times, the scientific reporting procedures for the entire German aviation research activities were concentrated in Adlershof.

The propeller tailspin test bed of the DVL

View of the measurement hall of the Great Wind Canal and the discharge nozzle and the six-component scale on the top floor





The tandem engine of a Dornier-boat seaplane on the engine test bed

Adlershof during World War II

Berlin, and with that Adlershof, was widely spared by the bomb war until 1943. Though the first British air raids over the German capital took place already in late August 1940, their effect remained relatively small and despite many air raid warnings, peace-like conditions prevailed in the first years of the war. At the same time in Adlershof, the trial and testing facilities of the Deutsche Versuchsanstalt für Luftfahrt (DVL, German Research Institute for Aviation) worked tirelessly to support the military build-up in the air.

The central place for German aviation research

Research and development staff from large aircraft manufacturers like Junkers, Heinkel, Henschel or Messerschmitt went to Adlershof in large numbers to make use of recent research and testing results for the construction of increasingly powerful military aircraft. The newly-constructed high-speed wind tunnel of the DVL, powered by a specially-built pressure-assisted and oil-filled cable from a power plant in Klingenberg, was put to use for groundbreaking fundamental research in, for example, the development of back-swept wings for aircraft operating at sound and supersonic speed.

In those years, most employees wore an airforce uniform underneath their lab coats and the area around the research institute, divided into two parts by Rudower Chaussee, was vibrant with activity. Employees crossing the premises could easily ignore the busy traffic by using a connecting tunnel built before the beginning of the war. To exemplify just how much the DVL had grown during World War II, it is instructive to compare the staff numbers of the eight largest aviation research institutes in Germany at the time. In 1942, all research institutions combined had approximately 7,500 employees, 30 % of which worked at DVL.

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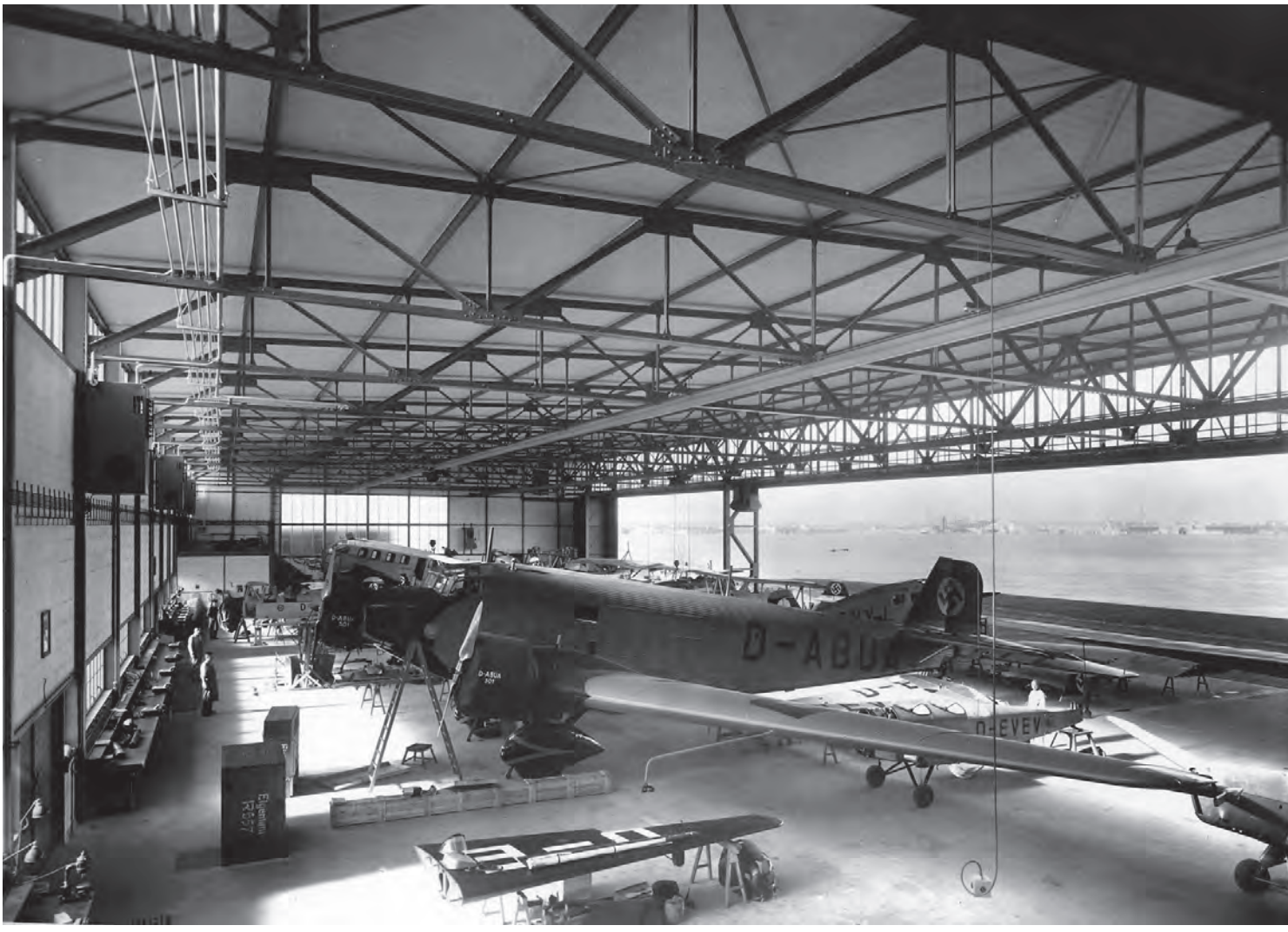
Completed in 1935: left a part of the Great Wind Tunnel, next to the tailspin wind tunnel, the assembly hangar for wind tunnel experiments and the cooling tower for the noise-reduced engine test bed (on the right)

High level of activity in Johannisthal

The Johannisthal airfield was heavily utilised during the war which precipiated the deterioriation of the site's condition - the runways were basically dirt roads which was common practice at the time, only the lift-off octogon and the landing panel were paved. Nevertheless, the gritty surface had been a problem right from the start. At times, grass sods had to be transported to Johannisthal from places that were 30 km away and rolled out on the airfield. Maintenance and care were carried out by a permanent work squad who used the empty premises, owned by the DVL and intended for future development, for agricultural purposes during the war. And so, long into the war, around 300 sheep could be seen grazing on the airfield. In close proximity to wind tunnels, test beds and hangars, the DVL had a self-supply farm at its disposal in Adlershof.

In early 1942, the attacks of the British Royal Air Force on Lübeck and Cologne rigorously demonstrated to the Germans the devastating effects of a bomb war. In Berlin, all available forces and means had been mobilised to advance air-raid protection since 1940. According to those plans, Berlin was to be "fortified" with more than 2,000 bomb-proof protective structures. Circa half of these were completed by 1943, among them three large anti-aircraft gun towers (flak towers) with a capacity of up to 30,000 people. Massive defense facilities were also built in Adlershof. Important firms like Mannesmann Stahlblech AG (Mannesmann Sheet Steel Corp.) or Schering AG maintained their own staff bunkers. Two air defence towers were erected on the northern and western parts of the premises of the German Research Institute for Aviation. These towers were equipped with all the necessary facilities and were completely independent of the institute's supply lines.

A view of the aircraft yard of the DVL where a JU 52 is being assembled at the end of the Thirties



The use of forced labourers and concentration camp prisoners

These shelters were built primarily by prisoners of war, concentration camp prisoners and other forced labourers. It was no coincidence that the largest forced labour camp in Berlin was located in the immediate vicinity of the DVL and the Johannisthal airfield. Large numbers of forced labourers were also used for producing missile components, aeroplanes and aircraft engines in Adlershof, for the Ambi-Budd-Presswerk GmbH (Ambi Budd Pressing Plant Ltd.), for example, which produced masses of formed components for aircraft and missile production. There were further forced labour camps for the Deutsche Reichsbahn (German National Railway) and the companies Schering and Mannesmann, among others. They were located in today's Büchnerweg, Dörpfeldstraße (formerly Bismarckstraße), Oppenstraße (today: Otto-Francke-Straße), Glienicker Weg, Köpenicker Straße, as well as Köllnische Heide. It is not possible to determine the exact number of forced labour camps in Adlershof or even the whole of Berlin, but it is safe to say that there were more than 1,000, while other estimates speak of over 3,500 camps.

The Brits and Americans soon intensified air raids on German cities, but the DVL in Adlershof was not immediately affected. This changed on November 18, 1943 when the German capital became the target of sixteen major air raids. In December 1943 and in the course of the following raids until the end of the war, testing and examination facilities and other buildings of the DVL were repeatedly hit. But, the newly-constructed research facilities made of steel and reinforced concrete were surprisingly resistant and suffered only minor damages which could be repaired relatively quickly. Explosive and incendiary bombs, however, inflicted major damages on lightly constructed buildings, especially buildings made of wood. At the end of the war, the bombing had partially destroyed ten and completely destroyed 31 out of 106 DVL buildings.

The Johannisthal airfield and parts of Adlershof on an aerial picture taken by the Allies in 1943

In this 1945 aerial image the war destruction is conspicous on the airfield premises and the surrounding research institutions

Bomb damages and evacuation

The solid, state-of-the-art aerial defence facilities of the DVL in Adlershof proved to be comparably efficient. Still, there were other damages that led to disturbances in testing and checking facilities through breaking of glass and contamination. Due to ever more frequent air raids, flown several times a day by American bombers starting in March 1944, test series had to be interrupted and with that the core work of the DVL. For this reason, numerous DVL departments and institutes were moved away from Berlin. Generally, employees who were not forced to remain in Berlin for job-related or other reasons, were demanded to move to "areas less endangered from the air". This was a difficult task because Adlershof was home to a multitude of institutes: aerodynamics, processing machines, bord equipment and navigational devices, terrestrial and celestial navigation, electrophysics, aircraft durability, gas dynamics, aeromedicine, aerial photography, materials research, materials testing, motor production, regulation technology, ther modynamics and engine mechanics. In the course of the war, eight institutes were relocated to smaller cities in western Germany or moved under ground. Only a small number of workshops and the academic office were moved eastwards to Schwiebus in Silesia. The "heart" of the DVL – the Institute for Aerodynamics and Engine Mechanics – remained in Adlershof, although some of the institute's departments were moved to the Aviation Research Facility Völkenrode near Braunschweig in February and March 1945, only weeks before the war ended. Together with the institutes and their research, skilled personell also left Berlin. Out of 2,000 DVL employees in 1944, only 60 were still Adlershof when the war ended in May 1945.

Work continues with a "skeleton crew" until the end of the war

Until shortly before the end of the war, this small number of remaining DVL staff carried on despite the circumstances of an ongoing bomb war and an advancing front. In the remaining weeks and days of the war, parts of the extensive documentation, research reports and patent specifications were walled in air-raid shelters or hidden in other places. Other documents and records were hurriedly put in boxes for relocation. At the same time, test series were continued. According to lab reports, the Great Wind Canal was still in operation on April 20, 1945, but after that, all operations were ceased. The remaining employees were offered to await the approaching end of the war in one of the DVL's air-raid shelters with their families. The first grenades fired from Soviet long-distance artillery started to hit Berlin's city centre.

Testing facility on the premises of the engine test beds

The end of the war and Soviet occupation

In the night of April 23, 1945, advancing Soviet brigades of the 1st Soviet Guards Tank Army from the 1st Belarussian Front pushed towards Airfield Johannisthal. At about three o'clock, the army headquarters in Schöneiche was informed via radio that the airfield had been occupied and 70 aeroplanes destroyed.

The Germans fiercely resisted and the Soviet advance brigades had trouble holding their positions, but suceeding tank battalions forced the Wehrmacht to retreat to the woods of Königsheide. In the meantime, approaching from Marienfelde, the troops of the 1st Ukrainian Front took positions on the Teltow Canal. 3,000 artillery weapons were deployed on the airfield within a few hours in order to bomb the city centre. In the morning of April 24, thousands of artillery weapons started firing. The attack lasted 40 minutes.

Invaded by Soviet troops

In the evening of April 21, 1945, the remaining employees and their families, 150 people altogether, withdrew to the air-raid shelters in the southern part of the DVL premises. In the morning of April 24, the first Soviet soldiers appeared at the door of the bunker. The first encounters were without conflict, the occupants were merely asked to vacate the bunker. To prevent assaults, they formed a closed group and left the institute's grounds towards Adlershof which was now occupied by Soviet troops. The Germans made their farewells and all hoped to reach home safely. Only a few days later, Soviet reconnaissance commandos started tracking them down and forced the DVL employees back to Adlershof.

A member of the Red Army controlling the traffic near the Reichstag in summer 1945

Adlershof as a “know-how-hub” 1945–1948

The Deutsche Versuchsanstalt für Luftfahrt (DVL, German Research Institute for Aviation) was quickly recognized as an interesting object by the Soviet victors and put under constant surveillance. As early as April 29, 1945, a first group of Soviet experts arrived and began to survey the research institute‘s inventory. Those seven Soviet specialists were part of a larger survey commission of the People‘s Comissariat of Aviation which was set up in Moscow in April 1945 and comprised 100 carefully selected experts from the Soviet aviation industry and aeronautical research.

Systematic acquisition and evaluation of research results

The commission operated in small groups and followed a special list specifying the objects for evaluation. New groups were formed, if interesting research institutions or facilities were not found on this list. The comissions‘ task was to secure and transport any kind of novel planes, engines, equipment, aggregates or the materials required for their production.

Furthermore, their assignment encompassed bringing all the laboratory equipment, experimental facilities and research documentation, including wind tunnels, test stands, collections of materials, libraries and academic archives, to the Soviet Union where they would be exploited for the benefit of Soviet research and development, especially arms. Upon starting their examination, the Soviet experts were downright excited in view of the “treasures” they found at the DVL in Adlershof, as well as the documents, materials and objects arriving at the DVL from other parts of Berlin.

In the following weeks and months, the DVL became the central place for questioning German specialists and also the Soviet collecting point for modern aviation and missile technology from Germany. Partly, the objects found in Adlershof, such as engines, aircraft, equipment and weapons models, were tested first and then preparared for their transport to the Soviet Union. In the light of these activities, Adlershof at the time can be duely characterised as a “know-how-hub“.

Moscow had known for a while that the DVL in Adlershof contained interesting objects for Soviet aviation research, because in October 1939, two months after the Treaty of Non-Aggression between Germany and the Soviet Union was signed, a Soviet group of experts had already inspected the DVL in great detail.

The Soviet specialists and their political leaders were full of appreciation of what they saw in Germany. In December 1939 during a meeting of the People‘s Comissariat, the returning members of the visiting delegation reported that the DVL conducts fundamental and applied research on aviation ahead-of-schedule and with state-of-the-art facilities on a very high level of expertise.

The conditions in Soviet research institutions – the Zentrales Aero- und Hydrodynamisches Institut (ZAGI, Central Aerodynamic Institute) and the Zentrales Institut für Luftfahrtsausrüstung (ZIAM, Central Institute for Aviation Equipment) – were compared to the ones described in the report and the state of the Soviet facilities were heavily criticised.

After the victory over Nazi Germany, the Soviet leaders had a great interest in exploiting the technological advances of German aviation research and production.

Headhunting experts

The Soviet survey commission quickly sent several commandos to Berlin in May 1945 who should search for the remaining DVL employees. The scientific director of the institute, aerodynamics engineer Professor Günther Bock, was one of the first people to be brought back to Adlershof. After being interrogated extensively, he was transferred from Berlin to the Soviet Special Camp Buchenwald near Weimar. There the interrogations continued and in September 1945, Bock submitted a comprehensive report on the current state of German aviation research. Towards the end of that year, Günter Bock was taken to Moscow where he was consigned to the infamous Lubjanka-prison for the following eight months. He was assigned to ZAGI upon his release in July 1946 where he worked as a "solitary researcher" and "consultant" until 1953.

During this time, he was involved in aerodynamic research and advised the ZAGI on the modernisation of their wind tunnels. In June 1954, Günter Bock returned to Germany – to the GDR. There, he was offered an appointment as the director of aviation research of the emerging GDR aviation industry. Bock suggested to revive the DVL in Adlershof in this context which was met with disapproval. The renewed attempt to turn Adlershof into a place for aviation research had failed.

With regard to Adlershof, the SED leadership (East German Communist Party) pointed towards security problems and the advanced state of newly-established aviation research structures in Dresden and Pirna. Bock and his family left for the West shortly thereafter.

By the end of Juli 1945, a total of 130 research reports were ready for examination. By way of this, the Soviet side received basic data on current German aeroplane developments, engines and groundbreaking research projects. The reports were evaluated locally, edited if necessary and sent to Moscow for further use.

The end in April 1945: unfinished Messerschmitt Me 109 G fighter planes standing on the airfield

Research data and patent specifications as Soviet war loot

It stands to reason why the Soviets were so interested in the research results from Adlershof seeing as the DVL was a leading research institute worldwide in the field of aviation and had a determining influence on other developments through its groundbreaking work. The DVL layed the foundations for planes with high flight altitude and constructed innovative engine components such as the exhaust-driven turbochargers, light-metal motor cooling and the sleeve valve engine.

The DVL also had a unique collection of secret patent specifications from German aviation research and thousands of research documentation papers which were hidden just before the end of the war. The Soviets searched intensely for them after they took over the premises. By mid-May 1945, the Soviet expert team had found everything. The methodology of scientific documentation and evaluation that the DVL had worked out, were put to use by the occupational forces. In 1945/46, the DVL had been completely converted into the central Soviet aeronautical documentation centre. Here, all the material was surveyed, selected and sent to Moscow via the Johannisthal airfield.

The Soviet side was particularly interested in a comprehensive collection of lab reports and testing documentation collected since 1939 which they found in the high-velocity tunnel of the DVL. After translation, it could be easily and thus successfully used by the ZAGI which was also due partly to the completeness of the material. The collection was classified as "extremely useful" and "valuable material" in Moscow.

Furthermore, the focus was put on studying laboratories and testing facilities. In the case of the DVL, the Soviet occupiers did not act according to the quantity-over-quality approach ("Tonnenideologie") as was the common practice in connection with reparations for example when dismounting industrial facilities. They chose a more judicious approach instead. Before each planned disassembly, a thorough analysis and evaluation took place in accordance with German specialists. For this purpose, all the wind tunnels and testing facilities were restored. Then, extensive test runs took place in order to comprehend the equipment's functioning and testing methods. New measurements were undertaken in the wind tunnels, engine test beds and tailspin wind tunnels, based on reports of local German scientists and the development work of the Sonderkonstruktionsbüro (SKB, special construction office) which was meanwhile founded in the Soviet occupation zone.

"Academy of the Sciences" moves to Adlershof

The rebuilding of the long-standing Academy of the Sciences under the name Deutsche Akademie der Wissenschaften zu Berlin (German Academy of the Sciences of Berlin, after 1972: "Academy of the Sciences of the German Democratic Republic"), ordered by the Soviet Military Administration in Germany (Sowjetische Militäradministration in Deutschland, SMAD) on July 1, 1946, opened a new chapter in the history of science in the soviet occupation zone and Adlershof. In April 1945, the former DVL premises in Adlershof was handed over to the Academy.

At first, the Academy moved into two former DVL-buildings that had survied the bomb war without greater damage. One of them was located on the northern part of the site next to the Great Wind Tunnel and comprised approximately 100 laboratory and office spaces. The second building, situated on the south side, had two large work rooms, a lab and office space. The Heinrich Hertz Institute for Oscillation Research was the first to use the premises.

In the following decades. the "Academy of the Sciences", and its branch in Berlin-Mitte, became the leading research institution of the GDR and developed a strong focus on applied research. The "Centre for Scientific Apparatus Engineering" with its 1,700 employees was particularly efficient compared to international research institutions. In 1989/1990, approximately 5,600 people worked in the Academy's research facilities based in Adlershof.

Soviet missiles built from German blueprints

As of mid-1945, a whole system of new special construction offices (SKBs) developed in the Soviet Occupation Zone, apart from the DVL. These offices reconstructed modern German aviation and missile technologies and customised them to fit Russian requirements. Apart from a multitude of so-called Scientific-Technical Offices (Wissenschaftlich-Technische Büros, WTB), four large Soviet SKBs were set up. In May 1946, the number of employees working in those four SKBs amounted to more than 5,000 people. Six months later, this number had almost doubled, amounting to more than 8,000 employees. The Soviet occupiers established an SKB with a focus on missile technology in Bleicherode near Nordhausen where approximately 7,000 were employed in October 1946. Out of approximately 15,000 total employees, an average 10 % were Soviet engineers and technicians who were "apprenticed" by their German colleagues.

Transfer of experts to the USSR

However, due to the proximity of the DVL and the SKBs to the Western powers, the looming Cold War and a number of fundamental decisions made by the Allies regarding Germany's demilitarisation and control of research in spring 1946, the SKB system and the "know-how-hub" Adlershof came to an end. What followed was a large-scale campaign named "Ossawakim" in East Berlin and the Soviet sector in the night of October 22, 1946. Around 2,400 German scientists and their families were forced to pack their bags and were brought by train to the Soviet Union. The public regarded the whole campaign with terror, especially so since the deportations took place in broad daylight. When the German scientists were taken away from Oberspreewerk, a town not far from Adlershof, the remaining population formed a dense lane in the streets right up to the train station in Köpenick. 3,000 German specialists were forced to work in the Soviet Union between 1945 and 1947. More than half of them worked in the development of aircraft, engine or missile technology.

Between 1950 and 1954, the aviation experts and most of the specialists from the field of missile technology had returned from the Soviet Union. The GDR leadership struggled to find a slot for the majority of the aviation specialists in the GDR aviation industry which was reemerging since 1954. However in 1961, the GDR's activities on the field of civil aviation were discontinued.

Attempted new beginning for the DVL

In the late 1950s, the Academy of the Sciences of the GDR, which operated important institutions based in Adlershof, considered reviving the DVL tradition. In connection to this, an institute for air flow research was to be established in Adlershof. The closure of the GDR aviation industry, ordered by the East German Communist Party in spring 1961, quickly made these consideration obsolete, particularly since the existing institutions of GDR aviation research needed a different profile and feared overcapacity.

Soviet air base

Even before the campaign of October 1946, the Soviet occupiers gradually lost interest in the Johannisthal airfield. Firstly, the airfield was intially important for the transfer of technology in the first few months after the war, and secondly, Johannisthal served as a ground base for Soviet air routes from and to Berlin.

The first president of the GDR, the chairman of the Communist Party Wilhelm Pieck, allegedly landed in Johannisthal returning from Moscow on Juli 1, 1945. However, the Soviets increasingly relocated air traffic to Schönefeld. This was presumably due to Allied regulations regarding air corridors determined at the end of November 1945. In the course of the following months, further regulations on Allied air traffic to and from Berlin were issued. On October 22, 1946, the Allied Berlin Air Safety Centre (BASC) was established in the building of the Allied Control Council in Berlin-Schöneberg. Concerns of the (western) Allies over flight safety and airspace sovereignty were probably the reasons for not expanding air traffic in Johannisthal.

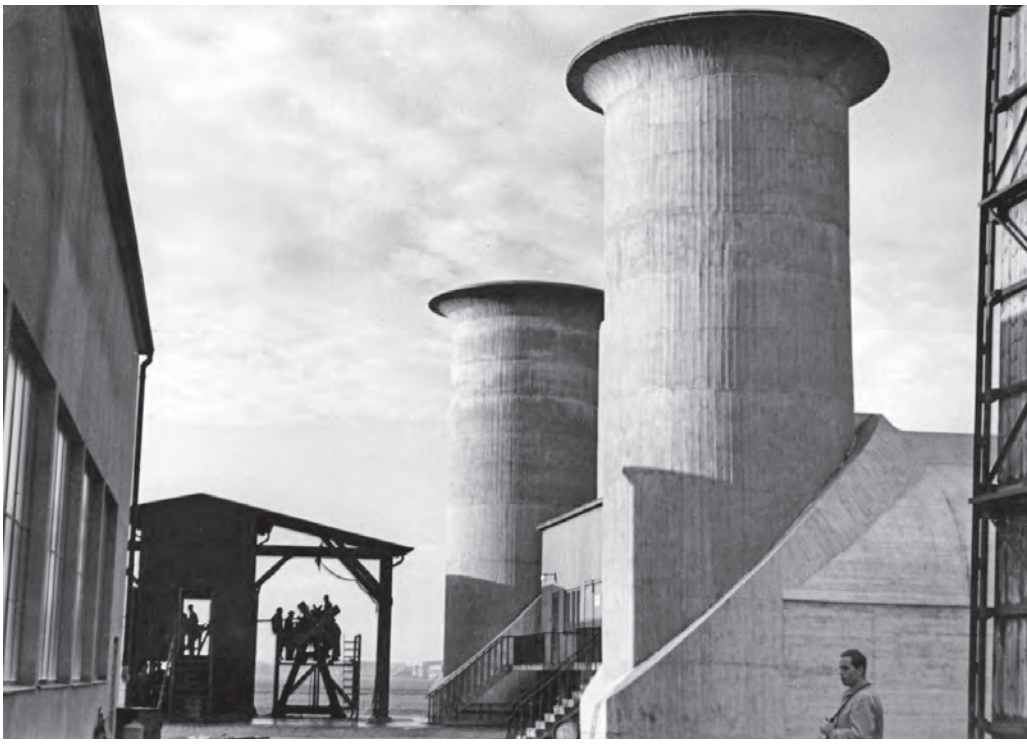
In May 1954, the Johannisthal airfield was again subject to debate. The GDR planned to establish its own airline and was consequently looking for a central commercial airport. It decided in favour of Schönefeld. The Soviet Control Comission (Sowjetische Kontrollkommission, SKK), the successor of the Soviet Military Administration in Germany, issued a recommendation saying that the Johannisthal airfield could be put to use by the Germans. But an airport under German administration would have violated Allied air supremacy and would not have gained permission from the Western Allies, the United States, Great Britain and France. The proposal was scrapped.

The last aviatic activity took place in Johannisthal on May 2, 1954. On the occasion of a youth meeting on the premises, Gerhard Braunstein and Manfred Kandzia took a SG-38-training glider to the air for demonstration purposes. Because air traffic was a privilege reserved to the four victorious powers, it was only a very short flight. Once the "cradle of German aviation", a deep silence fell over the Johannisthal airfield after that.

Historical air display 1995

It took about four decades until there were lift-offs and landings again in Johannisthal, when an air display was organized by a team of aviation historians and the development agency for Adlershof. It took place in September 1995. The area had not been used for decades and considerable effort was put into its repairment. The bumpy ground had to be graded and a 500 m long runway layed with new turf. The audience was presented with a range of historical aeroplanes that were characteristic of the airfield's history, such as the Blériot XI (1909), several Fokker-planes from the First World War, the Bücker 133C "Jungmeister" (1934) and a faithful reproduction of a bi-plane designed by the Wright Brothers.

The engine test bed survived the war without greater damage



Traditions – Aviation research in Adlershof

From 1909 on, Adlershof as a technology site was shaped by aviation and aviation research for almost four decades. Aviators like Hans Grade and Melli Beese but also the Wright Brothers frequented the Johannisthal airfield, flying and testing their own inventions. Building extensive testing facilities, including the former and still existing tailspin wind canal and the engine test beds and laboratories, created the scientific foundation for aviation at the gates of Berlin. The end of World War II also brought about the end of aviation research in Adlershof.

A look back

In the 1950s, Adlershof saw the development of high-frequency research facilities and, in the late 1960s, the site became home to space research. The beginning was marked by the Heinrich Hertz Institute for Oscillation Research, which was part of the East German Academy of the Sciences. The Central Institute for Solar-Terrestrial Physics was founded in 1969 and was dubbed the „Institute for Cosmological Research of the Academy of the Sciences of the GDR" in 1981. The institute focused on basic research and applied research as well as the development of technical components, including sensors for high-altitude and planetary research. It was particularly active in earth remote sensing and materials science under space conditions. The scientists working at the institute were involved in the launches of the Soviet satellites „Interkosmos" 1–4 and the development of four satellites for meteorological observation. In addition to other high-performance onboard equipment, GDR experts in scientific apparatus engineering contributed a Fourier transform infrared spectrometer for remote sensing of the earth's atmosphere and for measuring the Atlantic Ocean's temperature. The spectral image camera MKF-6 was designed in Adlershof – end manufacturing was done at VEB Carl Zeiss in Jena – and built into the Soviet spacecraft „Sojus 22" in 1976, providing high-resolution pictures for use in mining and agriculture among other things.

In 1989, the Academy of the Sciences of the GDR concentrated two thirds of its scientific research institutes in Berlin-Adlershof. 5,600 people worked there, among them 4,400 highly qualified scientists. German reunification was certainly the most radical turning point in the history of Adlershof. As of October 1990, all the Academy's research institutions had to undergo evaluation of the Wissenschaftsrat, the German Council of Science and Humanities, Germany's foremost advisory body in science and research. By mid-1991, 1,500 former Academy employees were classified as having „potential worthy of preservation" and were to be transferred to other research structures.

The Institute for Cosmological Research (Institut für Kosmosforschung, IKF) had signed an agreement with the German Aerospace Center (Deutsche Forschungsanstalt für Luft- und Raumfahrt, DLR) which arranged for the two institutions to harmonise their scientific activities. On the part of the IKF, these were mainly astrophysics and spectrometric remote sensing of the earth but also the development of optoelectronic sensor systems and the maximum permitted load for Soviet research missiles. The extension and continued operation of a satellite ground station in Neustrelitz as a national ground segment was also made part of the agreement. With that, it was possible to preserve the scientific and technical know-how

View of the DLR premises in Berlin-Adlershof

of the former IKF and integrate it into the new structures of unified Germany's research landscape.

In March 1991, it was begun to create an "integrated landscape of research and industry" on the Academy's premises in Adlershof. The foundation of this science and technology park was made up of twelve non-university research institutions, eight of which emanated from the former Academy of the Sciences – including the DLR-Institutes for Space Sensor Technology and Planetary Exploration, which were originally part of the Institute for Cosmological Research, on January 1, 1992. By returning to Adlershof, the DLR returned to one of its original locations, as its predecessor, the DVL, was founded here in 1912.

After a number of structural changes, Berlin-Adlershof is now home to the Institute of Planetary Research and the Institute of Transport Research, the department of Optical Information Systems at the Institute of Robotics and Mechatronics, and the department for Optical Remote Sensing of Water at the Remote Sensing Technology Institute. The branch office in Berlin-Charlottenburg, the department for Turbulence Research of the Cologne-based DLR-Institute of Aerodynamics and Flow Technology, is also part of the site.

Today, Adlershof is one of 13 locations where the DLR and its 28 research institutes and scientific-technical facilities based its activities. The DLR in Adlershof and its 350 employees contribute to all the important missions in planetary research: „Cassini-Huygens" to Saturn, comet mission „Rosetta", and „Corot", a mission searching for extrasolar planets. Adlershof is particularly active in developing optical instruments such as high-performance cameras and spectrometers, which are used for exploring Mars, Mercury, Saturn and other planets. Systems adapted to terrestrial use like the MACS camera are used in catastrophe regions. As part of the DESIS project, a hyperspectrometer is observing the earth's ecosystem from the International Space Station ISS.

Transportation has also become a research focus on the site since 2001. As pioneers for environmentally and socially sustainable transportation systems and management, scientists and engineers are looking at cross-modal transportation concepts and the use of state-of-the-art technology in transportation.

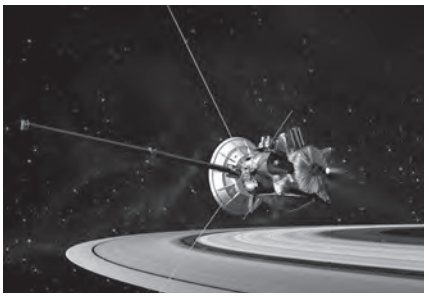
The "cradle of German aviation" is not seeing many lift-offs and landings anymore, and a long time has passed since planes have been built in Adlershof/Johannisthal like during the pioneering years. But even 100 years after these first successful attempts at flying, Adlershof is a internationally renowned and recognised location for research institutes and companies that are creating excellence in aerospace and aviation.

Today's liaison of science, research, and the commercial use of scientific achievements is the logical continuation of the work and legacy of the early aviators. In this way, DLR sees itself as an integral part of the traditions of Berlin-Adlershof and the structures it is building today.

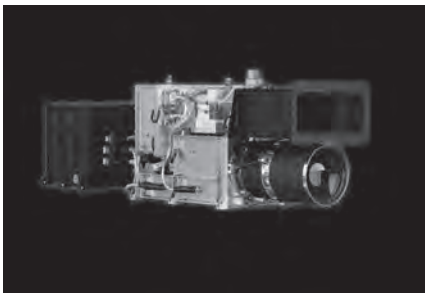
Prof. Dr.-Ing. Anke Kaysser-Pyzalla, chair of the executive board of the German Aerospace Center (DLR)

Andreas Schütz, speaker of the German Aerospace Center (DLR)

Traffic Tower – the virtual traffic management centre in the DLR in Berlin-Adlershof, the first in Germany



The Cassini spacecraft swinging into a Saturn orbit

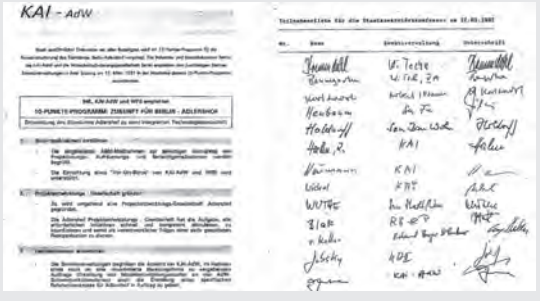


HRSC – High Resolution Stereo Camera

Adlershof's long road to success

Science and technology parks might have striking similarities, but they are individuals with very different talents who are shaped by political, historical, and cultural specifics. They are continuously faced with the challenge of tackling important and complex tasks and therefore having to take unconventional paths.

Science and technology parks are typically the result of political decision-making. They require government planning and funding to help free enterprises to thrive. It often takes many years until their success becomes visible. Their permanent companions are the impatience of entrepreneurs as well as policy makers, and the distrust of a vigilant public that expects their tax money to be well-invested.



The „10-Point Programme: Future for Berlin-Adlershof" is virtually the founding document for the Science and Technology Park Adlershof

An "integrated landscape of research and industry"

Science and technology parks are often born out of necessity. Adlershof was no different. As early as 1991, the area on the south-eastern limits of Berlin could already look back on a short but eventful history: It began in 1909 when it established itself as a centre for aviation research. Feature films were shot there for a brief period following World War I before aviation research again became dominant until 1945.

After World War II, events were shaped by three institutions. First, Deutscher Fernsehfunk, later Fernsehen der DDR, the state television broadcaster of the East German Democratic Republic (GDR) gave rise to the area's media prominence. The guards regiment of the GDR's ministry for state security, on the other hand, fortified itself behind walls and barbed wire.

Finally, the GDR's Academy of the Sciences (Akademie der Wissenschaften, AdW) turned Adlershof into its most important natural science research centre. The Berlin Wall fell on November 9, 1989, and Germany was reunified a year later. Consequently, the guards regiment was disbanded and the broadcasting company was sold off. But what to do with the institutes of the Academy? They went through evaluation. The West German evaluators were impressed by the quality of research. In the end, however, only 1,300 of formerly 5,600 employees were able to continue their work. The others had to look for a new job or start their own business.

This was a difficult undertaking at the time. On the one hand, Germany's unified capital city experienced a great sense of euphoria. It dreamed of becoming a blossoming global metropolis with over five million people. On the other hand, the city's industrial foundation was crumbling, dramatically. The number of industry jobs decreased from 300,000 (1989) to 81,000 (2012).

Once old industries have disappeared, they don't come back. It was necessary to build new, modern industries based on novel technologies. In this way, and as early as March 1991, a group of high-ranking policy makers, officials, and scientists from Berlin made a very far-sighted decision when they suggested establishing an "integrated landscape of research and industry" in Adlershof. The idea: Research and industry would unleash their innovative force and drive Berlin's economy forward.

A rocky start

This was the birth of the Science and Technology Park, the beginning of a completely new and emerging Adlershof. The reality looked a bit different. Adlershof was a hotchpotch of provisional buildings; the entire infrastructure urgently required a complete overhaul. In 1991, the Entwicklungsgesellschaft Adlershof (EGA) was founded. In addition to EGA, a second state-run company and three senate departments were claiming jurisdiction. Adding to this was a 1993 decision of Berlin's senate to designate a 420 hectare development area with a special legal status in Adlershof, which was to be developed based on a harmonised urban development concept. A development agency (BAAG Berlin Adlershof Aufbaugesellschaft mbH) was set up specifically for this purpose.

By late 1994, all those involved had realized that EGA had to be given an independent status under company law. It was renamed WISTA Management GmbH (WISTA) and given a top-tier supervisory board; the premises of the former Academy in Adlershof was transferred to it as a capital contribution in 1995.

A lot of things were happening in Adlershof. Former employees of the East German Academy of the Sciences were the first to venture out into starting business of their own with nothing else than a mere blueprint in their minds. They did so because they had lost their jobs and because they realised they had an opportunity. They did something that was frowned upon in former East Germany. They became entrepreneurs and, by doing so, made significant contributions to the later success of Adlershof as a technology park.

Now and then, it was the task of WISTA to make sure the companies find conditions in Adlershof that facilitate rapid growth in a free market. This required overhauling the infrastructure and tearing down most of the decrepit buildings. In their place, buildings equipped with state-of-the-art equipment as well as office, laboratory, and manufacturing spaces were created. The first was the Innovation and Start-up Centre (IGZ) in 1994. It was followed by the Centre for Photonics and Optics, for Environment, Biotechnology, and Energy Technology, and for Information and Media Technology by the end of the decade. Thanks to public funding, it was possible to let out those buildings to companies at affordable rates if those companies matched the technology park's profile and key scientific topics. By late 1995, Adlershof was home to 180 companies with around 2,000 employees. On the research side, too, there was massive investment. In 1998, Helmholtz-Zentrum Berlin (HZB) took up operation of BESSY II, an electron storage ring and Germany's leading soft X-ray source.

Adlershof takes up steam

It went uphill from there. Important decisions brought additional dynamism to these developments: The move of the natural science institutes of Humboldt-Universität zu Berlin (HU) to Adlershof got underway in 1998. They were to strengthen the area's scientific foundation and become one of the supporting pillars of the high-tech site. By 2003, the departments of computer science, mathematics, physics, chemistry, and psychology had moved. Adlershof provided HU with a ultra-modern campus.

It was in 2003, too, that the development of the entire Adlershof development area was brought together under the roof of WISTA. This was followed by an important change in perception, namely, to see and treat the "City for Research, Industry, and Media" in Adlershof as one. By then, the realisation that Adlershof as a whole offered best-possible prospects for development had been had by many – as a research and industry location but also as a liveable place with an urban quality to it.

Adlershof Laser Light Bridge

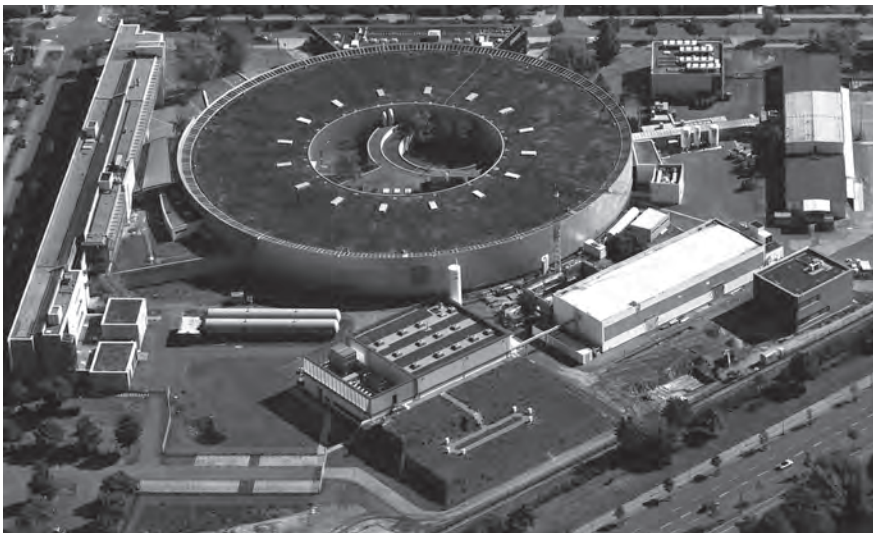
In 2009, Adlershof celebrated its 100-year anniversary as a technology location. Not without pride, the operating company recalled that it had repeatedly succeeded in turning breaking points into new beginnings. When, in 1991, the idea of the technology park was born, many hoped for an economic boom. However, the expectation that most large international corporations would settle down in a reunified Berlin, possibly even in Adlershof, wasn't met. Instead of waiting for big players to arrive, the focus was put on fostering small companies. Over the years, this enabled achieving a "critical mass", i.e., a high number of highly specialised companies on the site, which, in turn, attracted other interesting companies. Adlershof turned into a success story and has been enjoying broad political support since then independent of which government was at the helm.

Trials and tribulations

More importantly: Adlershof had then successfully passed its first economic litmus test. In 2008-09, the financial crisis brought the world economy to the edge of a precipice. Its effects were felt in Adlershof, to be sure, but its impact was limited. The technology park had several advantages working in its favour: in addition to agile high-technology companies, which were able to swiftly focus on other products and markets when their previous markets collapsed, these included high-growth technology fields and close cooperation between research and industry. In those times of crisis, Adlershof's know-how was in high demand. WISTA as the site's developer sent a clear signal and invested a total of 62 million euros into three new technology centres – for microsystems and materials, IT and media, and for photovoltaics – between 2011 and 2013.

Adlershof quickly regained its growth momentum. In 2011, revenues of the site's companies went up by almost eight percent. Only one year later, however, another strong headwind was blowing in the face of the technology park: the crisis of the German solar industry. Not one but two companies, Solon SE and Soltecture GmbH, had to file for insolvency. However, the loss of about 550 jobs was offset by new companies coming to the site and job growth in employment at existing companies.

BESSY II Electron storage ring



In 2013, the technology park broke the "sonic barrier" of 1,000 companies. Adlershof had become Germany's largest technology park and was among the four largest of its kinds in Europe. The site enjoyed an international reputation. Humboldt-Universität contributed significantly to this. It had established itself as the third pillar of the high-tech location and was highly involved in numerous cooperations with non-university research facilities as well as companies. The university finally received the eagerly awaited status of excellence, which, in turn, added to the site's renown. This new confidence was underscored by the slogan "Adlershof. Science at Work."

More than a place to work

Compared to its early days, Adlershof now had an urban feel to it. The S-Bahn train station was refurbished in 2011, and the site was connected to the tram network, which reached as far as Schöneweide, that same year. Construction cranes were in constant motion on both sides of Rudower Chaussee. Increasingly, construction projects form private investors were entering the scene, including "Am Oktogon – Campus für Gewerbe und Technologie", "Allianz Campus Berlin", or "Brain Box Berlin". Science and research were also building. The Federal Institute for Materials Research and Testing (BAM) opened a new building complex in 2015. The Helmholtz Centre for Materials and Energy built a testing facility for a linear particle accelerator with energy recovery (ERL, 2016); the LLBB, Berlin-Brandenburg's state laboratory, moved into a new building in 2019. Currently, Steinbeis-Hochschule, a private university, is building a new headquarters.

Adlershof still was, above all, a place to work and study. It became increasingly clear that more had to be done for the location quality of the site, that it could not convince people in the long run as a place of work alone. The "City of Research, Industry, and Media" needed urbanity. People should be able to feel comfortable there. Two large-scale projects, "Living at the

Landscape Park" and "Living on Campus", made sure that Adlershof was not only a place to learn, do research, and to work but also to live. By 2021, Science City Adlershof had become a home for 4,300 people.

Berlin's places of future innovation

Today's Science and Technology Park Adlershof is making significant and measurable contributions to strengthening the economic foundation of Berlin. What is more: Adlershof developed into a prototype for Berlin's places of future innovation ("Zukunftsorte"). Its core is made of scientific research facilities embedded into an environment with a chain of growth-promoting factors at work. They range from fostering start-ups to providing spaces for manufacturing companies. Clearly defined technology fields facilitate attracting companies that match the profile. An overall urban development concept fosters a sense of urbanity and liveability.

Sustained economic success prompted Berlin's government to further incorporate know-how from Adlershof into other projects that promote research-driven businesses. WISTA and its subsidiaries are operating the Charlottenburg Innovation Centre (CHIC), setting up the technology and start-up centre FUBIC in Dahlem, marketing the CleanTech Business Park in Berlin-Marzahn, and are involved in creating and operating local hubs for skilled trade businesses, so-called "Gewerbehöfe". Lastly, WISTA is running the business office of Berlin's abovementioned "Zukunftsorte" project.

Sculptures at the Forum Adlershof „Head movement - heads, shifting": art project by Josefine Günschel and Margund Smolka

A place of resilience

Adlershof is continuing down a path of unchecked momentum. In 2016, revenues and budgets of companies and facilities, respectively, rose by 7.4 percent and surpassed two billion euros for the first time. In 2018, the site grew by as much as 12.2 percent. Then, in mid-March 2020, the rampant COVID-19 pandemic brought the world economy to a standstill. However, only a few weeks later, it became clear the companies and research facilities of a diverse science and technology park like Adlershof were able to act flexibly and unleash their innovative powers rapidly. The Science and Technology Park continued its growth path, undeterred.

An impressive balance sheet

When the decision to establish a technology park was made in 1991, there were no companies in Adlershof. By late 1995, as mentioned above, Adlershof was home to 180 companies with around 2000 employees. 1,500 more employees worked in research. Between 2003 and 2021, the number of companies rose from 383 to 1,200, that of staff from 10,500 to 22,000, and that of revenues and budget funds from 978 million euros to 2.86 billion euros.

Adlershof is now becoming increasingly interesting to large companies. A number of household names can now be found here, including Corning Cable Systems, Würth Elektronik, TRUMPF Laser, Jenoptik Diode Lab and Sonaca. Being able to attract large companies will be decisive for its future success.

Roughly 100 Adlershof-based companies are now market leaders in their field, 150 are technology leaders. DIW econ GmbH, the consulting spin-off of the German Institute for Economic Research (DIW), calculated that Adlershof triggered a "total employment effect of almost 30,000 people" in 2019. For every job created in Adlershof, 1.6 more jobs are created in Berlin alone. Between 2008 and 2017, 1.1 billion euros worth of subsidies flowed into Adlershof. This sum is offset by an annual tax revenue of around 400 million euros generated by Adlershof. Clearly, this investment of public funds into the site were worthwhile.

Adlershof 2021

What's next?

The technology campus is growing steadily. But so are the problems with traffic. An error-prone S-Bahn network, lack of parking pace, and congestion traps on access roads make very clear: Something must be done for the infrastructure. Using a smart mobility concept, WISTA now plans to turn the wheel and to help the site to grow sustainably for the benefit of its staff, residents, students, and the environment.

Since the Berlin Brandenburg International Airport (BER) finally went into operation in 2020, Adlershof's peripheral city location has transformed into a veritable location factor overnight. The new airport is only six kilometres away from the technology park. Adlershof and the BER are now becoming the pivot points of a corridor of innovation ranging from Berlin to Lusatia. Along this corridor, co-working spaces could be created, enabling people to live outside of the city and to work in Adlershof without having to commute.

Over 40 percent of the staff in Adlershof is high-skilled, about 18 percent work in research and development. The knowledge of its staff is a technology park's most valuable raw material. Adlershof must therefore invest considerable efforts into winning over new talent as well as retaining its experienced staff.

Finally, Adlershof cannot limit itself to stimulating the regional economy but must also address broader issues. The site can and will contribute to tackling the grand challenges of the future (e.g., climate change and pollution).

Above all, however, Adlershof must not lose sight of its "core business", that is, doing everything it can to transform scientific insights into innovative products and services.

Johann von Neumann-Haus

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