Into life’s ocean the youth with a thousand masts
daringly launches;
Mute, in a boat sav’d from wreck, enters the
greybeard the port!
Friedrich von Schiller (1759-1805)

Biography

I was born on January 15, 1909, in Jungingen, a small village of farmers, crafts
and tradesmen, and industry workers. (In 1975, Jungingen became a borough of the
University City Ulm.) My father Carl Christian and my mother Walburga, née
Ruhland, were both born in 1869 and married in 1895. They owned and operated
a small farm and a workshop for harnessmaking, upholstery and home decorating.
My father, a certified master of his trade, actively participated in community affairs.
He was elected to the Village Council, and served as treasurer of the local savings
bank and of the church. Furthermore, he acted as official meat inspector and as a
veterinarian assistant. I was the youngest of six children, with three sisters and two
brothers.

One of my earliest recollections is the start of the First World War, with the
conscription of men and horses. Alarming rumors, fear of spies and of an invasion
prompted the villagers to set up makeshift road barriers.

The war brought many hardships to us, but hunger was not one of them. My
parents, brothers and sisters were keen to teach me reading and writing to provide
me with a head start in school. At the age of six, I entered the local elementary
school. In 1917, I transferred to the Realschule (secondary school) in Ulm, four
miles from home. I felt great wearing the traditional student cap (Figure B.1). My
transportation was by train, bicycle or on foot, depending on the weather.

My brother Carl, drafted in 1915, was wounded in the Battle of the Somme. After
his recuperation in an Ulm hospital, he was sent to the eastern front. My brother
Ernst was delegated to the Balkan theater in 1917.

The November 1918 revolution ended the war on the military battle fronts, but
not at home. I saw machine guns in the streets and squares of Ulm, shattered shop
windows, and demonstrations by the workers. For the first time I heard the battle
cry of the socialist Internationale, “All wheels of industry will be standing still if
your strong arm exerts your will!”
Fortunately, my brothers returned home before Christmas, Carl from Taganrog on the Sea of Azov in Russia, and Ernst from Macedonia. Both suffering from malaria, they never wanted to discuss their war experiences with me or anybody else. Ernst enrolled at the TH Stuttgart in special courses for teaching in vocational schools; Carl emigrated to the United States via Ellis Island in 1925.

My secondary school ended in 1924. My father already had arranged for my apprenticeship with a notary in Ulm. My headmaster, however, discussed my interest and good grades in mathematics and science with my parents and tried to persuade them to have me continue my education. My parents finally agreed to the headmaster’s suggestion, despite the financial strain associated with it; the hyper-inflation of 1923 had wiped out their savings. I appreciated my family’s sacrifice; it increased my continual endeavor to strive for excellence in my education and profession.

I continued my studies at the Ulm Oberrealschule (Senior High School). A highlight of my last school year was an excursion to the Deutsches Museum in Munich, one of Europe’s famous permanent exhibits for science, technology and industry. I then decided to study engineering; I preferred dealing with the laws of physical science rather than with people.\footnote{At that time, that was one of my major misconceptions of the realities of the world. My career taught me a different lesson in this respect.} Graduation in 1927 with the Abitur (Final Examination) allowed me to enter a university or equivalent institute. For the study of engineering, a six-month factory apprenticeship was mandatory prior to enrollment.
My brother Ernst occupied a teaching position at a new vocational school in Schweinfurt, the ball bearing city that became famous as an air-raid target in WW II. He offered to let me stay with him and his family. I gratefully accepted and absolved my apprenticeship with the Schweinfurter Präzisions-Kugellager-Werke Fichtel & Sachs A.G. (acronym F&S). Manufacturing included the Torpedo, a patented rear hub for bicycles, and antifriction bearings, both at a production rate of 25,000 per day. As a blue collar worker with black fingernails, I had to perform hard, highly disciplined work, manually, physically and mentally. I learned all metal manufacturing and inspection techniques, scheduling including the recently heralded JIT (Just In Time) deliveries, zero scrap rates, etc. I extended my apprenticeship to 18 months, with the last months in the Design Department. There we established the groundwork for the later-famous Sachs engines by operating, disassembling and analyzing all available domestic and foreign specimens of small engines. My work at F&S provided a good foundation for the engineering profession in general and the techniques for mass-producing precision components and aggregates in particular. Since then, I feel comfortable with both blue and white collar workers. Though I "lost" a year, I still feel it was a worthy, excellent investment for my career.

Enrolling in the TH Stuttgart in the Fall of 1928, I studied electrical and mechanical engineering. The faculty included professors with international reputations. To name a few prominent ones: Carl von Bach (1847–1931, materials and their testing), Richard Grammel (1889–1964, dynamics and mechanical vibrations), Wilhelm Kutta (1867–1944, mathematics, Kutta-Joukowski formula for the lift of airfoils), Erich Regener (1881–1955, physics, cosmic ray investigations with high-flying balloons), and Paul Bonatz (1877–1956, architect; his Stuttgart Central Station of 1913 is still modern today).

In my second year the TH celebrated its 100th anniversary. For the full month of May 1929, faculty and students reigned supreme; we students received free tickets for commuter trains, tram cars, theaters, movie houses, etc. A variety of activities testified to the excellent cooperation of the city and its citizenry with their TH. Highlights were a Festvorstellung (gala performance) in the Staatstheater, a daylight parade of faculty and students through the inner city as well as a torchlight parade to the Neues Schloß, and last but not least, a Festkommers (festival with beer and pretzels) in the Stadthalle (sports arena) sponsored by the local breweries. As a member of the A.W.V. Makaria (academic-scientific fraternity) I proudly participated in most of these festive events.

I graduated as Diplom-Ingenieur\(^2\) in 1932, i.e., during the Great Depression, without a job opportunity. The TH, with the financial assistance of the Verein

\(^2\) The grade of Diploma Engineer lies between a Bachelor of Science (B.S.) and a Master of Science (M.S.) degree.
Deutscher Ingenieure (VDI, Society of German Engineers), other organizations and the local industry, was conducting a study and research program for graduate engineers. It supported my further education.\(^3\)

After a year in this program, I was fortunate to obtain jobs in Stuttgart and Berlin that provided me with enough time and resources for doctoral work. In 1937, the TH Stuttgart awarded me the Doctor of Engineering with my thesis Schalldämpfer für Rohrleitungen (sound dampers for pipelines). The VDI included excerpts in its journals, particularly my concept and test results of a very effective, adjustable Helmholtz resonator for the attenuation of gas vibrations in a pipe over a wide frequency range. It also published and promoted my thesis as a book. It received favorable reviews in 25 domestic and foreign business newspapers, professional journals and magazines, two of them in the U.S. These accolades also helped me to gain a position in the engine industry at Bramo in Berlin-Spandau.

In Berlin I occasionally called on Tante Rickchen (Aunt Fredericka), a native of Jungingen who had attended my parents' wedding. There I met at dinner my future wife M. Magda Pfister who was staying with the daughter of our hostess. It was a fortunate coincidence, two Swabians meeting in the Berlin metropolis. After a one-year courtship, our wedding took place in the Summer of 1938 in the Friedenskirche (Peace Church) in Heilbronn am Neckar. We also utilized this stay to survey the industry in southern Germany for a desirable relocation from Berlin. Our honey-moon trip with a DKW cabriolet took us along the romantic Neckar and Rhine valleys to the Harz mountains and to Berlin. I then decided to accept an offer from the Hirth-Motoren Company in Stuttgart-Zuffenhausen as research and development engineer in its Applied Research Department. In December 1938 we settled in a Stuttgart suburb.

After living 14 years in the United States, my brother Carl paid his first visit to Germany, arriving in Stuttgart in July 1939, on the day Magda gave birth to our first baby, Rose-Marie. Her christening gave Carl the happy opportunity to meet Magda’s parents and family. On a visit to Jungingen we assembled for a photo of my parents and their children (Figure B.2). This was going to be the last time we were all together. To our question on the length of his stay, Carl surprised us to our disbelief with his remark, “I’ll have to return soon because there will be war in Europe!” His hunch proved right; he departed with the S.S. Bremen on her last trip to New York. On September 1, Hitler’s invasion of Poland triggered World War II.

Further events of my professional and family life are included in the previous chapters of this book.

\(^3\) I am happy to note that SAE is pursuing a similar program for engineering students.
Concerning my ancestry and family background, Carl Bentele, an auditor/accountant of the city of Ulm, used his retirement to investigate the history of the Bentele clans. We were unknown to him as he was to us. Assuming there must be more Benteles around, he searched for their origins and whereabouts. It took him a few years and the perusal of scores of documents in secular and church archives. He traced the name back to the Lords of Pentelingen/Bentelingen in the years 1070 to 1095 A.D. Other documents of 1200 A.D cited the names Bendelin and Bändelin. Late 14th century archives abound with the names of Bentelin, Bentelli and Bántelli, all living in southern Germany, eastern Austria and northern Switzerland. They comprise craftsmen, tradesmen, artists, sculptors, painters, and writers. He established in detail 25 branches and named them mostly according to their predominant locations.

Our own Bentele family belongs to the Günzburg/Leipheim/Ulm branch; our family tree is continuously documented back to the year 1500. It contains mostly craftsmen and farmers, occasionally municipal officials, but no celebrities who
made the history books. Our coat-of-arms, dated 1400, depicts on a silver background a bull’s head in red. My brother Ernst, an excellent amateur artist, painted it on parchment as his wedding gift to us. He later wrote and illustrated a handbook on calligraphy which was distributed worldwide.

Some noteworthy items of Ulm’s history are inscribed in my memory. The Ulm Münster (minster) dominates the city’s skyline from all directions as an impressive Gothic cathedral. During a period of prosperity in 1377, the Ulm citizenry had laid its foundation stone and ceremoniously showered it with money, indicating the building as a citizen church, not one founded by a bishop or a prince. In 1890 the church was finally completed; the top stone knob was put on the main tower, elevating it to the highest cathedral in the world with 161 meters (528 feet). The suspicion that the spire had been “stretched” in order to exceed the 156-meter high Cologne Dom was dismissed as nonsense. A gothic structure prohibits such a perversion, the architects say. Still, a then-issued illustrated brochure compares the Münster with ten other European cathedrals, from St. Peter in Rome to St. Paul in London and St. Giraldi in Seville to the Stephansdom in Vienna, proudly depicting the Ulm Münster as the highest. As a remarkable sight in appearance and height, it attracted visitors from all over the world, and still does.

The Münsterfest of June 1890 followed the official inauguration of this magnificent monument. It included a parade in which my father proudly participated with the Jungingen contingent wearing traditional costumes. As youngsters we often climbed all steps to the top, the octagon deck, to demonstrate our athletic prowess and to enjoy the grand view of the town and country, our small village four miles to the north, and on a clear day the majestic Alp mountains 90 miles to the south. This tradition continues with our children and grandchildren.

The 100th anniversary of the completion of the Ulm Münster was celebrated in May 1990. The Lord Mayor of Ulm greeted the ecclesiastical and secular official guests in the Rathaus (City Hall), again emphasizing the Münster as a citizen church. Highlights of the anniversary celebration were: a Ständchen (serenade) to the church by several choral societies, one from East Germany, and joined by other attendees; an illumination of the Münster with superimposed pictures of past events such as the half-finished building, the flight of the Tailor of Ulm, among others; and a concert presented by 10,000 trombone players, another record in numbers.

Schwörmontag (oath-Monday) is a unique Ulm holiday celebrated each August and dating back 400 years. From an alcove of the Schwörhaus, the Lord Mayor delivers in the morning to the assembled citizenry his state-of-the-city message, ending with the solemn oath that he will be impartial to rich and poor alike, without reservation. The official ceremony is followed by traditional festive events on the Danube river and in the streets and squares of the city. Locals in antique garb perform age-old competitions; citizens also take part in parades, dances and candle serenades. Thousands of spectators and visitors rejoice in the serene, jubilant and romantic events.
Ulm is also one of the cradles of aviation. As schoolchildren we used to sing in Swabian dialect, “D’r Schneider von Ulm hot’s Fliege probiert, no hot en d’r Teufel en d’Donau neig’führen!” (the tailor of Ulm tried to fly, but the devil dumped him into the Danube river). The tailor, Albrecht Ludwig Berblinger (1770-1829), had glided with his self-built flying machine (Figure B.3) in a vineyard from one cabin to a lower one; he also had flown from Ulm mountainsides. To impress the King of Württemberg on his visit to Ulm in May 1811, Berblinger was wheedled to perform a spectacular glide across the Danube, from the Adler-Bastei (eagle bastion), a tower of the city wall, to the Bavarian river bank, a distance of 40 meters (131 feet). Analyzing his previous achievements, his calculations required an additional wooden structure. With this he saw a chance for success, and he agreed to the performance. His flight failed, however, most probably due to downdrafts and ill winds. He ended in the river, physically unhurt, but suffering the jeers of the spectators and the continuous scorn of the Ulm populace. He was unable to resume his tailor business. “Who would order a coat from Berblinger; one would have to fear it could have wings instead of sleeves!” was the common saying. After a second, troubled marriage, he died as a pauper. Eighty years later, Otto Lilienthal (1848-1896) was more successful with his gliders, but lost his life in a flight.

Fig. B.3. Albrecht Ludwig Berblinger’s flying machine (1811).
In 1986, to commemorate and probably exonerate its aviation pioneer, the City of Ulm inaugurated the 175th anniversary of Berblinger’s venture with an International Competition offering a cash prize of 50,000 Deutschmarks (approximately $25,000). Only gliders similar to that of the tailor were permitted. All but one of the two-dozen final competitors shared the tailor’s fate by falling into the river. With a plane constructed by his father, a 19-year-old made it over the Danube, to the delight and applause of officials and spectators. The tailor’s ridicule was thus transformed to admiration.

The University City Ulm represents the best of the Swabian enterprising spirit, diligence, and perseverance. As a unique high-tech center it pursues research in medicine and electronics, manufacturing of top firefighting equipment and vehicles, luxury tour buses, specialty trucks, diesel engines, and machine tools, among others. “In Ulm, you can see the future,” said a prominent Federal official. Its sons of the last century, Max von Eyth (1836-1906), engineer in agriculture and author of tales from the industrial world, and Albert Einstein (1879-1955), would have been proud of its present environment, culture and achievements. They probably would not have had the urge to leave for other countries. Similar feelings apply to myself. If the present conditions had been prevalent when I was at the start of my career, I might have stayed “at home in Swabia.” In that case, my Wanderlust would have presented a nagging demand, I would hardly have had such a fascinating and rich life, made so many friends worldwide, and gathered experiences in all respects. If this book would have been written at all, it certainly would be different.
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