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Freistaat Thüringen

Thuringia: 100 stories, 100 surprises.

Revised 6th Edition

Dear Sir or Madam,

Far beyond its boundaries, Thuringia is famous for its culinary specialties and its unique natural landscapes. Yet Thuringia also deserves to be known for its long tradition of innovation and invention, its pioneering spirit, and its courage to embrace new ideas that have the potential to bring about change. This is what makes Thuringia special, and it should instill self-confidence in our Land.

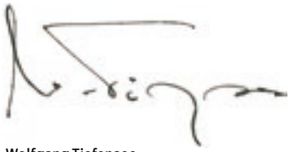
Because what it takes to win over and convince others is an awareness of one's own history and confidence in one's own abilities. Thuringia is a modern and economically successful state, and it is, above all, surprisingly different.

The brochure "100 stories, 100 surprises" tells of the many ideas, both large and small, that have originated in Thuringia and the inspiring men and women behind them, while also relating many other intriguing facts about our Free State. When you browse through the booklet, be it in printed form or via a reading app, you will learn, for example, that Thuringia played a key role in the birth of the modern insurance industry, and why high-tech made in Thuringia is used in outer space exploration.

This edition is the sixth of its kind, in which 100 surprising stories from Thuringia have been collected. We show the Free State in a way in which still only few people know it. Even I myself, who was born in Gera, came to realize in reading the booklet: Thuringia is full of surprises, again and again. I would like to invite you to come see for yourself – and to be surprised!

I hope you will enjoy reading this booklet.

Yours truly



Wolfgang Tiefensee
Thuringian Minister for Economic Affairs, Science and a Digital Society

Famous Exports

Living Traditions

Worthwhile Destinations

Pomp, piety, and a grand staircase:
Erfurt's Cathedral Hill.
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Passionate about Life

Cultural Highlights

Ground-breaking Discoveries

Jena's "8th wonder of the world":
The Zeiss Planetarium.
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Famous Exports

A Thuringian native creates a New York landmark

01 | *The Brooklyn Bridge*

Anyone looking at an image of the Brooklyn Bridge will automatically think of New York. Yet only a few people know that it was designed by a Thuringian: Johann August Röbling from Mühlhausen. As a young man, this engineer had emigrated to America. “John August Roebling” initially worked for a railway company, among other employers, and then went on to found the first steel-cable manufacturing company in the US.
In the early 1850s, he oversaw the construction of a suspension bridge near Niagara Falls. Relying on his expertise in steel-cable construction, Röbling proposed building a similar bridge across New York’s East River. Selling this ambitious project to the politicians and bureaucrats proved to be a project demanding more patience than anything else. It was not until 1869 that construction could finally begin.

Röbling did not live to see the inauguration of the Brooklyn Bridge in 1883: The engineer suffered a crushed foot during surveying work and died of blood poisoning after it was amputated. But the genius from Mühlhausen is not forgotten: The John A. Roebling park in New York still bears his name, as does the Johann-August-Röbling school in his home town of Mühlhausen. The Brooklyn Bridge was actually completed by Röbling’s daughter-in-law, Emily Warren Roebling. Entirely self-taught, Emily became one of the first female civil engineers ever. The memory of this determined pioneer lives on in Germany’s Emily Roebling Prize, which is awarded each year to female entrepreneurs in Central Germany.

A vision that swept the world

02 | *Weimar’s Bauhaus*

Walter Gropius was more than just a gifted architect; he also had a knack for winning over other talented people to his vision. In 1919, Gropius merged two separate academies in Weimar, the academy of fine arts and the academy of applied arts, into one institution, the “State Bauhaus.” To staff his new art academy, Gropius was able to attract such luminaries in the art world as Lyonel Feininger, Paul Klee, and Wassily Kandinsky. With the help of these brilliant artists, Gropius implemented the Bauhaus’ revolutionary agenda: to unify the varied artistic disciplines of graphic design, visual arts, and architecture, without regard for convention. Today, the Bauhaus legacy endures in countless contemporary buildings as well as in classic designs for everyday objects, like the Wagenfeld table lamp (photo). Even the artistically reactionary Nazis were unable to halt the triumphal march of the Bauhaus style. Forced to emigrate from Germany, the Bauhaus School’s disciples took their modernist version with them to the four corners of the world. In Israel, for example, they built Tel Aviv, the “white city on the sea.” In the United States, they designed Detroit’s Lafayette Park, an expansive recreational and residential complex completed in the late 1950s. To this day, the Bauhaus University in Weimar nurtures the tradition incubated by Walter Gropius. Under the auspices of the city’s Klassik Stiftung Weimar, a new Bauhaus Museum is being built to replace the existing exhibit space. The goal is to create an up-to-date and worthy showcase for Germany’s most influential and successful export of the 20th century: the aesthetic concepts of the Bauhaus.

Sonorous chimes

03 | *Bell casting in Apolda*

Each one of the bells cast in Apolda is unique, with its very own sound and history. You can find them all over the world – in the municipal parliament of Buenos Aires, for example, or in Cologne's mighty cathedral. In the 1920s, the people of Cologne decided that their famous church needed a new main bell. But their expectations of how it should sound were so exacting that only a single firm was prepared to take on the job: the Ulrich foundry in Apolda. The result was the St. Peter's Bell, one of the world's biggest free-hanging bells, with a weight of roughly 24 tons and a diameter of 3.22 meters.

The Ulrich bell foundry has since closed down, but the tradition and culture of bell-making are still present in Apolda. Thus, the exit signs on the A4 Autobahn between Weimar and Jena welcome you to "Apolda, City of Bells." Then there is the "World Bell Concert" (Weltglockengeläut), an international event held in Apolda only once every four years: the three bells of the Luther Church – each from a different century – ring out in unison in a glorious cascade of the notes E, G sharp, and C sharp. Last but not least, there is the Apolda Bell Museum, which also doubles as the municipal museum. On display are a variety of large and small bells from various epochs, giving us a glimpse into the fascinating history of bell casting.

Held captive by the king

04 | *A Thuringian discovers "white gold"*

The creator of Meissen's world-famous chinaware was none other than a Thuringian, Johann Friedrich Böttger. Born in 1682 in Schleiz, Böttger trained as a pharmacist in Berlin and discovered his passion for the art of alchemy there. He was soon on the run from the King of Prussia, only to fall into the clutches of another monarch, August the Strong, King of Saxony, who had also heard that Böttger was on the verge of discovering the secret of gold.

August had the hapless Böttger imprisoned and from then on, the alchemist labored away in various fortresses. Though Böttger, working together with the Saxon scholar Ehrenfried Walther von Tschirnhaus, failed to find a method of producing bullion, he did develop the technique for snow-white, translucent porcelain in 1708. This broke the centuries-old Chinese monopoly on "white gold." Sadly, Johann Friedrich Böttger had little opportunity to rejoice: hard work and carousing had destroyed his health, and by 1719 he was dead.

For many years, Böttger's porcelain-making recipe remained a well-kept secret. But around five decades later, three other Thuringians discovered new techniques almost simultaneously: the theologian Georg Heinrich Macheleid, the mining inspector Johann Wolfgang Hammann, and the glazier Johann Gotthelf Greiner. Though competing as rivals, these three jointly laid the cornerstone of Thuringia's tradition of porcelain manufacturing.

reddot award 2014
winner

Founded in 1844, Kahla/Thüringen Porzellan GmbH, one of Europe's largest porcelain makers, continues to operate in Thuringia to this day. The company regularly wins international prizes for its chinaware, such as the Red Dot award, which it has been awarded ten times between 1997 and 2014. Photo: The winner in 2014: "Magic Grip" porcelain with a silicone base.

High-tech maintenance in Thuringia

05 | *Engine overhaul services by N3*

High tech “maintained in Arnstadt:” N3 Engine Overhaul Services overhauls aircraft engines at the Erfurter Kreuz industrial park near Arnstadt. A joint venture between Lufthansa Technik AG and Rolls Royce plc, the plant employs 650 people and is the only one in Europe to refurbish the Rolls-Royce engines that power the Airbus models A340, A330 and A380. The name “N3” refers to a construction design typical for Rolls-Royce engines, one that features three separate shafts, each rotating at a different speed.

A perfectly tuned, high-performance engine

06 | *Daimler has Thuringia “under the hood”*

Nearly every other engine built for Mercedes vehicles is made in the town of Kölleda, the home of MDC Power GmbH. A subsidiary of Daimler AG, the MDC motor works were named “Factory of the Year” in 2014. This prestigious award was issued by a panel of jurors drawn from the Otto Bensheim School of Management and the staff of Wirtschaftswoche, a leading business magazine. Not content to rest on its laurels, MDC Power GmbH actually is expanding operations by two additional assembly halls, thereby nearly doubling its production space.

Another key Daimler operation, MDC Technology GmbH, is located in Arnstadt. This is where the Daimler Group fine-tunes its engines with the “nanoslide” procedure. Developed in-house at Mercedes-Benz, the technique optimizes cylinder surfaces by spraying metal droplets onto the inner walls of the crankcase cylinders. The resulting, ultra-thin iron layer is then worked so as to produce a smooth, finely porous surface. As a result, the friction between the pistons and the cylinder bore is reduced, as well as the rate of wearing and fuel consumption.

Therese’s wedding

07 | *The story of the Oktoberfest*

It wasn’t an easy life for this lady from Thuringia in Munich. Her husband was a devout Catholic and tried repeatedly to convert her away from her Protestant faith. The persons involved: the Thuringian Princess Therese of Sachsen-Hildburghausen and Crown Prince Ludwig of Bavaria, who had married in 1810.

Although she remained a Protestant, Queen Therese became quite popular among the Bavarian people. To this day, she is fondly remembered as a virtuous and charitable “mother” to her subjects. Theresienstrasse, the shopping boulevard named in her honor, is one of modern Munich’s poshest addresses. And each year, millions of people, tourists and natives alike, converge on Munich’s Theresienwiese (Therese’s Meadow) for the Oktoberfest – a festival marking that famous royal marriage back in 1810. While the modern Oktoberfest is notorious for its raucous revelry, the royal couple would probably not mind the “lèse majesté.” After all, the original feast on the “Wies’n” some two hundred years ago was rather exuberant as well. It all started when a noncommissioned officer had the idea of organizing a horse race outside the city gates. Not to be outdone, the local marksmen’s club announced a festive shooting competition. These combined events drew a crowd of some 30,000 people. Such huge crowds had to be supplied with food and drink – the rest is history!

The town of Hildburghausen, Therese’s home before she became Queen of Bavaria, has begun holding its own annual festival in her honor. Launched in 1990, the year of German reunification, the Theresienfest has since become one of the most popular events in Southern Thuringia.

Books, books, and more books

08 | *Logistics in the heart of Europe*

Starting in the summer of 2015, more than 7,000 bookstores in Germany, Austria, and Switzerland will be seeing their orders fulfilled from Erfurt. This is because the Stuttgart-based media wholesaler Koch, Neff & Volckmar (KNV) and one of its affiliates have chosen the Thuringian capital as the new location for the biggest media-logistics plant in Europe. Located in the north of the city, the KNV logistics center comprises some 1.3 million cubic meters of working space. To get an idea of how much this is, imagine filling Cologne Cathedral three times over with books, CDs, games, and gift merchandise! A key reason for KNV’s decision, as a Stuttgart-based company, to set up its logistics hub here is Erfurt’s central location, which allows the merchandise dispatched in all directions to reach its destination particularly quickly.

Thuringia’s logistics sector has been growing by leaps and bounds for years now. More than 500 companies are now taking advantage of the Free State’s railway network (the densest in Europe) and its five Autobahns to ship their merchandise far and wide. These companies, which together employ some 36,000 people, include DHL, DB Schenker as well as the online retailers Zalando and Redcoon. A subsidiary of Media-Saturn-Holding GmbH, Redcoon is an online electronics market offering everything from CD players and computers, household appliances and fitness devices to musical instruments.

Born in Thuringia, wanted worldwide

09 | *Eva Padberg, top model*

Perhaps the most beautiful of Thuringia's top exports, Eva Padberg was born in Bad Frankenhausen. Though she has become an internationally sought-after model, there is more to her: The 35-year-old has many other facets as well, and her calendar is chockfull of different events and projects. Besides conquering the international catwalks and being named the "Sexiest Woman in the World," the young Thuringian is also a successful moderator, author, and actress. She has a singing career to boot, recording and performing with her musician husband as "Dapayk & Padberg." Thus, far the duo has released four musical albums and numerous singles. But Eva Padberg is also known for her extensive charity work, which, among other things, takes her around the world as an ambassador for UNICEF, the United Nations' assistance fund for children.

Earning a German school diploma in Warsaw

10 | *A Thuringian curriculum at foreign schools*

Humboldt, Reuter, Willy Brandt – many German schools are named after these historic personages. Interestingly enough, not all of them are actually located in Germany. There is a German school in Canada named after Alexander von Humboldt, for instance, along with an Ernst Reuter School in Turkey and a Willy Brandt School in Poland. In all, some 141 schools worldwide offer German diplomas to their students. Add to this more than 1,100 scholastic programs and German departments at foreign educational institutions. Responsibility for managing the corresponding curricula is shared between two of Germany's federal states, Baden-Württemberg and Thuringia, in which context the German schools in the Northern Hemisphere mainly follow Thuringia's academic curricula. Thus, pupils at the Willy Brandt School in Warsaw, for example, will study the same course material as their counterparts in Thuringia. After earning their university-entrance diplomas, the graduates of these and other German schools abroad can submit their applications to any institution of higher learning in Germany.

Premium service for top athletes

11 | *Bauerfeind partners up with Deutsche Sporthilfe*

When top athletes injure themselves, the consequences can be devastating – being forced to bow out of international competitions, for example. Professional medical tools, such as the products of Bauerfeind AG, reduce this risk. Based in Zeulenroda, Bauerfeind has been a service partner of Deutsche Sporthilfe since 2013, supplying bandages, support braces, and compression socks to the 3,800 athletes sponsored by Sporthilfe. One of these is David Möller from Sonneberg, four-time world champion and Olympic silver medalist in luge racing (photo).

Floating free above the earth

12 | *The astronaut Ulf Merbold*

Ulf Merbold is a high-flying achiever – quite literally. By boarding the US space shuttle Columbia on November 28th, 1983, this native of Thuringia marked two milestones at once: Not only was he the first West German in space, but also the first non-American to participate in a space mission led by the US-American space agency NASA.

Merbold would probably never have been able to follow Sigmund Jähn into space, the cosmonaut of the German Democratic Republic, had he not decided to emigrate to the West. Born in 1941 in Greiz, Merbold originally wanted to study physics at the University of Jena, but was not allowed to do so because he was not a member of the official Communist youth organization, the Free German Youth (FDJ).

So the 19-year-old left for West Germany, embarking upon a career at the Max Planck Institute for Metals Research in Stuttgart. A passionate glider pilot, Merbold's eventual foray into zero gravity was practically due to chance: In 1977, he answered a newspaper ad for a "space-lab scientist" placed by the European Space Agency. Merbold was able to prevail against 2,000 other candidates and took part in three space flights in all. In 1992, Dr. Ulf Merbold was made an honorary citizen of Greiz. The school from which he graduated now bears his name.

A master printer for a sorcerer's apprentice

13 | *Books from Pössneck*

Formerly the printer of Russian textbooks and practically all of the books printed in East Germany, and now responsible for bestsellers by authors such as Ken Follett or German actor/comedian Hape Kerkeling – that's just the way one of the largest off-set printing operations in Europe likes it. But GGP Media in Pössneck came to fame because of a sorcerer's apprentice: It produced parts of the German-language "Harry Potter" series as well as Volume VII of the original English edition. This job required absolute secrecy, and not a single line of text was allowed to leak to eager fans waiting for the release date. And GGP Media GmbH is just as conscientious when it comes to protecting the environment, being the first European book printer to be certified by the Forest Stewardship Council (FSC) for its socially equitable and environmentally friendly production and processing of paper.

From string shopping bags to pole position

14 | *Carbon fibers for Formula 1*

Steel is so yesterday. Today's automotive, aviation, and space-exploration industries – not to mention mountain bike manufacturers and wind turbine operators – all require materials that are lightweight yet highly resistant to stress and breakage. It's a trend the EPC Group is well-poised to benefit from. Based in Rudolfstadt, the company's palette includes turnkey systems for the production of carbon fibers, which form the basis for composite materials that can withstand even the toughest conditions. Thus, carbon fibers made with EPC equipment can even be found in Formula 1 racing cars. But it is not just the spirit of innovation that enabled the company to take pole position on the global market, it is also its long-standing tradition of excellent craftsmanship. Founded back in 1935 as Thüringische Zellwolle AG, the company's engineers in Rudolstadt went on to develop the synthetic fiber that became famous as "Dederon." Omnipresent in the GDR, this material's many applications included the colorful, indestructible string bags with which East Germans did their shopping.

The sound of Erfurt

15 | *Acoustic design for the Sydney Opera House*

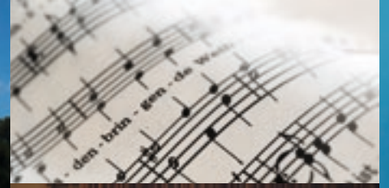
The Sydney Opera House is one of the world's most distinctive public buildings. Unfortunately, its aesthetic merits are not matched by its acoustics, for decades a source of disappointment to many opera lovers. For example, the orchestra pit is too small for works requiring a large number of instruments. A practical solution to this problem came from Erfurt in the form of IOSONO, a 3D sound system designed for cinemas and other venues. This allows the orchestra to play in an external studio and then transmit the sound into the opera house. After a performance of the opera Die Tote Stadt, the local daily The Australian enthused that "The acoustic design captures each detail in the way one would expect from a live concert." The IOSONO system was subsequently used in additional performances in Sydney and word of its quality spread, prompting the Belgian technology group Barco to acquire the company. Now doing business as Barco Audio Technologies, the acoustic engineers in Erfurt have plenty of contracts keeping them busy, such as the sound design for the attractions of the Disney Theme Park in Shanghai.

Freedom of movement for representatives

16 | *Microphones from Gefell*

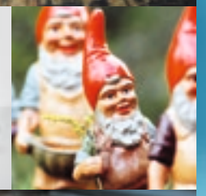
A good public speaker knows that strong messages and emotive body language are key ways to keep an audience's attention. Sound technicians, by contrast, are frustrated when a speaker starts to move around too much, since this reduces the sound quality. Microtech Gefell, a company from the Vogtland region in Thuringia, has reconciled these opposing needs. Its specially developed microphone continues to transmit a voice's volume and timbre with brilliant sound quality even when the device's distance to the speaker's mouth fluctuates frequently. Known as the Kardioid-Ebenen-Mikrofon KEM 970, this model has been used since 1998 to broadcast the debates of the Bundestag (the German Parliament).
















Living Traditions

Bad Langensalza 18 |
Jena 17 |

A sweet 1st day of school

17 | *A cone of goodies for the little ones*

It's the typical first-day-of-school photo treasured by generations of German parents: a gap-toothed smile, a proud gaze somewhere behind a paper cone full of sweets almost as tall as the child carrying it. The tradition of easing a child's transition to school life with sweets goes back a long away.

To 1817, in fact, when kids in Jena were sent off to school with paper cones brimming with cookies. At first, the custom remained confined to Thuringia and Saxony – and to these families who could afford the indulgence – but eventually spread throughout Germany during the 20th century.

A flowering legacy

18 | *Bad Langensalza, "City of Roses"*

When in Bad Langensalza, just "follow your nose" and you can't go wrong! From May to September, the sweet smell of roses wafts through the old town from a northeasterly direction, as though the houses themselves had been sprayed with rosewater. Explore further and you will find that he enticing aroma comes from an 18,000 m² municipal garden containing roughly 450 types and varieties of the Rosaceae family of plants – i. e. roses in all colors and sizes.
This magnificent "Rose Garden" is the living expression of a tradition reaching back to 1870, when gardeners in the village of Ufhoven (today part of Bad Langensalza) began to cultivate roses for sale. Later, some of these families decided they did not only want to grow and cultivate the "Queen of the Flowers," they wanted to breed completely new varieties of their own. Thus, between 1950 and 1990, no fewer than 91 new varieties were created in Bad Langensalza. The most famous of these industrious rose cultivators was Anni Berger, whose bust can still be seen in the Rose Garden.
Since 2002, Bad Langensalza has proudly borne the title of "City of Roses" awarded by the German Rose Lovers' Association (Verein Deutscher Rosenfreunde e. V.). A Rose Museum at the entrance of the garden showcases the town's past rose-breeding achievements.

From Dixi to Opel

19 | *Cars “made in Eisenach”*

Daimler, Benz, and Opel – names commonly associated with the early history of the automobile. A fourth important name is familiar only to a few, however: Heinrich Ehrhardt, the industrial magnate who founded Fahrzeugfabrik Eisenach AG in 1896, a factory that turned out mainly bicycles and military vehicles. By 1898, the plant had already produced its first passenger vehicle, the Wartburg-Motorwagen.

This made Heinrich Ehrhardt the third automotive manufacturer in Germany after Gottlieb Daimler and Carl Benz. Fourth to join the list was Opel, shortly before the turn of the century. Fans of vintage vehicles are particularly enthusiastic about one of the models produced in Eisenach: the “Dixi” (photo). This car remained in production from 1904 until 1929, when BMW took over the Eisenach plant.

The “Wartburg” model is also well-known, but for different reasons: together with the “Trabant”, it was a common sight on the streets of Communist East Germany (GDR). Since 1990, it is Adam Opel AG’s turn to make cars in Eisenach. In 1996, UK economic analysts selected the Opel plant as the most productive automotive manufacturing location in Europe.

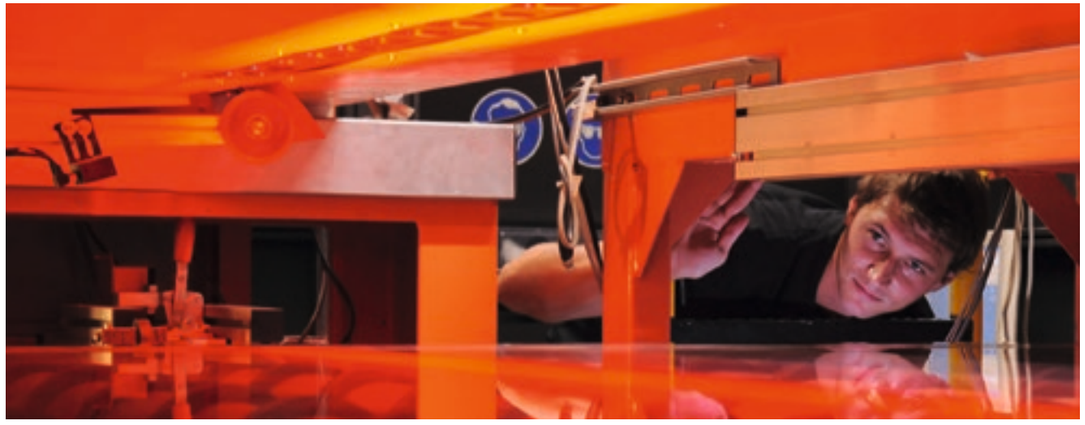
Urban mobility

20 | *The Opel Adam*

The name is so obvious, it is truly surprising that it has actually never been used before for a car: “Adam” is the new model with which Opel, the Eisenach-based automotive giant, has been reconquering the road since 2013. The name of course refers to the man who first founded Adam Opel AG more than a hundred years ago. With a length of just under 3.70 meters, the Adam will be marketed primarily to city dwellers. A particularly clever feature is an integrated bicycle rack at the rear of the car, which allows contemporary urbanites to combine two modes of transport: they can park wherever they find sufficient space, and then switch to the bike to reach their final destination.

High-tech made of glass

21 | *Otto Schott in Jena*



Pioneering spirit is something that Jena embodies as perhaps no other German city. After all, this is the place that practically invented the optical technology sector, and modern glass technology along with it. Today, this city on the Saale River is aptly known as “Optical Valley,” thanks to its status as a global center for optics and photonics.

One of the names indelibly linked with this scientific tradition is that of glass chemist Otto Schott, who was born in 1851 in the Ruhr Valley. While still working in his father’s basement laboratory, young Otto had already discovered lithium glass, a completely new variety that was to prove key to the development of glasses with totally novel optical characteristics. The young inventor soon took up a scientific correspondence with Professor Ernst Abbe, a famous physicist and partner in the company founded by Carl Zeiss (see. No. 23). Impressed, Abbe brought Schott to Jena. In 1884, the two men partnered up with Carl Zeiss to establish the company called Glastech-nisches Laboratorium Schott & Genossen, later to become Jenaer Glaswerk Schott & Gen. Here, Otto Schott came up with a truly special product: “Jena glass”. Made of borosilicate, this product had a very low expansion coefficient, was chemically resistant and particularly heat-proof. The company’s commercial breakthrough eventually came with the production of lighting glass for gas and petroleum lamps. The specialized glass products made by the Jena-based company Schott are in demand to this day, e. g. as Ceran® glass-ceramic stovetop panels. Their myriad applications include fire safety, optics, medical technology, automotive glass, electronics, and transport technology.

Good choice, Dr. House!

22 | *Walking canes made in Lindewerra*

Carbon fiber or wood? It’s a question that prompts lively online debate among hiking enthusiasts. True, modern telescopic walking poles have nearly crowded traditional oak or chestnut varieties from the market. But artfully crafted, hand-turned canes still have their aficionados. And what better place to buy them than in Lindewerra, a town in the Eichsfeld region that boasts a long tradition as a “cane-makers’ village.” This niche handicraft was introduced by Wilhelm Ludwig Wagner in 1836, and by 1900 practically every family in town was turning out walking sticks for a living. Today, two workshops are left, whose products are purchased by customers around the world. Take Dr. House of the eponymous TV series: Some of the canes he can be seen carrying come from the workshop of Michael Geyer, who carries on the family tradition in the fifth generation.

Masters of innovation

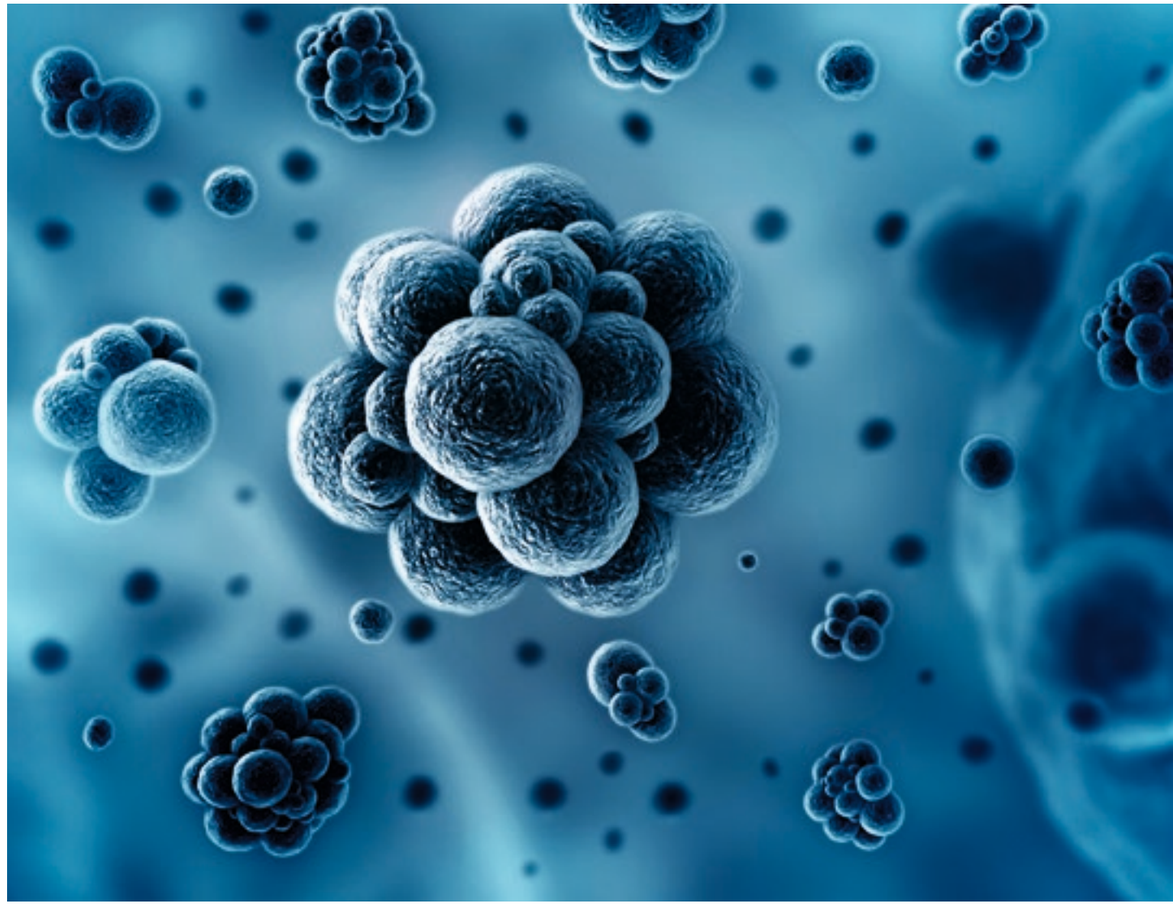
23 | *Carl Zeiss and Ernst Abbe*

In 1846, master mechanic Carl Zeiss began building simple microscopes in his Jena workshop. But this native of Weimar soon realized that the methods of manufacturing such instruments had to be improved. He convinced Professor Ernst Abbe, a well-known mathematician and physicist, to research new solutions for him. This fruitful partnership eventually gave Zeiss the breakthrough he was looking for. By 1872, Carl Zeiss AG was producing microscopes calibrated on the basis of precise scientific calculations, ones that stood head and shoulders above the competition. This allowed the company to establish a reputation for quality that endures to this day. Starting in the late 1880s, Abbe and his engineers expanded the range of products on offer, e. g. with optical measuring devices and binoculars. In 1890, the Jena-based company had introduced the first distortion-free imaging lens. The headquarters of Carl Zeiss AG is currently located in Oberkochen in the Land of Baden-Württemberg, but a number of the company's operations are still in Jena: the medical technology, microscopy, and planetarium segments, as well as part of the semi-conductor segment. Thus, Jena continues to originate globally bestselling products such as the IOL Master, a system for the contact-free measurement of the ocular lens.

Viruses under the microscope

24 | *Nanoscopy in Jena*

"Microscopic" is the term we use for objects that are too small to see with the naked eye. But while everyday parlance is stuck on the microscopic level, scientists are already working in the "nanoscopic" domain. Together with the Friedrich Schiller University's Institute for Physical Chemistry, the Leibniz Institute of Photonic Technology (IPHT) in Jena has developed a technique that makes details visible on the scale of two nanometers, in other words two millionths of a millimeter! Thus, so-called "Tip-Enhanced Raman Spectroscopy" (TERS) gives us a window into the world of viruses, proteins and DNA. The Jena-based researchers intend to further enhance the technique to see whether it might serve in pathological research, for example.



Weimar 26 |
Lauscha 25 |

Necessity is the mother of invention

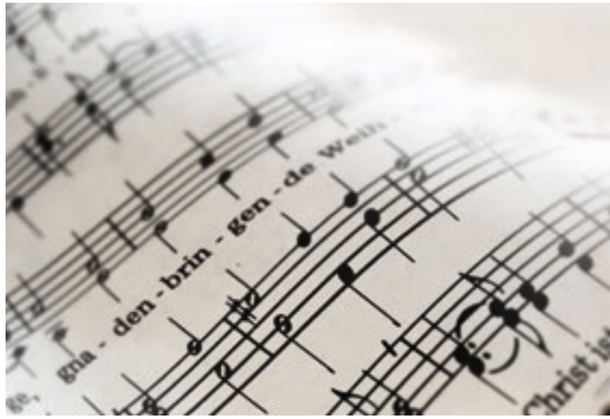
25 | *Christmas tree ornaments from Lauscha*

A small town near the southern end of Thuringia's Rennsteig ridge, Lauscha is best known as the birthplace of the Christmas tree ornament. According to local legend, the glassblowers of Lauscha were too poor to decorate their Christmas trees with apples or nuts, so they made glass copies of these fruits to use instead. The historical record first mentions these Christmas tree ornaments in the year 1847, but it took another 20 years before the technical preconditions were in place to mass produce such large, thin-walled glass ornaments. As it happened, the industry received a big boost from the US: around 1880, F. W. Woolworth became aware of these beautiful baubles and began importing them for sale at his flagship department store in Pennsylvania. The price: a hefty 25 dollars. By 1900, Woolworth's had expanded into a chain of stores, and the glittering globes, angels, Santas, stars, and 5,000 other glass shapes had conquered the world! The museum for glass arts (Museum für Glaskunst) in Lauscha documents this period of Thuringia's history, while also educating visitors about how the art of glass-blowing has evolved in the region since early modern times. The first glass-smelting workshop in Lauscha was founded more than four centuries ago, in 1597.

Good cheer in the face of grief

26 | *A classic Christmas carol and its story*

Patrons of German Christmas markets will hear the carol "O du fröhliche" played over and over again. But who would suspect that this ditty has a very serious history? The text of the first verse was written by Johannes Daniel Falk, a Weimar-based author and educator. Falk had lost four of his seven children in a matter of months while the Napoleonic Wars were raging through Germany. This moved him to found the "Society of Friends in Need", a charity that took in children and youngsters orphaned and homeless due to the war. In 1816, Falk composed the text for "O du fröhliche, o du selige, gnadenbringende Weihnachtszeit" ("O you merry, o you blessed, merciful Christmastide") for his young charges to sing, setting it to a Sicilian fisherman's song. One of his associates later added another two verses. Falk's was no ordinary orphanage by the way; its educational program became a model for today's youth-oriented social work.



A gigantic success

27 | *Dwarves from Gräfenroda*

Some love garden dwarves, others can't stand them – it's a long-running clash of aesthetics that even plays a role in Goethe's 18th century poem "Hermann and Dorothea." But it wasn't until the Leipzig Trade Fair of 1884, some ninety years later, that dwarves really hit it big – a terracotta workshop from Gräfenroda introduced garden dwarves that anyone could afford.

While stone statues of the diminutive mythical creatures had graced the gardens only of the wealthy during the baroque period, now August Heissner and Philipp Griebel had come up with the bright idea of mass-producing the dwarves out of clay. Thus, their factory on the edge of the Thuringian Forest became known as the "cradle of garden dwarves." By the end of the 19th century, no less than 15 terracotta works in Gräfen-roda were working to fill the growing worldwide demand for the figurines. Originally referred to as "Gnömchen" (little gnomes), they eventually became known as "garden dwarves" around 1930, when blue-collar workers began placing them in their allotment gardens.

The white-bearded little men in their red caps are still being turned out by the workshop of Phillip Griebel, who bears the same name as the ancestor who founded the business. If you're a hardcore dwarf fanatic, you won't want to miss Mr. Griebel's "dwarf museum".

Cocktail culture meets distilling tradition

28 | *Nordhäuser is here to stay*

It Italy has its grappa and Greece its ouzo, and Thuringia has "Korn" from Nordhausen, a schnapps distilled from rye. This famous Thuringian spirit first appears in the historical record in 1507, with a reference to "fiery water" by the Nordhausen town scribe. Today, the Echter Nordhäuser brand keeps the ancient tradition alive. To ensure that it stays that way, Germany's favorite rye spirit will have to change with the times – at least according to Peter O. Claussen, Head of Marketing at Rotkäppchen-Mumm Sektkellereien GmbH, which produces Echter Nordhäuser:

Mr. Claussen, in the old days the average German's favorite way to top off a Sunday roast was a tumbler of rye spirit. How does the future for Echter Nordhäuser look today, when a German's lunch might well consist of Indian curry washed down with a glass of Italian grappa?"

Peter Claussen: "Consumers change their habits over time. All we have to do is get them to take Korn along for the ride. Echter Nordhäuser is a premium alcoholic beverage; it's still an old standby in traditional settings, but can also be enjoyed as a modern party drink. Mixed drinks are becoming more popular, especially among young people, and we've taken note of that. Which is why we advertise our Echter Nordhäuser Doppelkorn as a cocktail drink, for example. Just try a Korn Pirinha; you'll be hooked!

How successful is this strategy?

Our sales figures speak a clear language and they show Echter Nordhäuser making real headway in Germany. But an experience I had in a supermarket really convinced me. These two young women were standing in the alcoholic beverages section, debating on whether to mix their lemonade with vodka or rye schnapps, and one of them said, "Definitely Korn. Vodka tastes of nothing." And with that, they grabbed a bottle of Nordhäuser Doppelkorn.

Do you risk scaring away loyal customers by targeting a new demographic?

Far from it. When we updated the look of our bottles and labels, for instance, we got lots of positive feedback from our older customers as well. The gist of their comments: Finally, a bottle of Echter Nordhäuser looks as classy on the outside as it tastes on the inside!

Mühlhausen 30 |
Sonneberg 29 |

Puppets as a cultural treasure

29 | *Sonneberg's toy museum*

The setting is a small German town in the early 1900s celebrating its annual Kirmes fun fair. A traveling circus has just arrived. The colorful troupe rides in amongst the half-timbered houses, led by a female performer in a bright blue dress, and halts in the middle of the town square, near a carousel and shooting gallery. Actually, this make-believe "Thuringian Carnival Scene" consists of 67 almost life-sized dolls painstakingly created by master craftsmen. The ensemble was presented at the 1910 World's Fair in Brussels as an example of the quality toys made in Sonnenberg – and was awarded the grand prize.

You can still see this valuable set piece at the German Toy Museum in Sonneberg, which has the oldest collection of toys in the country. Additional treasures include Thuringian porcelain dolls and early Käthe Kruse dolls; 18th and 19th century wooden toys from Sonneberg, the Harz Mountains and the Alps; a small but priceless toy set from ancient Egypt; playthings from classical Greece and Rome; plus a toy diorama showing "Gulliver in Lilliput". The collection would of course be incomplete without the teddy bear or the model train, which are also well represented.

"For we are all neighbors, here in this town"

30 | *The Mühlhausen legal code*

The dark Middle Ages – that's too simplistic. The 13th century, for example, was a time of cultural awakening, of economic and social progress. Just take the legal codes which local potentates established in their fiefdoms during this period: They were in the German vernacular, rather than in scholarly Latin, and binding for all, regardless of station. But the increasingly prosperous, self-governing free towns of the Holy Roman Empire also codified their laws to benefit their citizens. It was Mühlhausen on the river Unstrut, one of the Empire's centers, that spearheaded this development.

The first town charter in the German language was promulgated in Mühlhausen between 1220 and 1250. Its 49 chapters govern many aspects of communal life in the town. How was a murderer to be punished? What should a woman do to bring charges against a rapist? How long was the probation period for newcomers before they could acquire citizenship? Even the crime of trespassing was covered: "Every man here in Mühlhausen shall be entitled to enjoy peace and quiet in his home. If anyone should attack him there with unjust violence, by day or by night, he shall answer for it with his neck."

The Mühlhausen City Archive contains treasures of national importance, including roughly 3,800 files dating from the period between 1139 and 1800 and 2.5 km of historic records and documents. Among them is one of the two surviving transcriptions of the famous Mühlhausen town charter, the influence of which extended far beyond the city's fortified walls. In fact, historians believe that this charter helped shape German legal practice, from Eschwege in Hesse all the way to the southern fringe of the Harz Mountains.

Succulent grilled sausage
31 | *The Thuringian bratwurst*

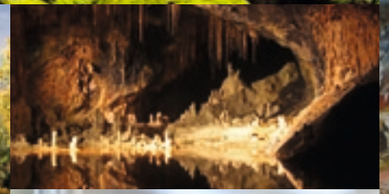
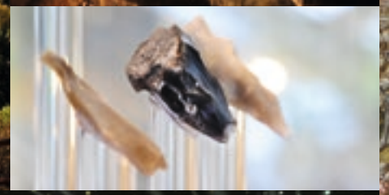
According to an EU regulation, a Thuringian bratwurst must be at least 15 cm long and medium-fine in texture, and may be raw or parboiled. Since 2004, moreover, the venerable sausage's name of origin ("Thuringian") is also protected by statute, according to which at least 51 percent of the ingredients must come from Thuringia. The oldest known reference to this satisfying fast-food staple is an entry in the housekeeping accounts of the Jungfrauenkloster (Convent of the Virgins) in Arnstadt which records: 1 gr vor darme czu brotwurstin (1 penny spent on bratwurst casings). If you want to see the "best of the wurst," just pay a visit to Holzhausen, where you'll find the first German museum dedicated to the humble bratwurst.

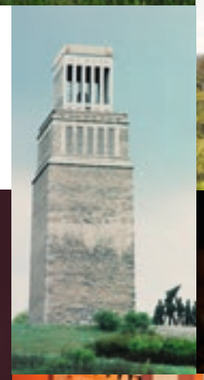
An ancient cloister gets a modern makeover
32 | *Volkenroda and the Christ Pavilion*

Though the village of Volkenroda near Mühlhausen has less than 200 inhabitants, it is still visited by tens of thousands each year. What they come to see is a spectacular synergy of medieval and contemporary architecture, of past and present: Germany's oldest surviving Cistercian monastery church. Lovingly restored, the compound's half-timbered houses now serve as a guest house, a youth training center, and a conference building, respectively. This quaint ensemble is juxtaposed with a decidedly modern structure: a church in the shape of a giant, light-flooded cube. Known as the "Christ Pavilion," this eye-catching structure was designed by star architect Meinhard von Gerkan for the international EXPO 2000 trade fair in Hanover and has since been given a permanent home in Volkenroda



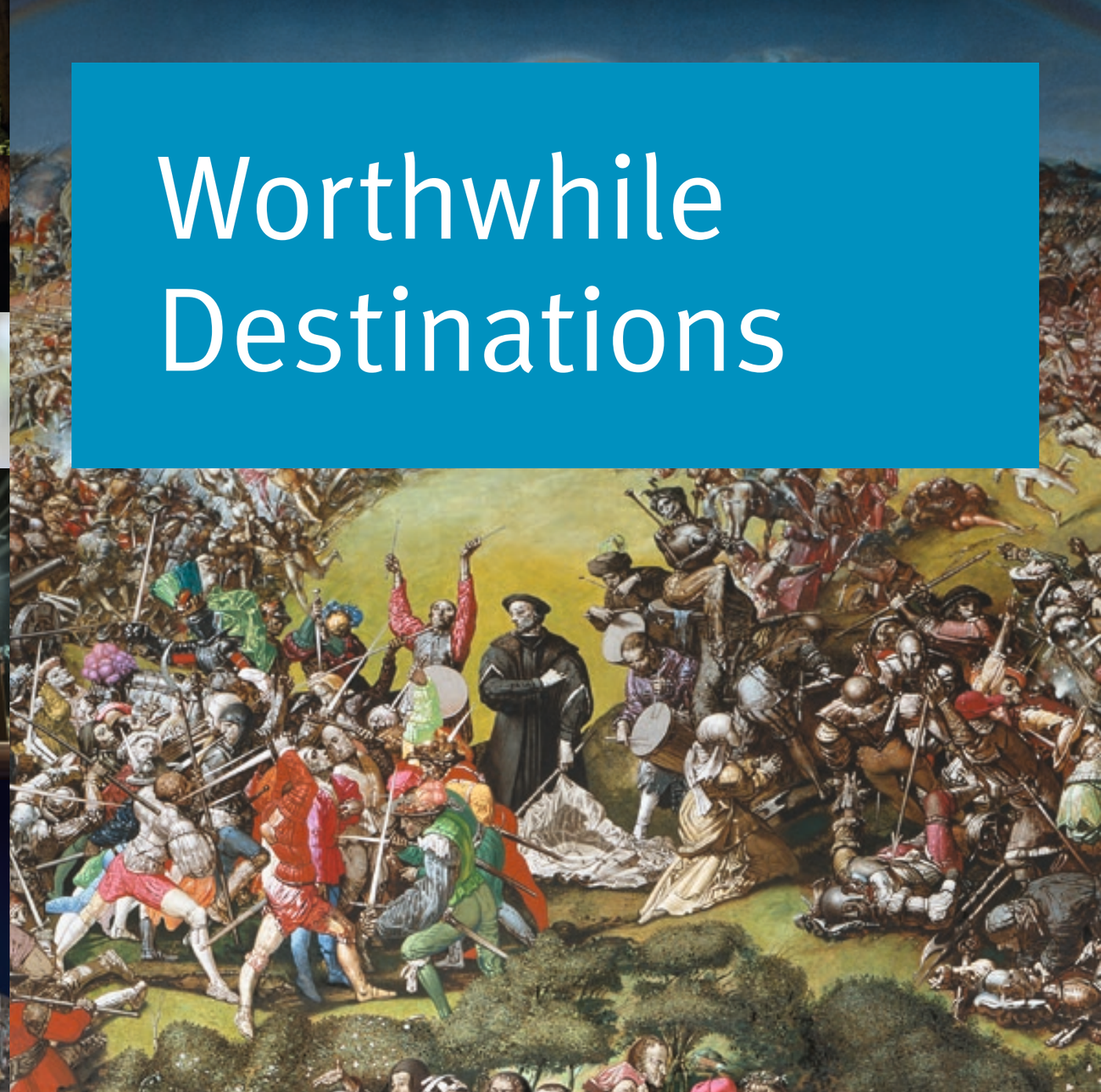








Worthwhile Destinations

One painting, 1,700 square meters of history

33 | *Tübke's panorama of the Peasants' War*

You enter the exhibition and suddenly feel quite small, as you find yourself surrounded by a monumental panoramic painting stretching over 123 meters of canvas. This is Werner Tübke's panorama of the Peasants' War, a fascinating, like-life glimpse into Germany's Age of Reformation, an epoch marked by Humanist scholarship as well as the bloody conflict of the Peasants' War. Each of the roughly 3,000 figures populating the panorama, including Martin Luther and peasant leader Thomas Müntzer, has been given an unmistakable personality and a colorful, historically accurate costume. The government of the German Democratic Republic had a special building complex built to house Tübke's work: the Panorama Museum in Bad Frankenhausen. This location was chosen for having been the site of the decisive battle of the hard-fought Peasants' War (on May 25th, 1525).

Jena's 8th wonder of the world

34 | *The Zeiss Planetarium*

The city of Jena can lay claim to the world's oldest planetarium still in operation. With a dome 23 meters in diameter, the building was touted as "Jena's latest wonder" during its inauguration in 1926. (This was an allusion to the "seven wonders of Jena" cele-brated in a Latin rhyme from the early modern period.) The Zeiss Planetarium has since been designated a listed historical monument and has retained its original exterior. The interior, meanwhile, has been upgraded with high-tech planetarium equipment made in Jena and Ilmenau. Here, visitors are given a stunning visual tour of outer space, in which the heavenly bodies are project-ed against the 800 m2 inner surface of the planetarium dome. Carl Zeiss AG's top-of-the-line "Universarium" projector boasts glass-fiber lenses that recreate the stars' particularly bright glow. The "Powerdome" system, also by Carl Zeiss, uses eight custom-made "Velvet" projectors to create a star map that incorporates astronomic features such as gas clouds and galaxies, while playing film sequences across the entire cupola surface. Thanks to a 3D hifi system made by the Fraunhofer Institute in Ilmenau, the Zeiss Planetarium in Jena offers visitors a sound experience practically unique in the world. These days, it bears noting that Jena Planetarium is also a small miracle in terms of energy efficiency, since its new projectors consume only a third of the power required by older models.

Poking fun at the powers that be

35 | *The Satiricum in Greiz*

In the former German Democratic Republic, the town of Greiz got away with something the ruling Commu-nist Party (SED) would never have allowed in the country's urban centers of East Berlin, Leipzig, or Dresden: a permanent exhibit of domestic political cartoons and caricatures, whose levels of satire range from sly to brazen. Opened in 1975 in the town's baroque Summer Palace, the so-called "Satiricum" also boasts caricatures by famous artists such Hogarth, Chodowiecki, Gillray, or Daumier, many of which were compiled by the Princes of Reuss. Also represented are works from the Weimar period and from the reunified Federal Republic of Germany.

Where legend blurs into history

36 | *The mythical Wartburg castle*

Practically no other castle is so closely linked to German history. First mentioned in 1080, the hilltop fortress had become a center of high medieval court culture by the year 1200. This is where Wolfram von Eschenbach, Walther von der Vogelweide and other celebrated minstrels of the day (Minnesänger) are said to have held their legendary singing contest. Another famous chapter in the Wartburg's history involves the legendary Elizabeth of Hungary. In fulfillment of a prophecy that a Hungarian princess would marry the son of the local landgrave, Elizabeth was brought to the Wartburg as a child and, in 1221, was married off to Ludwig IV at the age of fourteen. Elizabeth eventually became famous for her virtuous life and charitable deeds. According to legend, Landgrave Ludwig once caught his wife in the act of distributing supplies from the castle storehouse to the poor. Elizabeth tried to assuage him by claiming that her basket contained only roses. As Ludwig opened the basket to check, the bread inside had turned into roses! Just four years after her death, Elizabeth of Hungary was beatified as a saint by the Catholic Church. The Wartburg, meanwhile, continued to be a backdrop for historic events. From 1521 to 1522, Martin Luther hid there from his enemies under the protection of the local duke. During his stay, he accomplished the monumental task of translating the New Testament into German.

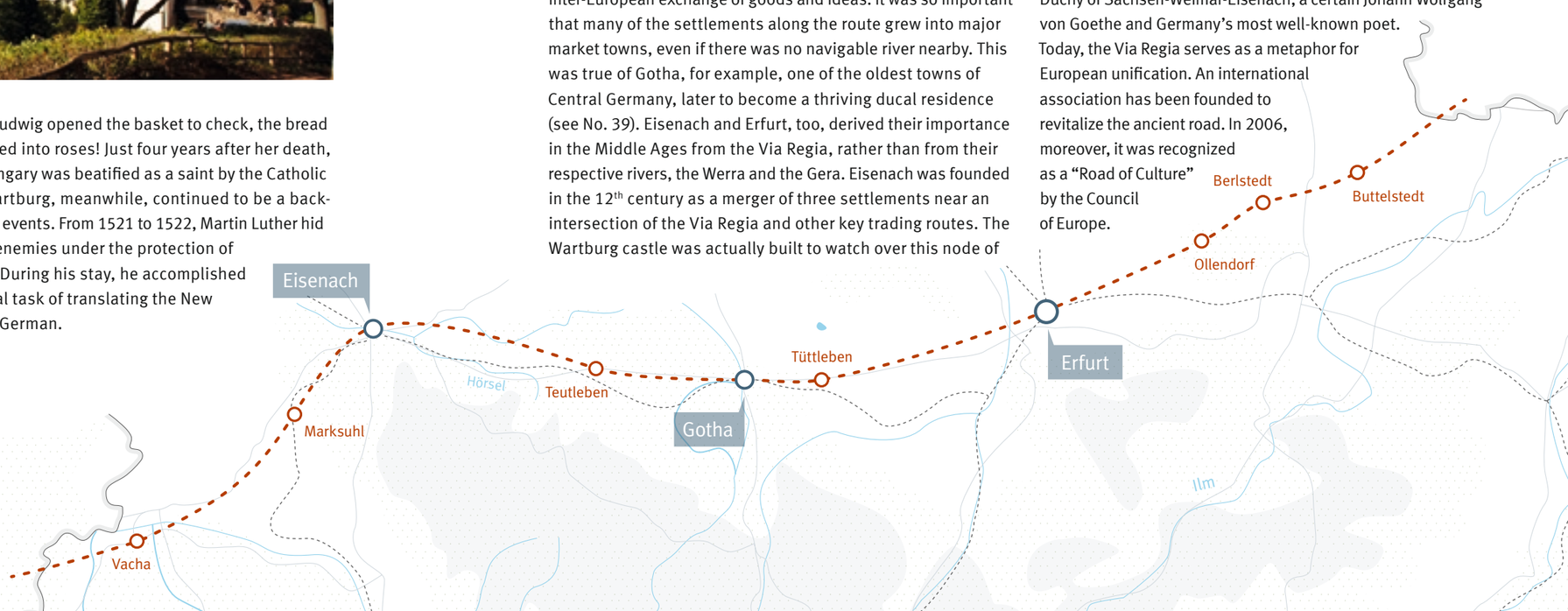
A crossroads from time immemorial

37 | *Thuringia and the Via Regia*

Each day, more than 100,000 vehicles pass through the Hermsdorfer Kreuz interchange. But Thuringia was already a transit hub in the heart of Europe long before the first autobahn was ever built. Consider that the A4 follows just about the same ancient route known as the Royal Highway. Extending from Kiev to Santiago de Compostela, or roughly 4,500 km, this was Europe's oldest east-west trading route. While much of it is no longer passable to vehicles, the Via Regia is still a distinctive topographical feature spanning eight countries.

Throughout history, the Via Regia has played a key role in the inter-European exchange of goods and ideas. It was so important that many of the settlements along the route grew into major market towns, even if there was no navigable river nearby. This was true of Gotha, for example, one of the oldest towns of Central Germany, later to become a thriving ducal residence (see No. 39). Eisenach and Erfurt, too, derived their importance in the Middle Ages from the Via Regia, rather than from their respective rivers, the Werra and the Gera. Eisenach was founded in the 12th century as a merger of three settlements near an intersection of the Via Regia and other key trading routes. The Wartburg castle was actually built to watch over this node of routes (see No. 36). In Erfurt, the Via Regia crossed the routes to Nuremberg and Bohemia. Which is why the famous Krämerbrücke, a covered bridge with merchant stalls, was located close by (see No. 40).

Beyond Erfurt, the Royal Highway turned north in the direction of Leipzig, crossing right through the town of Buttelstedt, which became a booming market town. This was in sharp contrast to Weimar, Apolda, and Jena, which were not linked up to the ancient road network of the Via Regia until the 19th century. The man responsible for the work was the Road Inspector for the Duchy of Sachsen-Weimar-Eisenach, a certain Johann Wolfgang von Goethe and Germany's most well-known poet. Today, the Via Regia serves as a metaphor for European unification. An international association has been founded to revitalize the ancient road. In 2006, moreover, it was recognized as a "Road of Culture" by the Council of Europe.



The challenge of being neighbors

38 | *Weimar and Buchenwald Memorial*

Nowhere in the world can two eras – one filled with light and the other the darkest epoch of a nation's history – be seen colliding like in Weimar, Professor Volkhard Knigge posits. The director of the Buchenwald and Mittelbau-Dora Memorials Foundation regards Germany's culture of commemoration to include more than only the locations that saw the Age of Enlightenment in Europe reach its pinnacle around 1800 (see numbers 67, 70, 82 of this book). The former concentration camp located on Ettersberg hill is just as meaningful a place of education, he feels.

Professor Knigge, why should people coming to Weimar also plan to visit Buchenwald?
To this very day, the fact that Weimar – once the center of German Classicism – and Buchenwald are so close geographically is still a shock to people. In fact, it was in Weimar particularly that National Socialism had many supporters. As a result, the two venues of Weimar and Buchenwald are places where visitors can find out in a very specific and concrete way why and how the war and its crimes came about.

Is this not something that is better addressed in schools and in parliaments?
Obviously, those are the right places for this discussion as well. But the authentic place with its historical traces, its collections and exhibitions promotes our process of coming to terms with questions like 'How does hostility towards other people come about in political terms and how does it gain ground in society?' 'What are its consequences?' 'How can people resist such developments?' And there are other topics that come up as well, such as how to serve justice in dealing with a history of crime. After all, Buchenwald continued to be used after 1945 as what was called "Soviet Special Camp No. 2," and became the first national memorial of the GDR in 1958.

Many of your fellow historians are not so sure we can truly learn from history.
What is true is that history will not just hand over a formula indicating how we should act today, in our modern times. But facing the anti-humanitarian past does make a decisive contribution towards understanding what you had better not do, be this as an individual or a group, in order to ensure that societies do not lose their humanity. Destroying humanity is quickly achieved, while bringing it back into a society and nurturing it is very difficult. This is where the memorial's potential to give orientation lies, and where it is relevant for the future: Those who are familiar with the poisons of the past no longer can be fast-talked into using them as a cure.

Italian baroque in Gotha

39 | *The Ekhof Theater*

In the 17 th century, Italy and France vied for primacy in the realm of theater. But anyone wishing to experience the artistic heights that musical comedy, opera, and drama attained in the Baroque era can do so right here in Germany, by visiting the Friedenstein Palace in Gotha. Its West Tower houses a beautiful Baroque theater whose manually operated, wooden set machinery is the oldest, still working system of its kind in the world. Duke Friedrich I of Sachsen-Gotha-Altenburg had this little jewel built between 1681 and 1687, and went to great expense to install a series of elaborate background sets in the Italian style – with all the fancy detail and decor in vogue at the time. Thus, 18 carts located under the stage were used to roll entire landscapes in and out, while an ingenious system of main shafts and pulleys allowed several backdrops to be moved at once with minimal noise.
The theater reached its apogee during the second half of the 18th century, when Duke Ernst II hired a permanent acting ensemble – a first for any German court. In 1775, the artistic direction was entrusted to one of the best known actors of the day, Conrad Ekhof, after whom the baroque theater is still named. Each summer, the theater's Ekhof Festival features a program of opera performances, readings, and concerts.

Living in a listed monument

40 | *Erfurt's Krämerbrücke (Merchants' Bridge)*

It is lucky that Erfurt was in financial straits in the late 19th century, otherwise the city might have pulled down the only house-covered bridge north of the Alps. Known as the Bridge of Sundry Goods (pons rerum venalium), this unique structure was first mentioned back in 1156. Today, the ensemble of half-timbered houses has become one of the most distinctive landmarks of Thuringia. Yet the covered bridge is more than just a popular tourist site: It continues to be the place where shopkeepers and artisans ply their trade. Its current tenants include a bookseller, a puppet maker, a wood carver, and a landscape designer selling chocolate: Dirk Fromberger became a resident of the bridge in 1999 after joining the Goldhelm chocolate manufactory.

Mr. Fromberger, what's it like living in a listed monument?
Definitely something special. And not just because of features like the massive, hand-carved door to my living room. This type of timber-frame building always has surprises in store. It was only during restoration work, for example, that the house was found to date from the early 15th century, far earlier than originally assumed. The late-baroque plaster ceiling also has tales to tell: The restoration removed no less than 26 coats of paint! Of course, there are also features that other folks might find hard to get used to.

Which features, exactly?
In the winter, the doors get stuck, the boards creak like in a museum of local history, and when I get up from my desk, my chair rolls to the other end of the room. The floor under my bed has a full six-centimeter slope. But I don't mind. My apartment and the special atmosphere of the Krämerbrücke are part of the reason I still live in Erfurt.

What do you mean by "special atmosphere"?
The Krämerbrücke is not a tourist trap where mobs hunt for trinkets by day and everything shuts down after dark. No, our stores and restaurants are a place where visitors and natives mingle, often late into the night. What's more, we tenants form a tight-knit community. If it weren't for that, I would probably be working in my original profession in some other town. I was originally a landscape designer, but a few years ago a neighbor offered me the opportunity to help out at his shop on the bridge – he's the founder of Goldhelm chocolate factory. Since then, I've become Deputy Director of the operation and travel as far as Vietnam to test the quality of our cocoa beans. So it's no exaggeration to say that the Krämerbrücke has changed my life.

Gold, silver, and the “Black Death”

41 | *The treasure of Erfurt*

Erfurt 1349: Armed townspeople rampage through the town’s Jewish Quarter, torching the houses and killing everyone. “The Jews,” according to the mob’s fatal misjudgment, “have brought the bubonic plague upon us.” In 1998, almost 650 years later, construction workers digging near Erfurt’s Old Synagogue discovered a treasure hidden under an old cellar stairway: 3,000 French silver coins, a number of silver ingots, and more than 700 pieces of jewelry made by goldsmiths of the Gothic era, including an exquisite gold wedding band from the early 14th century. Historians surmise that well-to-do Jewish citizens must have hidden these valuables before the pogrom. The find was sensational, for while Gothic treasures have been preserved in churches and monasteries, very little jewelry or artwork from wealthy private households survives, so that most of what scholars know about these artifacts comes from historical accounts. Given its art-historical significance, the “treasure of Erfurt” has been exhibited in Paris, London and New York. Today, it is housed permanently in the museum of the Old Synagogue.

Pomp, piety and a grand staircase

42 | *Erfurt’s Cathedral Hill*

As Erfurters say, “When you hear the ‘Gloriosa’ ringing, you know it’s a holiday!” This sentence is true both literally and figuratively: the largest free-swinging bell in the world to survive from the Middle Ages, the Gloriosa hanging in the middle tower of Erfurt Cathedral is rung only on special occasions. And the sound of its deep “E” note is considered so unique that many people mark their calendars so as not to miss the eight times a year the famous bell resounds. Visitors approaching Erfurt’s cathedral are struck by the harmonious visual ensemble created by its various structures: St. Marien Cathedral, the parish church of St. Severi, and the imposing staircase with its 70 steps. Together, they form the city’s main landmark. The grandeur of St. Marien Cathedral, with its richly decorated façade, testifies to Erfurt’s status as a medieval trading center. Its treasures include the Wolframleuchter, a bronze, man-shaped candelabra from the 12 th century; the stained glass in the 19m-high choir windows, made between 1370 and 1420; the choir stalls, among the finest and best-preserved from the 14th century; the magnificent high altar from 1697, a token of the enduring importance of Catholicism even in the region that gave birth to Luther’s Reformation.

A riot of color deep beneath the earth

43 | *The Fairy Caves in Saalfeld*

“If these caves were located in the United States, and not in Germany, they would be an international tourist mecca by now.” This quote does not stem from a current travel guide, but from naturalist Ernst Haeckel, who visited the caves in 1914, when they were first opened to the public. From 1530 to 1850, the caves had been used as an alum-shale mine.

Centuries of mining activity combined with natural processes have given the Saalfeld Caves their unique beauty. Even while miners were still at work in the subterranean shafts, the first stalactites and stalagmites were forming. Within a few centuries, they had become the most colorful dripstone formations anywhere in the world – a natural wonder recognized with a Guinness Book of World Records entry in 1993. The caves’ roughly 100 color tones (including blues, greens, yellows, reds, and numerous shades of brown) are produced by the 45 minerals found in the rock.

Many of the glittering dripstones seem almost as thin as long strands of women’s hair. This is what inspired a certain geologist to come up with the name “Feengrotten.” The same geologist named the most famous rock formations to be seen in the cave, the “Fairy Tale Cathedral” and the “Castle of the Grail.”

Where wild cats prowl

44 | *Hainich National Park: a UNESCO World Heritage Site*

Located between Eisenach, Mühlhausen and Bad Langensalza is the biggest contiguous expanse of broad-leaved woodland in Germany, the Hainich forest, almost half of whose 16,000 hectares are located in the Hainich National Park. This is an area almost completely pristine; in other words, a primeval forest. Thanks to its huge stands of beeches, the Hainich National Park has been designated a World Natural Heritage Site by UNESCO, a distinction it shares with special places like Yellowstone National Park and the Galapagos Islands. Besides the beech, the Hainich National Park also features other broad-leaved trees such as the ash, the maple, the lime, and the service tree, a rarity. The Hainich's fauna is just as diverse, comprising wild cats, pine martens, 15 species of forest bats, as well as beetles previously considered extinct. A special walkway has been installed at tree-top level, so that visitors can explore even the more hard-to-access areas of this primeval forest.

Barbecued rhinoceros

45 | *Prehistoric finds at the Steinrinne quarry*

Currently represented by a world population of seven billion people, Homo Sapiens is the sole survivor of what only a few ten thousand years ago was a whole family of humanoid species. One of these was our “cousin” Homo Erectus, whose traces can still be found at Bilzingsleben, in a former quarry known as the “Steinrinne.” What makes this place a veritable magnet for Paleontologists is the age and completeness of the prehistoric finds that have been unearthed here, including fossils and tools dating back some 400,000 years. Even remnants of our Paleolithic ancestors’ meals have been found – rhino bones, for example!

Kyffhäuser 46 |
Bilzingsleben 45 |

Where orchids and legends bloom

46 | *Nature and history on Kyffhäuser ridge*

Cliffs and caves, marshes and fallow grasslands, forests and meadows with scattered fruit trees – these are the characteristic features of Kyffhäuser National Park. Thirty different varieties of orchids bloom along this ridge of hills, a paradise for hikers and bikers. In the fall, thousands of cranes stop here on their way to southern climes. To the non-locals, the Kyffhäuser ridge is best known for Barbarossa’s Cave near Rottleben. The bizarre rock formations in this giant grotto, which never fail to amaze visitors, have inspired a famous legend: this is supposedly where medieval Emperor Friedrich I, aka “Barbarossa,” sits on his rock-hewn throne, sunk in immortal sleep. One day, when the German lands are in danger, he will wake and come to the rescue, ushering in a glorious new age and defeating the forces of evil in a climactic battle. This hoary legend has been retold many times in literature. Thus, the poet Heinrich Heine imagined himself face-to-face with the yearned-for Barbarossa in his verse narrative “Germany, A Winter’s Tale”. Other rulers to leave their mark on the region besides Barbarossa were Kaiser Wilhelm I and the Princes of Schwarzburg-Sondershausen, whose family seat, the Reichsburg castle, is perched atop the Kyffhäuser ridge. This is also the site of the imposing, 81-meter-high Kyffhäuser Monument, with two giant statues: Kaiser Wilhelm I astride his charger and Barbarossa on his throne.

A triumph of wit and love of detail

47 | *“Rococo in miniature” in Rudolstadt*

When things get boring, kids like to escape into a fantasy world of their own making. That’s exactly what Gerhard Bätz and Manfred Kiedorf did in the 1950s – except they’re still indulg-ing in their world of make-believe to this day. Welcome to the rococo-era kingdoms of Dyonia and Pelaria, separated by the River Dempa – an imaginary world made entirely of paper maché, plaster, and wood, inhabited by thousands of hand-made figurines with model buildings on a 1:50 scale. Every staircase is historically accurate, every drawer can be opened, every painted face expresses a clear emotion. Take the character “Bombastus of Igelshieb,” for example, an imaginary court poet known for doggerel such as: “Behold the wig-maker, with his pigeon’s nest/artfully conceal the balding crest.” In this virtual world, the human creators Kiedorf and Bätz are worshipped by their miniature creations as the gods “Manfred” and “Gerhard.” In an added touch of humor, the character “Princess Talophé” has a doll house of her own – i. e. a miniature world within a world! “Absolute perfection” was the effusive praise from Süddeutsche Zeitung when the doll’s house was exhibited at Rudolstadt’s Heidecksburg palace.

A modern skywalk for Leuchtenburg Castle

48 | *Contemporary medieval*

The sky is within reach near Kahla. In 2014, the battlements of Leuchtenburg Castle were fitted out with a skywalk, a pier made of glass and steel, poised almost twenty meters above the ground. It allows visitors to seemingly float above the Saale Valley while enjoying a panoramic view all the way to the city of Jena. By adding this feature to the castle, the foundation owning the castle is making good on its promise to turn this ancient monument into more than just a musty museum for medieval romanticism. Just as the previous eight centuries have left their mark, so too the 21st century!

Leuchtenburg Castle was once the administrative seat of the Dukes of Wettin. In later times, it functioned as a court, a prison, and even a youth hostel. Today, it is used as a conference/event center and museum. While preserving the past, the foundation running the site is intent on adding new and modern elements as well. Besides the skywalk, these include the visitors' center, a modern building whose floor plan follows the historic defensive wall, and whose panoramic windows afford a beautiful view of the landscape.

A treasure house of art

49 | *A visit to the Lindenau Museum*

Altenburg is home to the Lindenau Museum, a "treasure house of art that verges on the miraculous" in the enthusiastic words of weekly Die Zeit. Angelika Wodzicki, responsible for the museum's PR and Education Department, is pleased that its reputation is spreading:

Ms. Wodzicki, why do connoisseurs often mention the Lindenau Museum in the same breath as Germany's leading art collections?

Our museum boasts one of the most extensive special collections of early Italian panel painting, comprising 180 altar fragments painted on poplar wood from the 13th to 16th century. The artists include the likes of Sandro Botticelli, Fra Angelico, and Luca Signorelli.

What additional highlights would you like to mention?

Our collection of fine Greek and Etruscan ceramic vessels, which are roughly 2,500 years old. Our collection of plaster casts of famous sculptures from classical antiquity and the Renaissance is fascinating as well. Not to mention a wonderful art history library and a slew of sculptures and paintings from the 19th to the 21st century. But above all, we have one of the largest museum collections of works by the internationally renowned artist Gerhard Altenbourg, who died in 1989.

The museum is named after its founder, Bernhard August von Lindenau. What is his legacy, besides his name?

We not only owe Mr. Lindenau a large portion of our inventory; we also follow the tradition he established when it comes to our educational activities. Lindenau was a naturalist, statesman and all-around Renaissance man who headed the government of Saxony for a period of twelve years. Upon returning to this hometown of Altenburg in 1848, the decided to found a museum. From its inception, the museum included an academy that taught painting, drawing and pottery making. In a time when public museums were still rare, Lindenau wanted to give young people a hands-on experience in the creation of original artworks. We feel duty-bound to carry on this ideal. Which is why one of our departments includes a youth academy for fine arts – the only one of its kind among German museums!

Passionate about Life

Pulling together for safety

50 | *Arnoldi revolutionizes the insurance industry*

What do insurance companies have in common with the Three Musketeers' adventures? How about the motto "one for all, all for one"? That is how insurance innovator Ernst Wilhelm Arnoldi saw it, anyway. Born into a Gotha merchant family, Arnoldi was determined to find a better way to protect factories and workshops from fire damage. In 1818, he found the solution: All the merchants would jointly form a bank to which they would contribute premiums as co-owners. If there was a fire, the injured party would receive financial support from the common fund. The idea caught on, and by 1820 Arnoldi and his associates had established the "Feuerversicherungsbank des Deutschen Handelsstandes" (Fire Insurance Bank for German Merchants). Just seven years later, the visionary from Gotha translated the concept of mutual assistance from the business to the private sphere, founding the Gotha Lebensversicherungsbank (Life Insurance Bank) to better protect widows and orphans from poverty. Arnoldi's trailblazing legacy is commemorated at Gotha's Museum of Insurance History, one of a kind in Germany and not operated by the insurance company.

A day of hope at the height of the Cold War

51 | *Willy Brandt breaks the ice in Erfurt*

"You are to receive West German Chancellor Willy Brandt!" The directive from Moscow could not have been clearer and the East German leadership had to comply. After arduous negotiations ironing out the details of this unprecedented visit, Chancellor Brandt was formally received by Willi Stoph, Prime Minister of the German Democratic Republic (GDR) on March 19th, 1970. The venue was Erfurt, "City of Flowers." Brandt expressed thanks for the pleasant weather and walked down the brand-new red carpet alongside his host. The agenda had been pre-arranged down to the last detail, for this meeting between East and West was much too sensitive to be left to chance. But the morning would soon turn into a disaster for the East Germans, notwithstanding the careful scripting.

To Willi Stoph's embarrassment, many citizens of the "Workers' and Farmers' State" had cheered Willy Brandt's train as it entered the GDR. By the time the West German chancellor reached Erfurt, roughly 2,000 East Germans crowded the square behind the main rail station to greet the representative of the supposed "class enemy." The police and officials of the Ministry for State Security were unable to hold back the crowds. Time and again, people surged through the barriers cordoning off the "Erfurter Hof" hotel and convention center, shouting "Willy Brandt! Willy Brandt!" The chancellor and Prime Minister Stoph had barely sat down in the hotel's conference room when the crowd began chanting, "Willy Brandt, come to the window!" Brandt knew that the stakes were high: he couldn't afford to cross Stoph by playing to the crowds, yet he couldn't let the situation escalate by refusing to show himself. So Brandt went to the window, gave a tentative smile and raised his hand. It was a fleeting moment, but one captured in countless photographs that became part of Germany's collective memory. For it was the only time between the workers' uprising of 1953 and the mass demonstrations of 1989 that the people of the GDR could demonstrate for political change.

In 1970, the citizens of the GDR clamored for Willy Brandt to come to the window of the Erfurter Hof Hotel. Today, a neon sign on the roof refers to this historic moment.

Etzelsbach 52 |
Mühlhausen 53 |

A heartfelt “hallelujah!” with the pope

52 | *Pope Benedict XVI’s pilgrimage to St. Marien Etzelsbach*

Long ago, or so the legend goes, a farmer was plowing his fields when he found a small wooden statue of Mother Mary. He realized it must have come from a nearby chapel burned down during the savage Peasants’ War. The humble farmer had the holy icon re-installed in a small shrine. When an epidemic began killing the local horses in 1625, the farmers were told by their pastor to pray to the image for Mother Mary’s help. Lo and behold, the animals were cured.
This is the story behind the origins of the St. Marien Etzelsbach Chapel, whose current, red-brick structure dates to the 19th century. The faithful still flock to the tiny shrine, and their visits are still known as “horse pilgrimages.” On September 23rd, 2011, St. Marien Etzelsbach became known around the world when Pope Benedict XVI stopped in the Eichsfeld region during his tour of Germany. Visiting the pilgrimage church had been a long-standing wish, Benedict explained. Even as a boy, he had heard tell of Eichsfeld and had long wanted to join the natives of Thuringia in prayer there. And the Thuringians were eager to welcome him: roughly 90,000 believers – many more than expected – showed up to celebrate a St. Mary’s Vespers with the Holy Father.

A preacher of the sword

53 | *Thomas Müntzer and the Peasants’ War*

Whether Cromwell in England, Robespierre in France, or Che Guevara in Latin America – many of the great revolutionaries claiming to fight for freedom have been controversial figures. And so it was with Thuringia’s most famous “freedom-fighter,” Thomas Müntzer. Much like his contemporary Martin Luther, Müntzer preached fire and brimstone against the papacy. But he went further, ridiculing the great reformer as “that stupid, soft-living bag of flesh of Wittenberg” and calling for a violent social revolution in which the common people would rise up and free themselves from the godless, greedy nobility with fire and sword. These inflammatory words soon turned into violent deeds as the followers of the firebrand preacher laid waste to churches and monasteries (e.g. in Volkenroda – see No. 33). In 1525, Müntzer led an army of commoners and peasants from the Mühlhausen region at the battle of Frankenberg, one of the decisive engagements of the so-called “Peasants’ War.” Defeated on the field by the nobles and their mercenaries, the rag-tag army was scattered and Müntzer beheaded.

Weißensee 55 |
Erfurt 54 |
Altenburg 56 |

KiKA's cult hero

54 | *A new TV star: "Bernd the Talking Bread"*

Appearing regularly on the KiKA children's channel, Bernd is a grumpy, talking hunk of bread with overly short arms and a decidedly neurotic view of the world. Fun and amusement are two things guaranteed to drive him crazy, especially if things get a little noisy. Bernd the Talking Bread prefers to spend his time in a soundproof room, where he stares at the ingrain wallpaper or collects test patterns from the TV screen. His favorite word: "drats!" Hard to believe, but Bernd has become something of a cult personality. In 2004, Bernd was awarded the prestigious Adolf Grimme Prize, which recognizes excellence in television programming. As the jury jokingly put it, KiKA's dyspeptic anti-hero was also being honored for standing up for "the right to be in a bad mood." Owned by the German ARD and ZDF networks, the KiKA children's channel has been based in Erfurt since 1997. With its broad range of children's programming, KiKA helps to make Thuringia a player in this particular niche media known as Kindermedienland (children's media land).

Brewed, not watered down

55 | *The first Purity Law for beer*

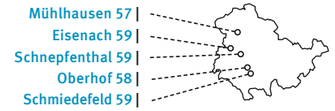
In 1998, the little town of Weissensee near Sömmerda was the site of a minor sensation: an old legal guideline for taverns from the year 1434 was discovered in the city archives, one proving that the oldest "Purity Law" for beer (Reinheitgebot) actually originated in Thuringia. The regulations entitled "Statuta Thaberna" in Latin prescribed that only "hops, malt, and water" could be used to brew beer, under threat of punishment. Before this unexpected discovery, it was Bavarian brewers who had always laid claim to the first Rheinheitsgebot, based on a document from 1516. At the historic Townhouse Brewery (Ratsbrauerei) in Weissensee, the master brewer takes time to regale visitors with personal explanations of the art of brewing – while also serving up his frothy "Weissenseer Ratsbräu" in bottles stamped with the seal of "Original Thuringian Quality."

The navel of the Skat-playing world

56 | *Playing cards from Altenburg*

The composer Richard Strauss was known as a cunning Skat player. In fact, his passion for the card game was so intense that he even set a Skat game to music in his opera "Intermezzo." Perhaps it's no accident that the two Thuringian locales most closely associated with Strauss' life and work, Meiningen and Weimar, are not far from the city in which the game was invented: Altenburg.

Located at the easternmost tip of Thuringia, Altenburg has been turning out playing cards since 1509. In 1813, avid gamblers developed the game of Skat in the town's local pubs on the basis of older card games. Before long, Skat had spread all over Germany. Altenburg's Skat Fountain (Skatbrunnen) not only commemorates the original "Skat fraternity" of days gone by; it actually constitutes the world's only memorial to the game. Thus, Altenburg can rightly be regarded as the center of the Skat-playing world. The German Skat Association was founded here in 1899. After moving to Bielefeld in the wake of World War II, the organization returned to Altenburg after German reunification. Since 2001, Altenburg's International Skat Court has been adjudicating disputed games. A good place to learn about the history of Skat – and card playing in general – is the world's oldest Playing Card Museum, located in Altenburg's former ducal palace.



Shining proud on a volcano

57 | *Setting new altitude records on a mountain bike*

Whereas others might travel to distant lands to lounge in a hammock before turquoise waters, extreme mountain biker Guido Kunze looks for desert sands and stony trails that will test his athletic ability to the limit. In 2010, this native of Mühlhausen managed to cross the entire continent of Australia on his bike in just seven days, 19 hours and five minutes, earning himself a place in the Guinness Book of Records. In 2013, the mountain biker took on and conquered the Great Wall of China.

2014 found Kunze on Chile's Ojos del Salado, the world's highest volcano. Rising almost 6,900 meters from the scorching-hot Atacama Plain, the mountain culminates in an ice-cold, low-oxygen summit. Guido Kunze was able to climb exactly 6,233 meters of this extreme altitude on his mountain bike, another world record. While still on the volcano, the 49-year-old commented dryly on his athletic achievement: "You know what, that was really something."

Cross-country on foot or skis

58 | *Outdoor paradise: the Rennsteig Trail*

"The area is marvelous, just marvelous," Goethe once wrote during a sojourn in Ilmenau. Not surprisingly, the Thuringian Forest is the Free State's region attracting the largest number of vacationers. A particular attraction for hikers is the famous Rennsteig, a trail that runs 169 km along the ridges of densely wooded hills. Each May, the trail becomes a giant, cross-country race course during the so-called "Rennsteig Run" (see No. 59). The Rennsteig also has great symbolic significance as well. A song in its honor, the Rennsteiglied, is regarded by many as Thuringia's "unofficial anthem." When winter sets in, the Thuringian Forest becomes a paradise for skiers. More than 1,800 km of ski trails and 74 km of cross-country ski runs traverse the snowed-in hills and valleys. Particularly popular is the Oberhof Winter Sports Center, a venue for world cup competitions in biathlon, bobsledding, cross-country skiing, and "Nordic combined."

Total cross country!

59 | *Running in honor of Mr. GutsMuths*

The fastest runners manage to finish it in just over five hours: the 72.7 kilometers from Eisenach to Schmiedefeld. Held annually in May, the GutsMuths "Rennsteiglauf" super marathon is the biggest cross-country event in Central Europe. But it's the event's other cross-country races that attract the most participants: each year, roughly 15,000 runners of all ages head for the Rennsteig ridge to take part in the marathon, half-marathon, children's cross-country, and Nordic walking contests. First held in 1973, the event is named after Johann Christoph Friedrich GutsMuths, an 18th-century physical education teacher famous for his seminal book "Gymnastics for the Young," which helped to make physical education and sports a part of the German school curriculum.

World-class in every discipline

60 | *Heroes of sport*

When the snow cover is insufficient, ski jumpers roar down the ramp along a special plastic mat – developed in Thuringia, of course. After all, a well-known winter sports destination will not just shut down when the thermometer climbs above freezing. But Thuringian natives are also regularly winners of disciplines that have nothing to do with snow and ice. Here are just a few of the Thuringians who have stood tall on the victors' podium:

- Ronny Ackermann, Nordic combined, *3x silver at the Olympic Games, 4x gold at the World Championships*
- Daniela Anschütz-Thoms, speed skating, *2x gold at the Olympic Games, 1x gold at the World Championships*
- Maximilian Arndt, bobsledding, *1x gold in the 4-man bob at the World Championships, 2x gold at the European Championships*
- Stephanie Beckert, speed skating, *1x gold and 2x silver at the Olympic Games*
- Heike Drechsler, long jumping and sprinting, *2x gold at the Olympic Games, 2x gold at the World Championships*
- René Enders, track cycling, *2x bronze at the Olympic Games, 2x gold at the World Championships*
- Sven Fischer, biathlon, *4x gold at the Olympic Games, 7x World Champion, several-time overall world cup champion*
- Clemens Fritz, soccer, *runner-up title at the European Soccer Championships 2008, German Soccer Cup winner 2009 with Werder-Bremen*
- Silvio Heinevetter, handball, *goalie of the German national team, winner of the German Handball Cup with Füchse Berlin*
- Andrea Henkel, biathlon, *2x gold at the Olympic Games, 8x gold at the World Championships*
- Wolfgang Hoppe, bobsledding, *2x gold at the Olympic Games, 8x gold at the World Championships*
- Marcel Kittel, cycling, *8 stage victories at the Tour de France, 2 stage victories at the Giro d'Italia*
- André Lange, bobsledding, *4x gold at the Olympic Games, 8x gold at the World Championships*
- Erik Lesser, biathlon, *2x silver at the Olympic Games*
- Olaf Ludwig, cycling, *1x gold at the Olympic Games, 2 overall wins at the Friedensfahrt (Peace Race), 3 stage wins at the Tour de France*
- Roland Matthes, swimming, *4x gold at the Olympic Games, 3x gold at the World Championships*
- David Möller, luge, *1x silver at the Olympic Games, 4x gold at the World Championships*
- Gunda Niemann-Stirnemann, speed skating, *3x gold at the Olympic Games, 19x gold at the World Championships, "Speed Skater of the Century"*
- Maria Seifert, 100 and 200 meter run, *3x bronze at the Paralympics, 2x gold at the European Championships*
- Bernd Schneider, soccer, *German national team member from 1999 to 2008, runner-up title at the World Cup in 2002, 2x runner-up title at the Bundesliga with Bayer 04 Leverkusen*
- Axel Teichmann, cross-country skiing, *2x silver at the Olympic Games, 2x gold at the World Championships*
- Sabine Thies, née Völker, speed skating, *1x gold at the Olympic Games, 1x gold at the World Championships*
- Kristina Vogel, track cycling, *1x gold at the Olympic Games, 5x gold at the World Championships*
- Kati Wilhelm, biathlon, *3x gold at the Olympic Games, 5x gold at the World Championships*

The list only includes each athlete's most important victories.









Time for Cultural Delights

61 | *The "Dance and Folk Festival", the Arena of Culture, and the "Summer in Weimar"*

The joyful noise of drums, pipes, fiddles, rattles, and myriad other instruments fills the air, as up to 30,000 international visitors from all around the world crowd the streets and squares of Rudolstadt on every one of the four event days in July. This quaint, historic town along the Saale River with its 23,000 inhabitants hosts the Tanz- und Folkfestival (Dance and Folk Festival), Germany's largest live event devoted to world music. Up to 1,000 artists perform on some 30 stages set up between Heidecksburg Palace, the old town, and Heinrich Heine Park. 2015 marks the 25th anniversary of the "TFF," as the event is commonly known. No worries if you cannot make it there: You will have the opportunity to listen to concert recordings on Deutschlandradio for months afterwards.

Another major music festival with cross-regional appeal is the Kulturarena (Arena of Culture) in Jena. It began two years after German reunification, when theater impresarios joined forces with the local administrations for cultural affairs to set up a tent outside the Jenaer Theaterhaus as a special venue for 22 concerts. The experiment's success exceeded all expectations. In the more than two decades since, Kulturarena Jena has grown into a grand festival of theater, film, and music. Rock and pop star such as Travis, 2raumwohnung, and Patti Smith have performed here, not to mention British star violinist Nigel Kennedy and the world-famous saxophone player Jan Garbarek from Norway.

"Weimar is an amazingly pretty urban backdrop in the summer, with an aura comparable to that of other beautiful towns like Salzburg," enthuses Professor Christoph Stölzl, President of the Franz Liszt Academy of Music in Weimar. A perfect setting, in other words, to launch the "Weimarer Sommer" (Summer in Weimar), an annual program of artistic and cultural events rich in tradition and highly popular with the public. Since 2012, the program's offerings have included the Bach Biennale, the Weimar Master Classes, the Trekoulor Film Festival, the Bauhaus Summer University and Genius Loci, a festival dedicated to projection art.

„I feel so at home here“
62 | *Queen Victoria in Gotha*

For some couples, visiting each other’s in-laws is one of the annoying sides of married life. Not so for Victoria, Queen of Great Britain and Ireland, who regularly accompanied her husband Albert on visits to his ancestral court of Saxe-Coburg and Gotha. “I feel so at home here,” reads an entry from Victoria’s diary on the occasion of just such a visit in 1845. The young queen had particularly good things to say about Gotha’s Friedenstein Castle, where the royal couple were lodged. Even Albert‘s untimely death did not put an end to Victoria’ visits. In September of 1862, she returned to see the places in Thuringia where she had so often stayed with her beloved husband. This included Reinhardsbrunn Castle. To get there, Victoria had to detrain in Mechterstädt and switch to a horse-drawn carriage. This was no small feat for a stout lady 1.5 meters tall. So a special ramp with steps was built, paid for by Victoria’s brother-in-law Duke Ernst II.

Henceforth a composer

63 | *Audanika turns the iPad into a musical instrument*

How many times have we heard someone say, “I wish I could play an instrument!”, only to follow up with a ”but”: not enough time, lack of talent, don’t feel like learning musical notation? Audanika GmbH has solved the problem once and for all. A spin-off of the Fraunhofer Institute for Digital Media Technology (IDMT), this Ilmenau-based company offers an application for iPhone and iPad that enables just about anyone to start making music, right then and there. Using the SoundPrism app, users can compose harmonies with a simple touch of the screen. They can also play chords, set base lines, and change the pitch without having to understand what it all means. And instead of playing just one instrument at a time, they can play several at once!

Putting an end to quackery

64 | *Wiegleb’s training institute for pharmacists*

Requiring years of intense training and study, pharmacy is one of the most demanding professional fields that a young university student can embark upon. Nonetheless, thousands of students take on the challenge each year, since they know it’s the only way they can become licensed pharmacists. The fact that the training provided is so thorough is thanks to committed scholars like Johann Christian Wiegleb, an apothecary from Langensalza. One of the pioneers of modern chemistry, Wiegleb wrote a textbook for pharmacists in training. In 1779, he founded the first private pharmaceutical training institute – a model that soon became standard.

A pastor’s son as visionary

65 | *Friedrich Fröbel invents the kindergarten*

In Bad Blankenburg, one finds a Fröbel Museum as well as a Fröbel Trail, which leads up into the rolling hills of the hinterland. But who was Friedrich Fröbel? A visionary who, almost 200 years ago, recognized the formative importance of a child’s early years, and of a nurturing and intact family environment. A pastor’s son from the Thuringian Forest, Fröbel advocated a child’s right to obtain a well-rounded education. He went on to establish a “care, playing, and activity institute for small children” in Blankenburg, for which he eventually coined the name “Kindergarten,” which translates literally as a children’s garden (in 1840). This was indeed a garden in the literal sense, one in which children could get to know and experience the natural world. But it was also intended as a safe space, where kids could develop freely and explore their unique creative potential. Since then, Fröbel’s idea has taken hold all over the world, so that the German word “kindergarten” has become a household word in many foreign languages.

Home-blended sake

66 | *Rolf Anschütz's Japanese restaurant in East Germany*

There was certainly no shortage of kitchen aprons in Communist East Germany – but kimonos? Rolf Anschütz, a native of Suhl, was determined to get his hands on the traditional Japanese garments. He had a dream, after all: to turn the "Waffenschmied" restaurant, which he managed, into the GDR's first Japanese eatery. So Anschütz persuaded the Meiningen Theater to let him have the costumes left over from the opera "Madame Butterfly," which is set in Japan. In fact, all sorts of creative workarounds had to be found in order to make the first Japanese restaurant of the GDR a reality in 1966: the chopsticks had to be hand-carved, while the "sake" had to be improvised by blending Tokay wine and Nordhäuser rye schnapps. Anschütz also managed to build an authentic ceremonial bath, despite the scarcities endemic to the GDR's planned economy. His Japanese restaurant in Suhl stayed in business until 1993 and was always booked up years in advance. Guests from all over the world had themselves put on the waiting list just to experience this one-of-a-kind phenomenon first hand. In 2012, the restaurant's story was adapted for the screen in a feature film entitled "Sushi in Suhl."

The grandmother of all ladies' magazines

67 | *Bertuch's "Journal of Luxury and Fashion"*

"A commode is an attractive piece of furniture for the living room of a lady, a place to store her toiletries." This definition, the introduction to an advertisement for a Weimar cabinet-maker, comes from the first issue, dated 1786, of the Journal des Luxus und der Moden. Published by Friedrich Justin Bertuch, the magazine appeared once a month for 40 years and essentially ranks as the grandmother of all women's magazines. The editors kept track of all the latest unusual trends – such as wearing a nightcap on the street – while also reviewing theater plays and providing tips on gardening and good health. But no matter how diverse and colorful the subject matter of Bertuch's magazine, it always had a consistent pedagogical through-line. The enterprising publisher, who at the time was as famous as his contemporaries Goethe or the Duke of Weimar, wanted to shape the taste and aesthetic sense of his mostly female audience. Historians credit Bertuch with making a significant contribution to improving the self-esteem of the middle class emerging in the 19th century and known as the bourgeois class.

Cultural Highlights

A synonym for pianistic perfection

68 | *Pianos by Bechstein*

You don't have to be a music buff to recognize the name "Bechstein." With a turnover of almost 5,000 instruments sold per year, Bechstein is Europe's leading maker of pianos and grand pianos. Founded in 1853 by Gotha native Carl Bechstein, the workshop was originally a one-man operation. Bechstein applied highly durable materials and impeccable craftsmanship to build his pianos, which soon become popular exports. The buyers included concert impresarios, royal courts, and musical conservatories. The piano maker's international fame went beyond just instrument-making: in London, Paris, and St. Petersburg, Bechstein's company had concert halls built named after the founder himself. Great composers like Franz Liszt, Richard Wagner, and Claude Debussy all held their Bechsteins in high regard. Pianists, too, have long favored Bechsteins, both for concerts or studio recordings. As early as the 1930s, Artur Schnabel and Edwin Fischer made famous recordings on the instruments. After World War II, artists like Jorge Bolet and Dinu Lipatti recorded on Bechstein grand pianos. But Bechsteins were also popular with Jazz musicians as well as with pop stars such as the Beatles, David Bowie, and Elton John.

Immortal keyboard wizards

69 | *Bach and Liszt*

During his lifetime, Johann Sebastian Bach was relatively unappreciated as a composer. The reputation of this brilliant musician, born in Eisenach, was based more on his virtuoso organ playing and on his skills as a choir master and church cantor. Not long after his death, Bach had been practically forgotten. Yet today, music lovers from all over the world travel to Eisenach, to hear Bach's music played in the house of his birth; to Arnstadt, where Bach obtained his first post as court musician and where he was married; to Weimar, where he was employed by the local Duke for a number of years. Practically no other composer has influenced so many other musicians as Bach did. The list of his admirers is a long one, stretching from classical masters like Beethoven, Mendelssohn, and Schönberg to contemporary artists like Nina Simone. One of the first to rescue Bach from obscurity was Franz Liszt, who transcribed several of the Baroque master's works for the piano, and who used Bach's organ works as inspiration for some of his own compositions. The legacy of this fruitful musical synergy is still carried on by the "International Bach | Liszt Organ Competition Erfurt-Weimar-Merseburg." Liszt also followed in Bach's footsteps by accepting an appointment to the Court of Weimar some 140 years after his famous predecessor, thereby ending a phase of his life in which he had toured restlessly across Europe as an acclaimed concert pianist. Like Bach, Liszt was best known in his day as a virtuoso performer. A native of Hungary, he settled down in Weimar from 1848 to 1861, and then again from 1869 until his death. During his stay, Liszt turned Weimar into a leading European music center, attracting admirers like Hector Berlioz and Johannes Brahms. Weimar's Academy of Music still bears Liszt's name, while his apartment in the city (Marienstrasse 17) has been turned into a museum where visitors can admire his original Bechstein grand piano.

A historic poets' alliance

70 | *Goethe and Schiller*

The bond between Goethe and Schiller: was it a true friendship or just an alliance of convenience? This was a question already being asked by the two poets' own contemporaries. Often mentioned in the same breath, Goethe and Schiller influenced each other, corresponded, collaborated on the magazine Die Horen (The Horae) and launched barbs at rival authors in their literary journal Xenien (The Xenia). A government minister at the Weimar Court, Goethe paid frequent visits to Schiller, who was a professor in Jena. They seemed to enjoy these get-togethers immensely, at least Schiller's wife Charlotte recounted that she could hardly sleep a wink, due to the convivial laughter of the two poets in the room next door. That the Hessian Goethe and the Swabian Schiller would cement their bond in Thuringia was no accident, since the region offered congenial conditions for the literary endeavors of both men. Thus, the Duchy of Saxony-Weimar-Eisenach, to which the nearby university of Jena belonged, was home to a series of leading scientists, philosophers, and writers who appreciated its relatively liberal political climate. In fact, no other region of Germany could boast the same concentration of intellectual brilliance around the year 1800.

After Schiller's death, the association between the two poets was idealized by Goethe himself – and even more so by later generations. A tangible example is the double memorial in front of the German National Theater in Weimar. Erected in 1857, the statue bears the lofty inscription: "To the Poet Pair Goethe and Schiller, from the Fatherland."

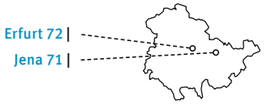
The famous Goethe-Schiller monument amidst trees? What happened to the Weimar Theater in the background? The photo has not been altered, though – this statue is actually a replica of the one in Weimar and stands in San Francisco's Golden Gate Park.

The mathematician-philosopher

71 | *Gottlob Frege modernizes logic*

Straddling two disciplines as different as mathematics and philosophy is not easy, as Gottlob Frege found out the hard way. A professor at the University of Jena, Frege spend four decades lecturing on mathematics, yet devoted his scholarly writings almost exclusively to logic, a niche field of philosophy. As a result, Frege was never fully accepted by his academic peers as either a proper mathematician or a true philosopher.

By 1919, when he retired to Wismar in his native Mecklenburg, Frege had become quite embittered. Yet he was ultimately vindicated, albeit in a somewhat roundabout fashion: in the process of rebutting one of Frege's logical arguments, the British philosopher Bertrand Russell nevertheless became fascinated by the German's attempt to synthesize arithmetics and logic. Together with his famous student Ludwig Wittgeinstein, Russell went on to expand upon Frege's ideas. Thus, after being dismissed as a crank, Frege ultimately received posthumous recognition as the founder of modern logic.



633 instead of DCXXXIII

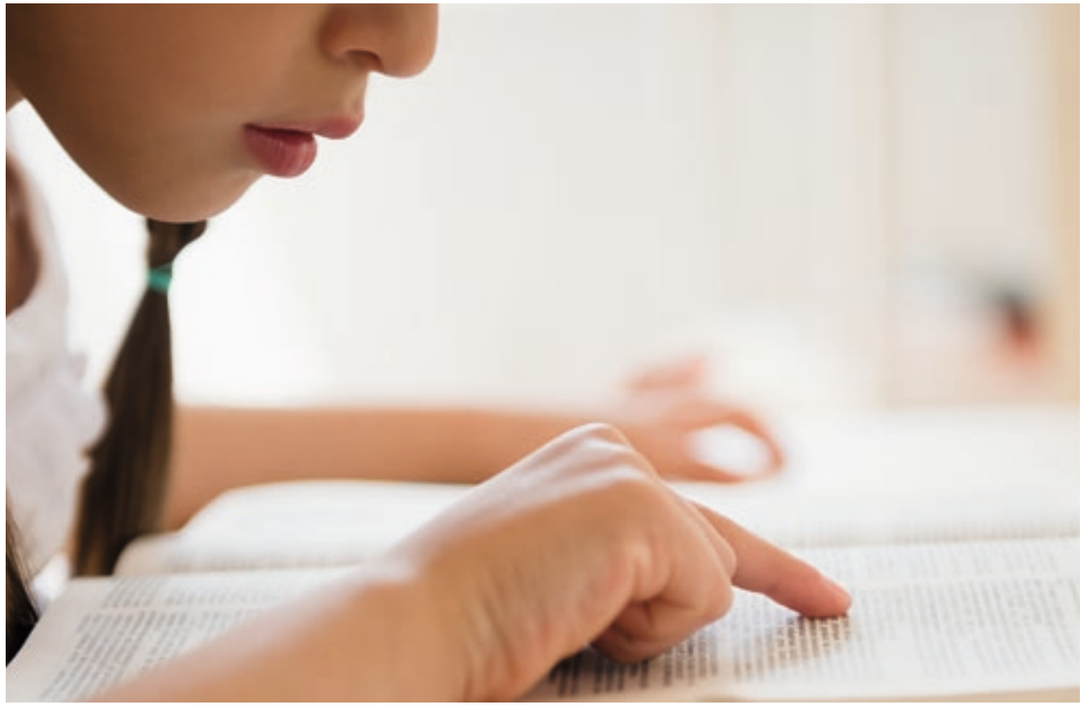
72 | *Doing the numbers with Adam Ries*

"According to Adam Riese, the result should be …" It's a stock phrase commonly used by Germans to emphasize the presumed correctness of a given calculation. Yet many of them probably don't even know that "Adam Ries" was a real person, a mathematician who lived and worked in Erfurt from 1518 until 1522. (Over time, the name's spelling became corrupted to Riese or "giant."). At Ries' old home in Erfurt (Michaelisstrasse 48), a bust, a bronze plaque, and an abacus commemorate the publication of his first arithmetic handbook. Though intended to teach children, it was to form the basis for more advanced treatises, including works on algebra. In his most famous book, Calculation on the Lines and with the Quill, Ries gave detailed explanations of how to divide and multiply using a calculating board or a pen and paper, and also proposed that the cumbersome Roman numerals then in use be replaced by the more practical Arabic numbering system. Ries also broke new ground by writing in every-day German rather than schol-arly Latin. This allowed him to impart his arithmetic techniques even to common trades-men or merchants. Reprinted all the way into the 17th century, Adam Ries' works reached a huge readership and thus also contributed to the development of standard, written German.

Making sense of the babble

73 | *The Duden Dictionary from Schleiz*

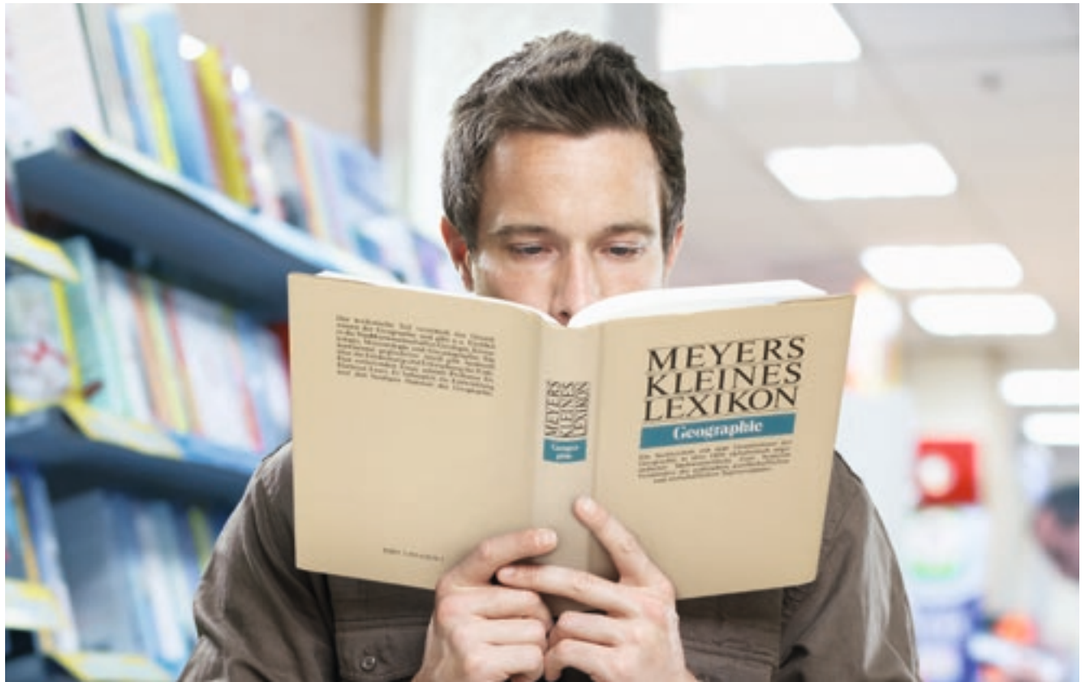
Due to its geographic location, the town of Schleiz has long been a place where one could hear any number of regional German dialects spoken, and primarily Thuringian, Franconian, and Saxon. When Konrad Duden, originally from the Rhineland, became principal of a local secondary school in 1869, he found it difficult to make sense of the essays written by his pupils, since each was used to writing in his own dialect. At that time, there were still no standard spelling rules for written German. Duden resolved to remedy this state of affairs. By 1872, he had compiled an erudite reference work with 6,000 keywords known as the "Schleizer Duden." This was the precursor of the authoritative Duden Dictionary currently found in practically every German home and office.



Knowledge for the masses

74 | *Meyer's Lexicon*

52 volumes containing more than 90 million words: "Meyer's Great Conversational Lexicon for the Educated Classes" from 1855 is the most comprehensive German lexicon of the 19th century. The creator of this ground-breaking work was Joseph Meyer from Gotha, a visionary publisher who founded a "Bibliographic Institute" in 1826. Meyer's editions of the classics, bibles, and atlases were able to reach an entirely new readership, thanks to his innovative marketing and distribution strategy, which included placards at post offices, advertising brochures, and newspaper inserts. Another secret of Meyer's success was selling his publications at affordable prices, despite resistance from the bookselling industry. Eventually, Meyer conceived the idea of publishing a lexicon not just for scholars, but for the public at large. His goal was nothing less than to "overthrow the oppressive monopoly on knowledge that has weighed upon the nations for so long." Writing many of the Lexicon's entries himself, Meyer relied on some 120 co-authors, whom he expected to keep up with the latest advances in practically every field of knowledge. This guiding principle remained in force until 1980s, when the Bibliographic Institute merged with the Brockhaus publishing house. Since then, the continuous updating of Meyer's Lexicon has been suspended so as not to compete with the Brockhaus Encyclopedia.



Lazy Ludwig

75 | *Bechstein's fairy tales*

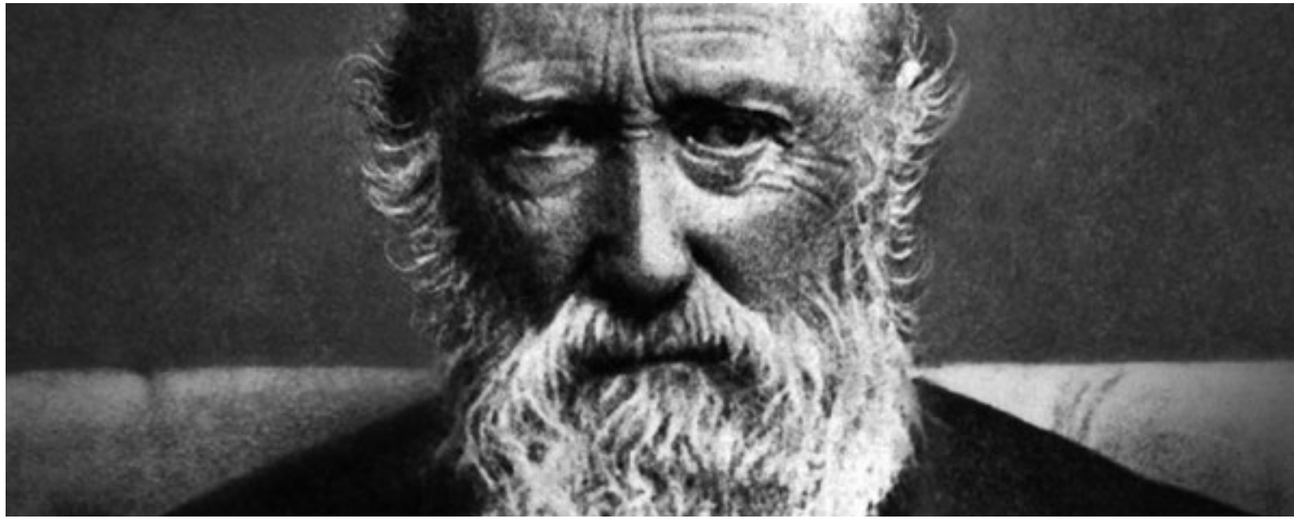
Once upon a time there was a lad named Ludwig who lived with his uncle in Meiningen. Ludwig was a sluggard at school, and his uncle often punished him by confining him to his room. There was only one thing that Lazy Ludwig worked hard at: writing stories and collecting fairy tales. In fact, Ludwig Bechstein was such a good storyteller that his fame soon spread throughout the German-speaking lands. His "German Fairy Tales," first published in 1845, were reprinted dozens of times. In Germany today, entire schools are named after the indolent student of old, one of them being located in Meiningen.

A northern luminary in the Eichsfeld region

76 | *Theodor Storm's "years of exile" in Thuringia*

For most Germans, the writer Theodor Storm is most closely associated with the northern province of Schleswig-Holstein. Few are aware that this great novelist and lyric poet spent eight years of his life in the Eichsfeld region of Thuringia. The political climate in his home had made it impossible for Storm to continue working as a lawyer. That is why he moved to Potsdam in 1853 and three years later to Heiligenstadt, where he made a modest living as a district magistrate.

While living quietly in the predominantly Catholic region of Eichsfeld, Storm developed the realistic narrative style that was to make him famous. He was impressed by the deep religiosity that he encountered in the Eichsfeld, and his writings would return time and again to a theme that already preoccupied him as a young man: the role of Christianity and the church. In 1988, to mark the centenary of the death of its famous district magistrate, Heiligenstadt inaugurated the Theodor Storm Literary Museum. The museum's permanent exhibition, housed in a quaint half-timbered house dating back to 1436, was thoroughly revamped a few years ago. Currently on exhibit are documents and installations dealing with Storm's relationship to the concept of the homeland and of foreign regions, as well as with his interest in folk tales and the Christmas tradition.



“Herr Paul” and Parsifal

77 | *Tankred Dorst presented with the “Faust” award*

What the Oscar is to film, the “Faust” award is to German theatre. In 2012, the German Association of Orchestras and Theaters made a Thuringian couple the laureates: dramatist Tankred Dorst and his wife Ursula Ehler, who had contributed to many of his plays. Tankred Dorst is one of Germany’s most frequently performed and multifaceted playwrights. His piece “Herr Paul,” for example, deals with the hollowing out of society’s ethical values due to the pursuit of purely economic interests. But Dorst also likes to borrow from myths and legends, such as the sagas of King Arthur or the knight Parsifal, when dealing with contemporary issues. In 2010, Tankred Dorst was made an honorary citizen of his native town of Sonneberg, which he was forced to flee in the chaos of the Second World War.

Famous for precision

78 | *Justus Perthes’ Geographic Institute*

Some 200 years ago, the art of cartography was revolutionized by two Thuringians, the publisher Justus Perthes and the ducal court official Adolf Stieler. Working in Gotha, they created maps in which every detail had been meticulously researched. Stieler’s “pocket atlas” won over specialists and laymen alike. The Geographic Institute founded by Justus Perthes, meanwhile, grew into an international scientific center, thanks first and foremost to brilliant collaborators like August Petermann. In 1855, Petermann began putting out a specialized periodical that provided unequalled coverage of the ongoing geographic discoveries of the 19th century. From polar explorers to African adventurer – they all wanted to be featured in his geographic bulletins known as Petermanns Geographische Mitteilungen.

Luther's theological testament

79 | *The Schmalkaldic Articles*

"Napoleon slept in this house." "Here, Schiller composed one of his Odes." Some memorial plaques can seem unintentionally comical, given that the events involved are hardly earth-shaking. Not so the baroque plaque adorning the stately Luther House in the town of Schmalkalden, which recalls a 1537 meeting of leaders of Protestant territories and cities that became a milestone of the Reformation. The most prominent attendee was Martin Luther, who was to present a manifesto he had been commissioned to write by the powerful Elector of Saxony. Luther's job: to articulate articles of faith that Protestants would henceforth confess as unalterable truths, the Prince had instructed.

Shaken by old age and illness, Luther had the "Schmalkaldic Articles" serve as a sort of theological last will and testament. With almost unprecedented vehemence, the feisty theologian railed against Catholic doctrines such as purgatory, the adoration of relics, and the trade in indulgences, concluding grimly that "…we and they [the followers of the Pope] must therefore remain forever separated and in conflict." All this was too divisive for many of the Protestant luminaries assembled, including Phillip Melanchthon. Thus, Luther's 15 articles remained rather obscure at first. By 1580, however, they had effectively attained the status of a confession of faith. To this day, seven of the twenty Protestant member churches of the Evangelical Church in Germany base their church statutes on Luther's Schmalkaldic Articles.

Gera 80 |
Meiningen 81 |

The workingman’s avant-garde

80 | *The painter Otto Dix*

Otto Dix always stayed true to his working-class roots, even though he sometimes rubbed people the wrong way in the process. Born in 1891 to a blue-collar family in Gera, the painter was still proud of his humble origins at the age of 70: “I don’t paint for this one or that one. I’m just a proletarian who’s independent-minded, and if I say ‘This is what I’m going to do,’ then I really don’t care what others have to say about it.” Even before the First World War, Dix had already become committed to the artistic avant-garde, experi-menting with cubism and futuristic formats. He is best known for his uncompromising re-alism, however. Dix’ birthplace on the banks of the White Elster river has been made into a museum housing one of the largest stateowned collections of his works.

Duke by birth, director by avocation

81 | *Georg II and his theater in Meiningen*

“The Meiningers are coming!” Back in the 19th century, this was an announcement that could fill theaters from Stockholm to trieste, from London to Moscow. When the curtain went up, the audience would marvel at the sets even before a single actor had stepped on stage. Elaborate historical backdrops, intricate mass choreography, and the artistic refinement infusing each production made the “Meiningers” a famous and beloved theatrical company. The troupe’s artistic director was none other than Duke Georg II of Saxony-Meiningen, who was known for ground-breaking stage artistry that successfully translated Richard Wagner’s concept of the Gesamtkunstwerk (a total work of art unifying various media of art) from the opera to the theater. Carrying on this great theatrical tradition, Meiningen’s venerable theater offers modern audiences everything from musicals, dramas, musical concerts, ballets, and puppetry. Top-notch musical accompaniment is provided by the Meiningen Court Orchestra, founded in 1690. The theater itself, a neoclassical structure from 1831, was fully renovated for its 180th anniversary. Thanks to the installation of state-of-the art theater equipment, audiences can now experience cutting-edge productions in a lush historic setting.

The scholarly legacy of the duchess

82 | *Doing research in the Anna Amalia Library*

In 1691, the Duke of Saxony-Weimar opened the doors of his library to the general public. This event marks the birth of one of Germany's most important research collections: the Herzogin Anna Amalia Bibliothek. The library had nothing special to recommend it at first, much like the small duchy of Saxony-Weimar where it was located. But as the city of Weimar, astride the River Ilm, began to bloom into a cultural powerhouse, the ducal library, too, grew by leaps and bounds. In 1766, Duchess Anna Amalia had the collection moved to its present location in the "Green Palace." By 1800, the ducal library had joined the ranks of the most notable libraries in the German-speaking lands. A tragic landmark in its long history occurred in September of 2004, when a fire destroyed the upper floors and famous rococo reading room. Important works of art as well as 50,000 valuable volumes went up in flames, while another 62,000 were damaged. Intensive repair work began immediately, so that three years later, the completely restored building was inaugurated by the German Federal President.

Right-wing extremism? Not in our name!

83 | *The Rock ‘n’ Roll Arena in Jena*

In November of 2011, Germany was shaken by news that an underground cell of neo-Nazis had gone on a ten-year murder spree without being detected, one that ultimately claimed ten innocent lives. The cell’s three members, it turned out, came from Jena. The people of the city on the Saale River decided to send a loud and clear message against right-wing terror with a huge open-air concert held two weeks later. Called the “Rock ‘n’ Roll Arena in Jena” (after a song by German pop star Udo Lindenberg), this protest event attracted some 50,000 visitors who stood up to be counted and make their voices heard. Udo Lindenberg himself performed, as did other German stars like Peter Maffay, Silly, and Clueso. Thus, on December 2nd, 2011, ordinary Germans joined forces with some of their favorite entertainers to show what Jena really stands for: tolerance, diversity, and openness.

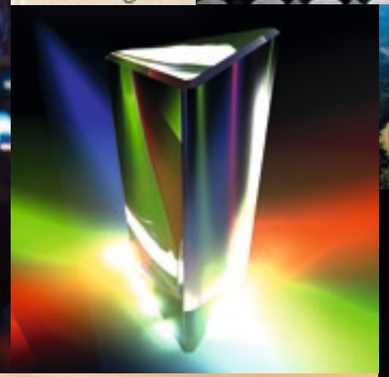
Jena 83 | 84 |
Unterrenthendorf 84 |

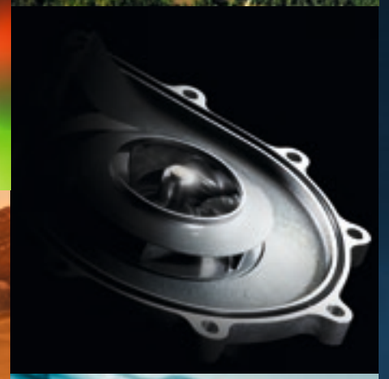
Researcher, globetrotter, raconteur

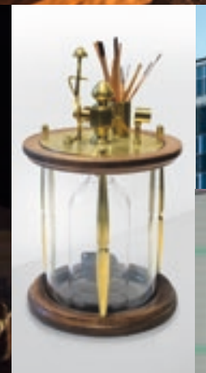
84 | *Alfred Brehm and his Life of Animals*

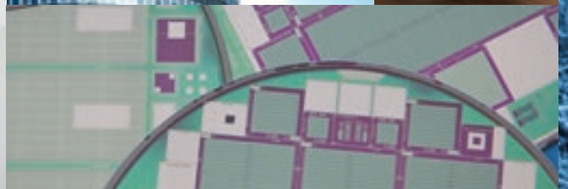
Alfred Edmund Brehm, born in 1829 in Unterrenthendorf, was entranced by the animal kingdom even as a child. Nonetheless, he first set out to study architecture. When the ornithologist Johann Wilhelm von Müller invited him to accompany him on an expedition to Africa, however, the young Brehm decided to join up and broke off his university studies. For five years, Brehm observed and studied the animals that he encountered in Sudan and in Egypt, preparing numerous taxidermic models in the process. The young traveler also developed a keen interest in the peoples of the region. In his travelogues, he described the local cultures and railed against the injustice of slavery, which was commonplace in those days. At the same time, he argued passionately that the European colonial powers were duty-bound to bring civilization to the purported “savages.”

Upon returning to Germany, Brehm studied the natural sciences in Jena. He took part in further expeditions, and used his adventures and experiences as material for his articles and books. Brehm’s most ambitious and best-known work, Brehm’s Life of Animals, was a reference work that would go on to influence generations of readers. Even today, the name rings a bell with many Germans. The long-term popularity of this encyclopedic work was due above all to its magnificent illustrations and captivating descriptions. Alfred Brehm did not see animals as soulless machines intent only on devouring their food, but as living creatures with individual characteristics. Brehm’s work was validated by no lesser than Charles Darwin, who saw to it that the Thuringian’s writings were translated into English.









Ground-breaking Discoveries

An elegant solution, Professor!

85 | *Futuristic technology for the mobile internet*

Faster, farther, higher – what goes for sports applies all the more to the mobile internet. After all, we expect our smartphones and tablets – essentially flat, portable computers to be used “on the go” – to deliver ever larger volumes of data at ever-increasing speeds. But this can only happen if scientists keep pushing the envelope with innovative solutions – as Professor Reiner Thomä is doing, for example. While heading the Electronic Measurement Department at the Technical University of Ilmenau, Prof. Thomä has developed the so-called “sounder” technology that analyzes how radio waves spread through specific environments. It is an innovation which mobile phone companies can use to make their systems more flexible and efficient, especially in big cities and other densely populated areas where heavy demand for internet access from mobile devices can test the physical limits of transmission networks. Thus, Professor Thomä’s research is contributing to the development of a fifth generation (5G) wireless communication standard that will soon supersede the current 4th generation (LTE/4G). In recognition of his work, the Ilmenau-based scientist was awarded the Vodafone Innovation Prize in 2014.

Software that made history

86 | *Online retailing thanks to the Intershop*

For many people in the former German Democratic Republic, the so-called “Intershop” chain of stores represented the wider world beyond their own borders. This was where you could buy goods from the Capitalist West – so long as you could pay in West-German marks. In the 1990s, after German reunification, three young entrepreneurs from Jena made ironic use of the Intershop name to christen a new product: software that allowed merchandise to be retailed on the internet. This went on to become the world’s first, fully functional e-commerce platform. Although Intershop Communications AG went through tough times in the wake of the 2001 “Dotcom Crisis,” the company is now once again in the black. Its customers include Hewlett Packard, Bosch, and Deutsche Telekom. Former associates of Intershop have also gone to form their own spin-off internet companies in and around Jena, creating a regional competence cluster for software development.

Maggi? No, Scheller!

87 | *The real inventor of instant soup*

Some misconceptions take a long time to die out. One of these is that Julius Maggi supposedly invented instant soup. In reality, Swiss entrepreneur Rudolf Scheller had already been making dried soups some 15 years earlier in the Thuringian town of Hildburghausen, and was selling them in large quantities to the Prussian Army. In the years 1870/71, Prussia was at war with France and was feeding its soldiers rations of Erbswurst: ground peas compressed into a sausage-shaped paste and diluted with water to make soup. Unfortunately, the paste proved to be too moist and would not keep for long. Scheller set about improving the recipe and pressed the ingredients onto dried bars. Although the military rejected Scheller’s innovation, the enterprising Thuringian refused to give up; in 1872, he began producing his own line of “condensed soups” on a large scale. His soup bars came in four varieties (rice, flour, semolina, or peas), and were ready to be eaten in min-utes. Scheller’s soups were a hit and made it all the way to the United States. There was no competition at first, but that changed when the Maggi and Knorr companies succeeded in bringing their own instant products to market. By 1947, the “Erste Fabrik condensirter Suppen” factory in Hildburghausen had to close its doors.

Scanning instead of shooting

88 | *3D photos from Kolibri-Mobil*

Here's a futuristic vision of the Lindenau Museum (see No. 49) in 2030: art history students take pictures of ancient sculptures, but none of them use a digital camera. Instead, they scan the statues and busts from top to bottom. A fraction of a second later, they have three-dimensional facsimiles of the artworks to take home with them. This may sound like science fiction, but researchers in Jena have already brought it a step closer to reality. A special camera developed by the Fraunhofer Institute for Applied Optics and Fine Mechanics (IOF) is able to model objects in 3D with great precision. Older devices were difficult to operate and could only be used in a stationary location. Although the IOF's Kolibri-Mobil camera is still too expensive for everyday consumers, it is already being put to a wide range of uses. In the automotive industry, for example, where it can help verify the quality of any vehicle part. Medical technicians can also use the revolutionary camera to fine-tune their prosthetics more accurately. And criminologists can instantly scan a burglar's footprint into a 3D image, rather than wait for a plaster cast to dry.

Bad Langensalza 90 |
Jena 89 |
Schmalkalden 91 |

Fire at will!

89 | *Döbereiner and his catalytic lighter*

“Have you got a light?” When smokers help each other out on the street with their brightly colored, plastic lighters, a simple principle is put into operation: a rotating flint wheel creates a spark, which then ignites a gas. The predecessor of this everyday device worked without sparks and was a great deal more complex.

In 1823, Johann Wolfgang Döbereiner, a native Franconian who worked as a chemistry professor in Jena, discovered that hy-drogen would make platinum incandescent. This enabled him to create a new type of lighter known as “Döbereiner’s Lamp.” In a small glass cylinder, zinc was mixed with sulphuric acid to create hydrogen gas; when the gas came in contact with a small piece of platinum sponge, it oxidized and – pow! A flame sprung up.

Although the Döbereiner lamp was generally safe and convenient, it could explode if left unvented for long periods. It remained in common use nonetheless for decades. Today, Döbereiner’s lamps have become a coveted collector’s item. But perhaps the real legacy of this talented chemist and per-sonal friend of Goethe is his pioneering role in the field of industrial catalysis: Döbereiner’s idea to accelerate the reaction of two substances by adding a third has become a proven way to save energy, time, and precious resources.

The doctor who promoted longevity

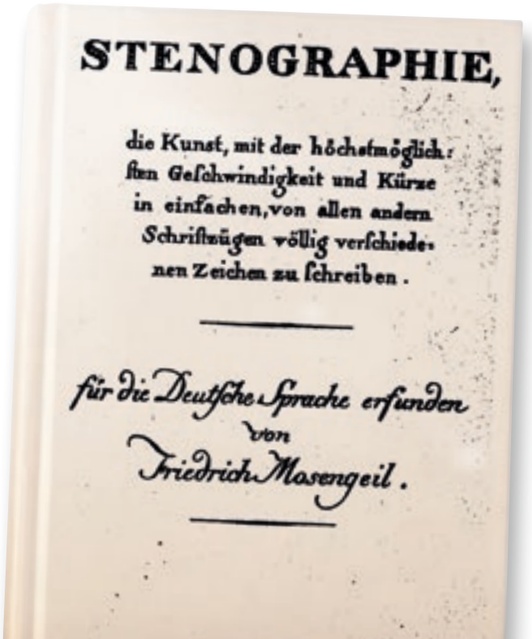
90 | *Christoph Wilhelm Hufeland*

Living a long and healthy life requires balanced nutrition, plenty of exercise, adequate sleep, moderate alcohol consumption, and the occasional ice cold shower. One would think these maxims are as old as the hills, yet they were actually introduced no more than 200 years ago by a physician named Christoph Wilhelm Hufeland. A native of Bad Langensalza, Hufeland started out as a personal physician to the prominent citizens of Weimar. He then became a Professor in Jena and eventually continued his career in Prussia. What made him famous all over the globe was a book published in 1796/97: “The Art of Prolonging Human Life.” Many of the ideas and recommendations it presented were ahead of their time. Hufeland’s accomplishments included his advocacy of vaccination, his discovery that war could have traumatic effects on former soldiers, and his establishment of the first polyclinic for the poor in Berlin. His guiding principle: “The physician must always see his patient as a human being, without any distinction as to rank or station.”

Keeping it short

91 | *Friedrich Mosengeil’s stenography*

Stenography may seem a bit old-fashioned, given that we now have handy dictation machines that produce hi-fi recordings of speeches and conservations. Yet shorthand is still practiced today, in the Bundestag, for example. One of the fathers of stenography in the German-speaking lands was Friedrich Mosengeil. The son of a parish pastor, Mosengeil developed a system during his studies that allowed the user “to write with maximum brevity and speed [….] using simple symbols.” This formed the basis of an instructional manual that Mosengeil published in 1796 in Zillbach, near Schmalkalden.

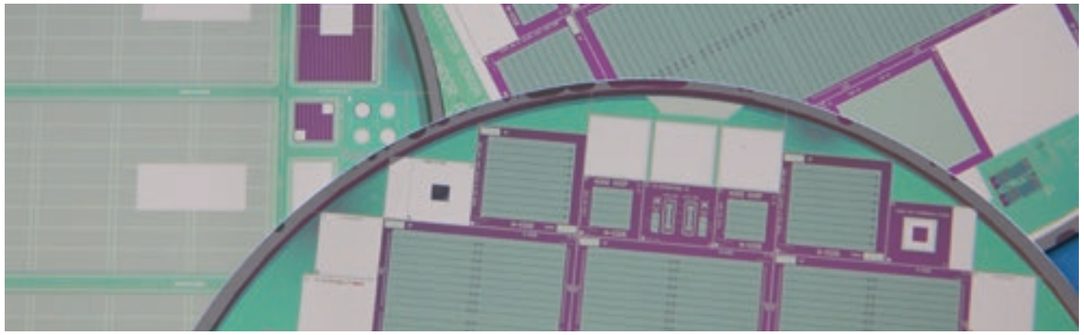

STENOGRAPHIE,

die Kunst, mit der höchstmöglich-
sten Geschwindigkeit und Kürze
in einfachen, von allen andern
Schriftzügen völlig verschiede-
nen Zeichen zu schreiben.

für die Deutsche Sprache erfunden
von
Friedrich Mosengeil.

Making the Big Bang go backwards

92 | *Hunting for the Higgs boson*



Half a century ago, the British physicist Peter Higgs posited the ground-breaking thesis that an additional elementary particle was likely to exist besides those making up the atom that were already known to science. But it took until 2012 before the European Organization for Nuclear Research (CERN) was able to prove the existence of the so-called “Higgs particle.” The discovery was a world sensation, one that technology from Erfurt had helped to make possible. Engineers of the CiS Forschungsinstitut für Mikrosensorik and Photovoltaik GmbH (Research Institute for Microsensor Technology and Photovoltaics) had developed the special silicon detectors that enabled CERN to measure the trails of the hyper-fast particles under investigation. One member of the CiS team was Ralf Röder.

Mr. Röder, what makes the Higgs boson so special?
For a long time, the Higgs particle was the missing piece in a complex puzzle. Its existence helps to explain why physical bodies have mass and why they attract one another. Without the Higgs particle, there would be no stars or planets, and therefore no life.

What was the task assigned to your institute?
CERN has set up gigantic machines designed to accelerate elementary particles close to the speed of light. The process that takes place in these “accelerators” is something like the Big Bang in reverse. The elementary particles collide, break apart and leave traces behind. Our silicon sensors record these traces, which can then be used to draw conclusions about how they were caused. Our measuring units are as thin as business cards, yet robust enough to withstand the powerful forces at work inside the machines. Besides us, there are only a handful of companies worldwide that make comparable products.

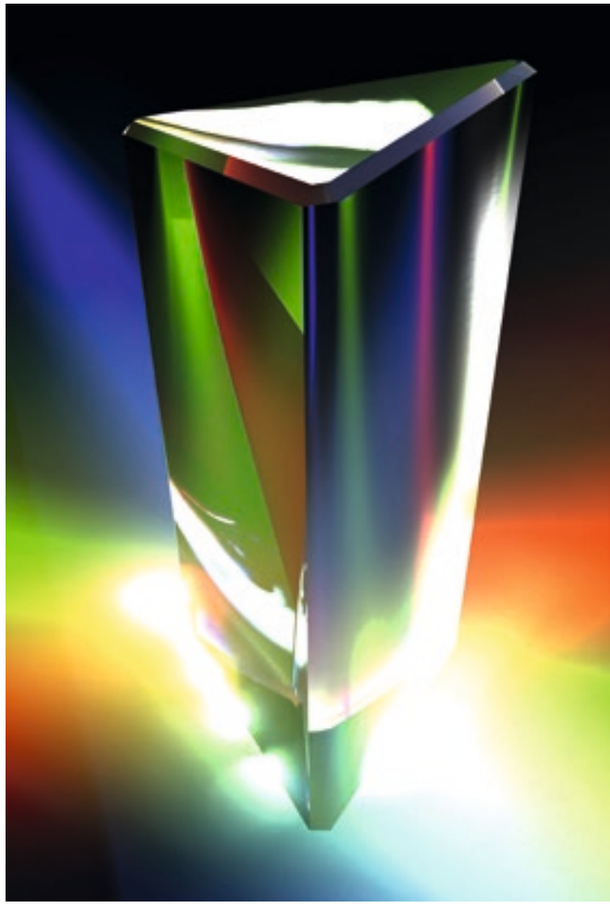
Can your sensor also be put to other uses?
Not immediately, that’s for sure. But high-tech research often has the added benefit of stimulating or accelerating the devel-opment of practical applications. In somewhat modified form, our sensors could prove useful in medical technology, for example.

Lost and found

93 | *Ritter discovers UV light*

In 1800, the Jena-based natural scientist Johann Wilhelm Ritter received exciting news from England: William Herschel, the famous astronomer, had discovered a form of invisible light. Herschel had set up an experiment in which he allowed sun beams to pass through a prism, therby producing a visible spectrum of colors. He had then measured the temperature of each color and found that it increased progressively from violet and blue to green and yellow and eventually to red. Surprisingly, the temperature was especially high to the right of the color spectrum, i. e. in a range where red light was no longer to be seen. What Herschel had accidentally discovered was infrared light.

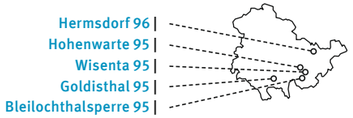
Inspired by Herschel, Ritter decided to look for more types of invisible light. Influenced by the philosophical ideas of the “Jena Romanticism” school, Ritter believed that infrared right had to have a counterpart – a violet light likewise invisible to the naked eye. Ritter knew that silver chloride turned black when exposed to the sun. He also knew that violet light was more intense than red light. Accordingly, he constructed an apparatus in 1801 that allowed him to expose silver chloride to the invisible light that he suspected to exist just beyond the visible spectrum. Lo and behold, the silver chloride turned pitch black. Ritter had discovered ultraviolet light (UV light).



Turning a façade into a dream world

94 | *Hendrik Wendler's "Medienserver"*

Square stones that seem to extrude precariously in front of the passers-by's very own eyes, or fish swimming by on a stone wall – these and many more are the stunning visual illusions that can be created by video projection, an art form whose pioneers include Hendrik Wendler. A trained architect and specialist in computer graphics, Wendler and his fellow designers at the Bauhaus University were able to design projection software that allows any projection desired to be adapted to the façades and backdrops. Known as the "MXWendler Medienserver," the program creates such impressive results that Wendler now runs a company with ten employees. Many prominent theaters currently rely on the Medienserver to expand their stages into veritable fantasy-scapes, while hip nightclubs like Berlin's "Water-gate" use it to create surreal dance and party environments for their guests.



Power on demand

95 | *Pump storage units for Germany's energy turnaround*

On the evening of November 4th, 2006, some 15 million Europeans had to sit in complete darkness for about 90 minutes. A power company on the banks of the River Ems had turned off a high-voltage line in order to allow a cruise ship to pass underneath on its way to the North Sea. The resulting surge of power overloaded the networks in a number of other countries, causing a massive power outage. The only region immune was Eastern Germany, thanks to the timely activation of a "fuse" in the local network: the country's biggest pumped-storage hydroelectric plant in Goldisthal near Sonneberg.

The power station functions according to a relatively simple concept. A huge water catchment basin with a capacity of about ten Olympic swimming pools has been built on a mountain top. From here, pipes convey the water into a second basin, this one being underground. Whenever there is a power glut in the grid, turbines use the surplus electricity to pump the water to the hilltop. When there is a power shortfall, on the other hand, the water in the top basin is allowed to plunge down into the lower basin about 300 meters below, thereby generating electricity. On that fateful November evening, when a huge surge of power came rolling down from the north, Thuringia's technicians turned their pumping systems on, thus preventing the power outage from spilling over to Eastern Europe.

Thuringia currently has four additional pumped-storage hydroelectric plants besides Goldisthal: Hohenwarte I and II, Bleiloch, and Wisenta. Additional plants are planned, since Germany's strategic shift to renewable energy sources will increase the need to absorb excess electrical power. As things stand, wind turbines often have to be taken offline on stormy days to protect the power grid. The sun is another energy source subject to the vicissitudes of the weather – it is not always shining just when you could use some electricity. Pump storage units allow a more intensive exploitation of the energy from renewable sources. Since green energy facilities tend to have an appreciable impact on the landscape, it is essential to involve local citizens and environmental organizations when planning the various projects.

Ceramics for the environment

96 | *IKTS revolutionizes nanofiltration*

When the writer of a newspaper article wants to emphasize how extremely thin something is, he or she will often compare it to a human hair. Now, a team at the Fraunhofer Institute for Ceramic Technologies and Systems (IKTS) in Hermsdorf has produced a membrane 1,000 times thinner than a hair – too small for a person to even visualize it in their imagination! The IKTS team uses this membrane, which contains titanium dioxide, to create a liquid-filtering coating for pipes. The membrane's pores are narrower than a nanometer (0.000001 millimeter) and can filter out particles and molecules for which the word "tiny" is no longer adequate. When a textile factory pumps its wastewater through the coated pipes, for example, colored dyes remain caught in the pores and are removed from the wastewater. The special aspect of this technology is that previously, only plastic pipes could be coated with membranes. IKTS' innovation can be used for ceramic pipes as well. This has advantages for industry as well as the environment, since ceramics are resistant to acids and heat. Thus, the textile factory no longer has to wait until its brew of colored dye, which can reach temperatures of up to 90 °C (194 °F), has cooled down before starting the clarification process. Instead, the purified hot water is immediately available for re-use, thus saving energy. Another area of application for the new nanofiltration pipes: catalytic reactions involving precious metals such as expensive platinum compounds. These cannot be filtered out with traditional methods and are generally lost once they have been used to trigger an industrial process. Thanks to the ceramics devel-oped in Hermsdorf, such precious metals can be retained in the production cycle.

Greetings from the Red Planet

97 | *Technology from Jena on Mars*

SUV, robot, space lab – the Curiosity Rover exploration vehicle is all these things combined. Having touched down on Mars in the summer of 2012, Curiosity will help NASA discover whether life is possible in this inhospitable environment. Key components of the high-tech equipment on board the Curiosity Rover were made in Jena. Thus, sensors developed by the Institute for Photonic Technologies (IPHT) are taking measurements of the Red Planet's temperature, while photo-diodes from IFW Optronics GmbH document the levels of UV radiation. Peter Eisenhardt, Head of Production and Development at IFW Optronics, points out that this represents a clear vote of confidence by NASA in the quality of high-tech from Thuringia:

Mr. Eisenhardt, what importance do you ascribe to the Mars mission?
Curiosity will increase our knowledge of Mars exponentially. For me personally, it's the technical achievement that stands out. To be able to land an all-terrain vehicle weighing almost one ton undamaged on another planet, and to then steer it across the surface by remote – as an engineer, I find that awe-inspiring!

Curiosity incorporates six diodes supplied by your firm. Why wasn't one diode sufficient?
Each diode fulfills a single, precise function: one detector measures the overall spectrum of UV radiation, while each of the other five measures a specific subsection.

What makes your UV detectors special enough to be part of Curiosity's equipment?
No one can predict exactly whether or not all of the components of the Rover will remain operational until the end of the mission. But one thing is certain: down to its last detail, the Curiosity Rover represents the absolute technical state of the art. This also applies to our photo-diodes, which had to meet two key requirements: they had to withstand the harsh conditions on Mars and also supply precise data on UV radiation. This means, among other things, that they had to thoroughly filter out all other types of light. Perfecting such detectors is a technical achievement that few of our competitors can match!

Pumping its way back to the top

98 | *Auto parts from GPM in Merbelsrod*

It's a pattern often repeated in Thuringia over the course of German reunification: in 1991, the economy of Merbelsrod, a village near Hildburghausen, was literally saved by securing a single, large-scale order. Since its founding in 1939, GPM Geräte- und Pumpenbau GmbH had been practically synonymous with Merbelsrod. After the collapse of the German Democratic Republic, East German suppliers of the automotive industry like GPM suddenly stood on the brink of ruin, given that production of the outmoded Trabi and Wartburg models had to be shut down. But GPM was able to convince Volkswagen of its products. Despite receiving this new lease on life, the venerable GPM brand had to assert itself on the world market all over again, just like any newcomer. Some twenty years later, GPM has managed to become firmly established, however. Practically every car on German streets contains some component made in Merbelsrod. Leading truck makers, too, use GPM's water and oil pumps. To ensure that this success can be sustained going forward, almost one in ten of the company's 1,000 employees are involved in R&D in one form or another.

From knick-knacks to measuring devices

99 | *Mass-producing thermometers*

Making a good idea available for everyday, practical use requires lots of business acumen. Franz Ferdinand Greiner, the first to bring mass-produced thermometers onto the market, certainly had it in spades. A miller from Stützerbach in the Ilm district, Greiner apprenticed as a glass-blower for lamps; in 1830, he set up his own glass foundry in the family water mill. At first, the workshop's output consisted mainly of glass knick-knacks. One evening, Greiner was watching as one of his employees, Wilhelm Berkes, blew a left-over piece of glass into a pipette with a bulb at one end, which he then filled with a liquid that expanded when exposed to heat. Realizing that this was the rudimentary basis for a thermometer, Greiner decided to expand his product palette. Working together, Greiner and Berkes made a number of improvements to the design, using mercury as the filling liquid, for example. Thus, Greiner was able to bring the first serially produced thermometer to market. Greiner's tradition of excellence is carried on by Geratherm Medical AG in Geschwenda. Today the company's products inter alia include touch-free fever thermometers.

Mankind decoded

100 | *The genome project reveals our DNA*

The human genome consists of some three billion building blocks. In 2003, the announcement came that this complex structure had finally been fully mapped and sequenced. This may not sound spectacular to the layman, but as far as the scientific community was concerned, the International Human Genome Project was perhaps the most ambitious project ever attempted in the bio-sciences, with some 20 research institutes participating all over the world. One of these was located in Jena: The Leibniz Institute for Age Research – Fritz-Lipmann Institute (FLI). Here, researchers working in collaboratio with colleagues elsewhere in Germany as well as in Japan achieved the first-ever, comprehensive analysis of the human Chromosome 21 in the year 2000. This momentous milestone will greatly increase the changes of developing successful therapies against trisomy 21, a gene mutation better known as “Down’s Syndrome.”

Five years later, the Jena-based research team helped the Human Genome Project to achieve a further breakthrough: the decoding of the X chromosome, the gender chromosome shared by both men and women. This is significant because the X chromosome is especially likely to carry abnormalities. Thus, many congenital diseases will now be better understood.

Famous Exports

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Fabio Sabatini | Getty Images

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Wilhelm Wagenfeld Bauhauslampe (c) VG Bild Kunst, Bonn 2015 | interfoto

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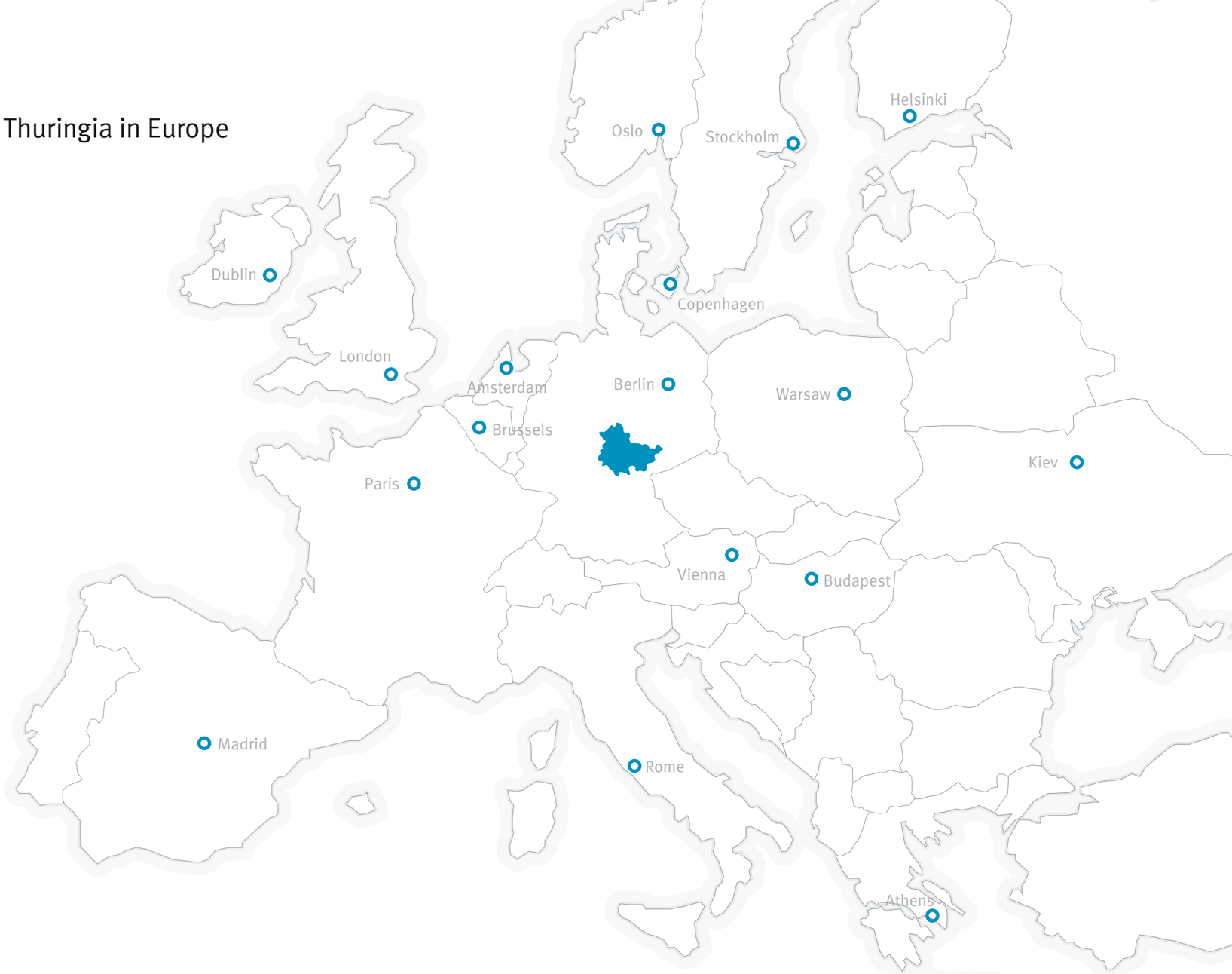
The locations of our 100 stories

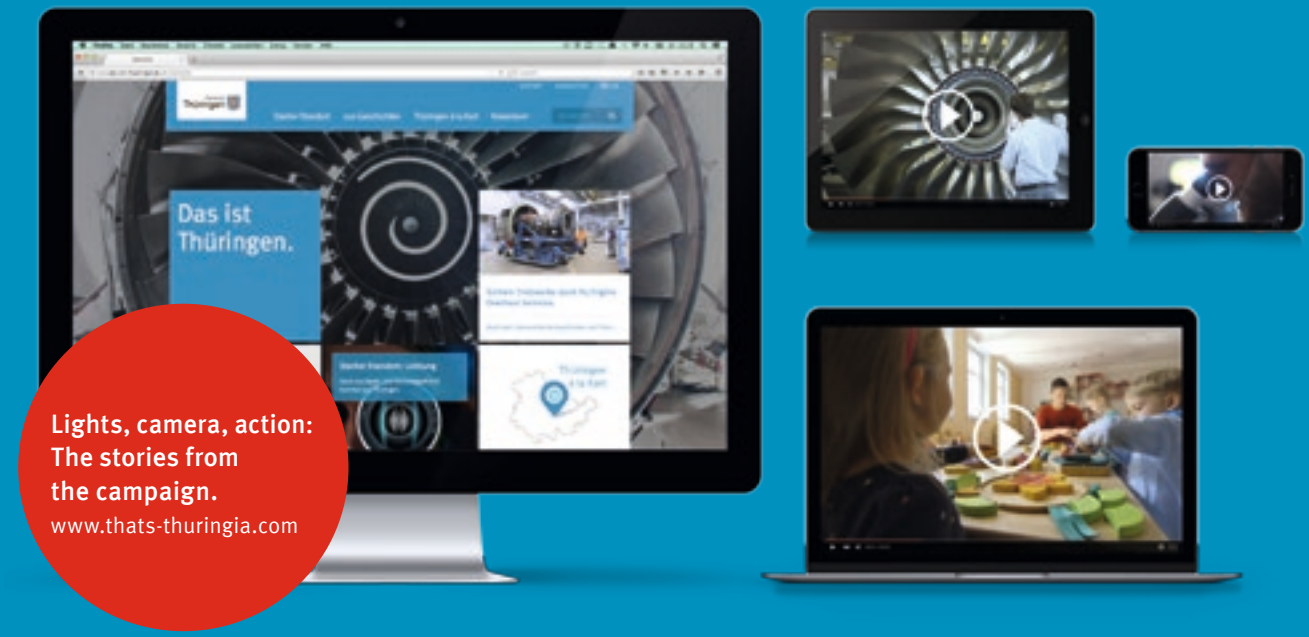
Thuringia in Germany

Thuringia in Europe



Thuringia on the Web.

www.thats-thuringia.com



Lights, camera, action: The stories from the campaign.
www.thats-thuringia.com

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EUROPEAN REGIONAL DEVELOPMENT FUND

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The European Union helps keep Thuringian history alive with the promotion of cultural and artistic monuments like the Goethe/Schiller Archive in Weimar, the Meiningen Theater or the Fairy Caves (Feengrotten) in Saalfeld. By granting promotion of business and research institutions, funds serving to improve the state's institutions of higher learning and to provide computers to schools, the EU ensures that Thuringia can carry on its legacy of achievement in the future as well!

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