

# Thuringia: 100 stories, 100 surprises.



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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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That's Thuringia.

The state marketing campaign.

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## Ladies and Gentlemen,

Not long ago, we published “Thuringia – A Pleasant Surprise,” a brochure showcasing aspects of our “Free State” that many people know little about – from the innovative and creative, to the amazing or merely amusing. This compendium of 50 background stories was a big success.

A wide audience appreciated the booklet and its positive surprises. Reason enough, we thought, to follow up with another edition.

But since Thuringia has even more to offer than what we could fit into the first edition, we decided to enlarge its scope; in fact, we’ve doubled it! Thus, what you are holding in hand comprises 100 highlights from Thuringia that you really ought to know. They include ideas, discoveries, and inventions, both large and small, as well as historical events that have changed life in Thuringia and in the world beyond. In other words: all the things that give our Free State its unique character.

Our collection of stories tells of pioneer spirit and entrepreneurship, of courage, of new ideas and innovations with the power to effect change. This is what Thuringia is all about, and it gives our state a well-deserved sense of confidence. For it takes knowledge of one’s own history and confidence in one’s abilities to convince and win over others.

And that’s exactly what you will also find in our new Thuringia app, which presents the 100 true Thuringian stories printed below in digital form as well. Of course the app also contains lots of additional information about the Free State, including many things that are worth seeing and/or reading about.

The following true-life stories amply support our understanding of Thuringia: it is a region where looking ahead to the future is a long-standing tradition!

I hope you will find this information a stimulating and entertaining read.

A handwritten signature in black ink, appearing to read 'M. Machnig', with a stylized flourish at the end.

**Matthias Machnig,**

*Thuringian Minister for Economy, Labour, and Technology*

## The Brooklyn Bridge

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# Famous Exports



## A native Thuringian creates a New York landmark

### 01 | *The Brooklyn Bridge*



The Brooklyn Bridge is a New York icon and one of the world's most famous bridges. But how many people know that it was designed by a native Thuringian, John August Roebling?

Born in Mühlhausen as Johann August Röbling, this gifted architect and engineer emigrated to the United States as a young man. After a stint as a farmer, he went to work for a railroad company. Later, he demonstrated that steel cables were ideal for the construction of suspension bridges, and founded the first cable factory in the US. In the early 1850's, Roebling oversaw the building of a suspension bridge near Niagara Falls. Drawing on this experience, he boldly proposed in 1857 that such a bridge could also span New York's East River. However, this ambitious idea was not well received by the

mayors of New York and Brooklyn (still independent cities at the time). In fact, it took a huge lobbying effort to secure the required public funds and government permits. In July of 1869, Roebling was finally able to start construction.

Sadly, he did not live to see the grand opening of the Brooklyn Bridge fourteen years later: just a few weeks after work began, he suffered a crushed foot while surveying the building site. The foot was amputated, but a fatal case of blood poisoning followed. Roebling's son had to take over the project and see it through. Today, a number of memorials commemorate the genius engineer from Thuringia, including the John A. Roebling Park in New York and the Johann-August-Röbling school in his old hometown of Mühlhausen.

## 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 20<sup>th</sup> 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, but conceived a passion for the occult art of alchemy. 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 Saxon fortresses. While he 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,” as porcelain was then known. Sadly, Johann Friedrich Böttger had little opportunity to rejoice: overwork and carousing had destroyed his health, and by 1719 he was dead. Böttger’s porcelain-making recipe remained a well-kept secret for more than five decades, until new techniques were discovered almost simultaneously by three other Thuringians: the theologian Georg Heinrich Macheleid, the ironworks inspector Johann Wolfgang Hammann, and glazier Johann Gotthelf Greiner. Though competing as rivals, these three jointly laid the cornerstone of Thuringia’s tradition of porcelain manufacturing.



reddot design award  
winner 2005

*Founded in 1844, Kahla/Thüringen Porzellan GmbH, one of Europe’s largest porcelain makers, remains headquartered in the state to this day. The firm regularly wins international prizes for its chinaware, such as the Red Dot design award, which it received seven times between 2001 and 2012. (Photo: the award-winner in 2005, the “touch!” Collection.)*



## 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 500 people and is the only one in Europe to refurbish the Rolls-Royce engines that power the Airbus 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”



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 2012. This prestigious award is presented annually by the A.T. Kearney consulting firm in partnership with the German business magazine “Produktion.”

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, ultrathin 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 wearout and fuel consumption.

Another key Daimler operation, MDC Technology GmbH, is located in Arnstadt. This is where the Daimler Group fine-





## 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.



## Europe's biggest wardrobe 08 | *Jobs in the logistics sector*

Although some 60 alternative sites were available in Germany, online shipper Zalando ultimately selected the freight haulage center in Erfurt as the site of its new logistics hub. With warehouse space of over 120,000 m<sup>2</sup>, it is Europe's largest merchandise depot for shoes and fashion. This gigantic "walk-in closet" provides employment for some 1,000 persons.

But Zalando is not the only company to take notice of the excellent logistics infrastructure and central location that the Thuringian capital has to offer. Thus, internet retailer Redcoon has also decided to set up an operation in the freight haulage center, which is set to create about 350 jobs by 2015. A subsidiary of Media-Saturn-Holding GmbH, Redcoon distributes books plus a range of about 36,000 electronic products, including CD players, computers, household appliances, fitness equipment, and musical instruments.

The nearby town of Apfelstädt happens to be where Redcoon's parent company, Media-Saturn-Holding, processes the online transactions of its Media Markt chain of stores. Located in Apfelstädt's Mega Center, the center has been run by the company Fiege since early 2012, when Media Markt first launched its online shop. The workforce in Apfelstädt currently numbers more than 450.







## Born in Thuringia, demanded worldwide 09 | *Eva Padberg, top model*

Perhaps the most beautiful of Thuringia's top exports, Eva Padberg was born on January 27<sup>th</sup>, 1980 in Bad Frankenhausen. Though she has become an internationally sought-after model, the 33-year-old has many other facets as well, and her calendar is chock-full of different events and projects. Besides conquering the international catwalks and being named "World's Sexiest Woman," the young Thuringian is also a successful moderator, author, and actress. She has recorded three musical albums and numerous singles, performing under the name Dapayk & Padberg together with her musician husband. Besides her many professional activities, Eva Padberg also finds time for charitable work. Thus, she helps sponsor numerous projects and travels around the globe as an ambassador for UNICEF, the UN's assistance fund for children.





## Earning a German degree 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 140 schools worldwide offer German diplomas to their students. Add to this more than 870 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. 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 everywhere 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 far above the earth 12 | *The astronaut Ulf Merbold*

He's a high-flyer – in the truest sense of the word. When Ulf Merbold boarded the US space shuttle Columbia on November 28th, 1983, he was not only the first West German in space, but also the first non-American to take part in a NASA mission. The fact that Merbold followed the East German cosmonaut Sigmund Jähn into space would probably not have been possible if he himself had not emigrated from the German Democratic Republic. Born in 1941 in Greiz, Merbold had intended to study physics in Jena, but was not allowed to enroll because he was not a member of the FDJ, the Communist youth organization. So the 19-year-old left for

the West, where he embarked on a career at the Max-Planck Institute for Metals Research in Stuttgart.

A passionate glider pilot, Merbold found his way into the realm of zero gravity by answering a simple ad in the newspaper. The year was 1977, and the European space agencies were looking for a “scientist to work in a space lab.” Merbold was able to prevail over 2,000 other applicants and eventually participated in three trips to outer space. In 1992, Dr. Ulf Merbold was named an honorary citizen of Greiz. The school from which he graduated now bears his name.

## Harry Potter goes to the printers 13 | *Books from Pössneck*

Back in the days of Communist East Germany, this was where the Soviets had the Moscow phone book published. Today, GGP Media prints books authored by Pope Benedict XVI, for example. GGP Media GmbH is one of the biggest offset-printing operations in Europe, one of the ten biggest companies in Thuringia, and of course the pride of Pössneck. The firm was also the first in Europe to pioneer the use of environmentally friendly printing paper. But probably its biggest claim to fame is the Harry Potter series: parts of the German-language edition, as well as the seventh volume of the British edition, were printed in Thuringia. The delivery of the Harry Potter books alone always presented a considerable challenge for GGP Media, since not a single book was allowed to find its way to the public before the official sales date!



“Development aid for Bavaria”:  
 A Thuringian designs the first  
 German postage stamp.

## From mass production to collector's item 14 | *The Schwarze Einser postage stamp*

What nickname was given to the very first German postage stamp? The right answer – the Schwarze Einser (“Black No. 1”) – recently allowed a contestant on the German version of “Who Wants to be a Millionaire” to walk away with the top prize. An even more difficult question would have been: name the hometown of Johann Peter Haseney, the engraver who created the historic stamp. Answer: Zella-Mehlis in Thuringia. As a young man, Haseney moved to Munich to work in the banking sector. In 1849, he designed a black stamp with the number “1” in the middle for issuance by the Kingdom of Bavaria. Once a mass product, a single sheet of Schwarzer Einser stamps now fetches hundreds of thousands of euros at auction.

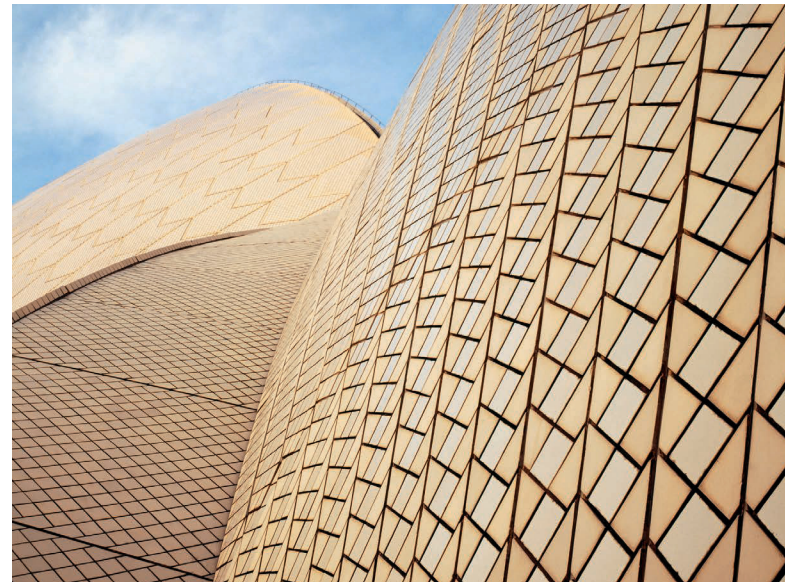


## The sound of Erfurt

### 15 | *Iosono fits out the Sydney Opera*

The Sydney Opera House is one of the world’s most distinctive public buildings. Unfortunately, its aesthetic merits are not matched by its acoustics, to the disappointment of many opera lovers. For example, the orchestra pit is too small for works requiring a large number of instruments. In the meantime, the Erfurt sound engineering firm IOSONO has been involved to provide an intelligent solution for the problem. When the opera “Die tote Stadt” (The Dead City) by Wolfgang Korngold was staged in June of 2012, IOSONO’s “3D-Sound” technology was used to create an acoustic hologram of the orchestra, which was not physically present in the opera

building. Instead, the orchestra was playing the music, real-time, in an external studio, from where the music was transmitted into the auditorium. The resulting sound was so well-balanced that each member of the audience effectively had a premium seat. The local daily “The Australian” was full of praise: “The acoustic design captures each detail in the way one would expect from a live concert.” In March of 2013, this 3D technology by IOSONO was like-wise used for an open-air production of Bizet’s “Carmen” set against the backdrop of Sydney harbor and the opera buildings.



## 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



## A sweet 1<sup>st</sup> 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 way.

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 20<sup>th</sup> 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 the enticing aroma comes from an 18,000 m<sup>2</sup> 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 that Opel, the Eisenach-based automotive giant, will be rolling out in 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 Glastechnisches 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 sticks from Lindewerra*



What’s the best material for a walking stick: carbon fiber or wood? It’s a hotly debated topic on internet forums for hiking enthusiasts. While modern, telescopic models have mostly displaced traditional walking sticks of oak or chestnut, the hand-carved varieties still have plenty of aficionados. And there’s no better place to find the perfect crafted walking stick than in Lindewerra. This village in Thuringia’s Eichsfeld region boasts a long tradition as a “cane-makers’ town.” First introduced to Lindewerra in 1836 by Wilhelm Ludwig Wagner, cane-making grew to a cottage industry that employed almost all of the local families by 1900. Two workshops are still around today, but their products are shipped to customers all over the world. Thus, a number of the walking sticks used by “Dr. House” on the eponymous US TV show were made in Lindewerra.





## Masters of innovation

### 23 | *Carl Zeiss and Ernst Abbe*

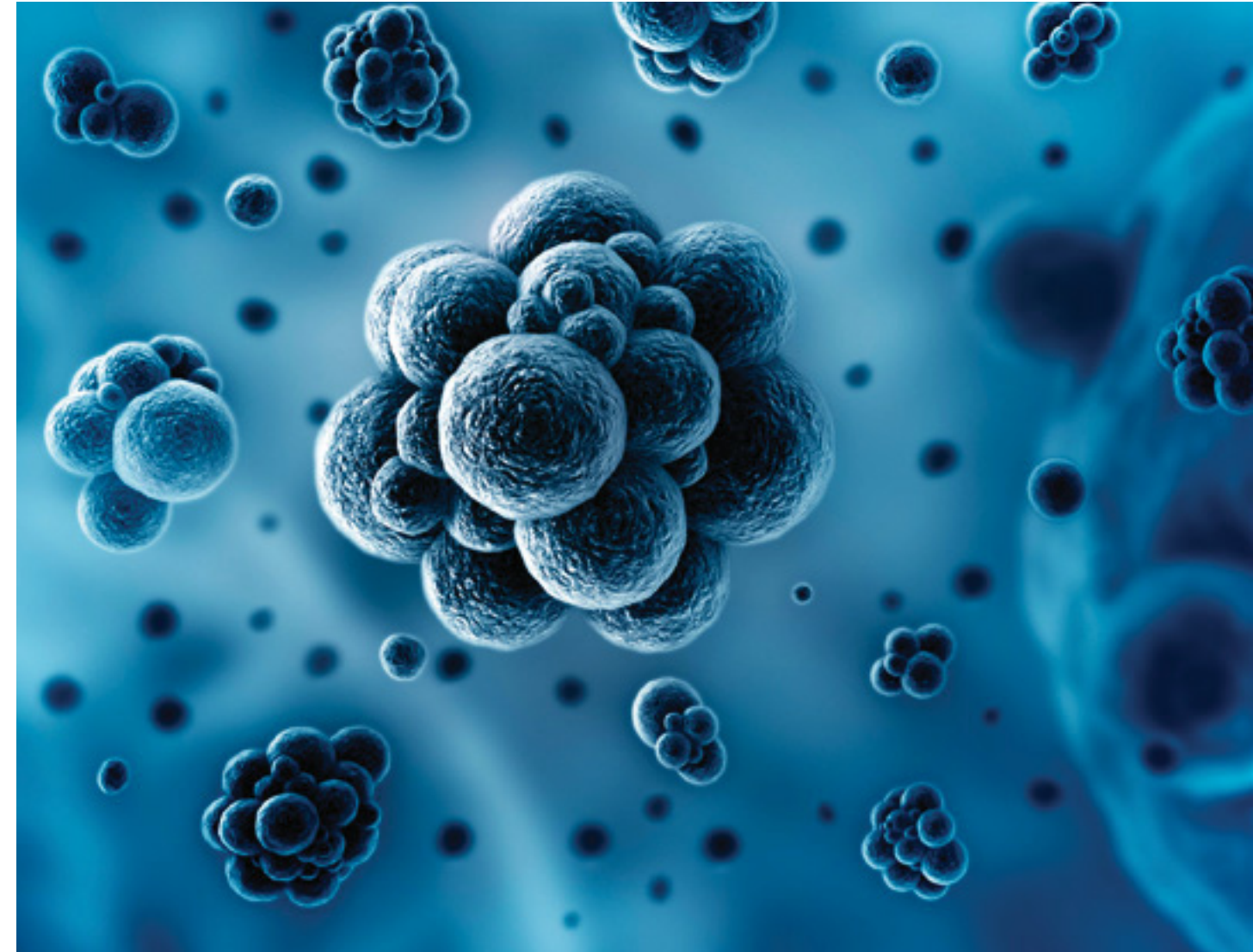
In 1846, master mechanic Carl Zeiss began building simple microscopes in his Jena workshop. But this native of Weimar soon realized that the methods of manufacturing such instruments had to be improved. He convinced Professor Ernst Abbe, a well-known mathematician and physicist, to research new solutions 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.



## Hunting for viruses

### 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 Institute for Photonic Technologies (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.







## Necessity is the mother of invention

### 25 | *Christmas tree ornaments from Lauscha*

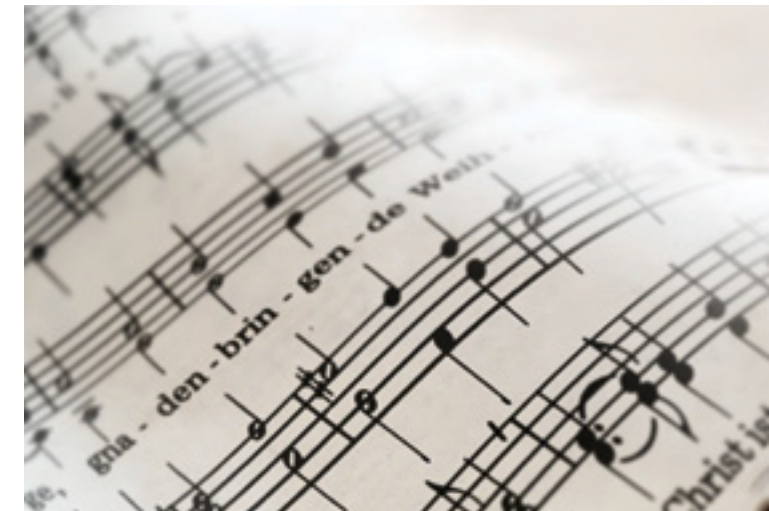
A small town near the southern end of Thuringia's Rennsteig ridge, Lauscha is best known as the birthplace of the Christmas tree ornament. According to local legend, the glassblowers of Lauscha were too poor to decorate their Christmas trees with apples or nuts, so they made glass copies of these fruits 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 glassblowing 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 Gräfenroda 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!





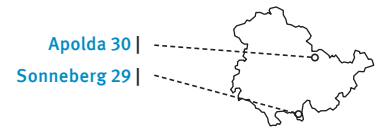
## Puppets as a cultural treasure

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 Sonneberg – 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.



## Cold feet no more!

30 | Heatable underwear from WarmX

Textiles made in Europe? If you want to compete with cut-price garments coming from Asia, you had better have something “hot” to offer. Like the WarmX company in Apolda. An affiliate of the long-established Strickchic GmbH, WarmX makes clothing that not only keeps you toasty but literally “heats you up.” This is achieved by heating silver-coated polyamide threads woven into the fabric with a small battery that can run up to six hours. Special clothing ideal for those who spend lots of time outdoors in the winter, for example. But then again, lots of frostbite-fearing office workers enjoy wearing pantyhose with a built-in “foot warmer!”







## Passionate Weimaraners, vigilant Dobermans

### 31 | *How Thuringia became “top dog”*

“Weimaraners are intelligent, passionate and, though occasionally stubborn, are easy to manage.” This description by the Weimaraner Kennel Club refers not to the natives of the city of Weimar, obviously, but to a type of dog that has been bred in the region since the early 19th century. Initially favored by the aristocracy, this silk-coated, soulful-eyed hunting hound still has its devoted fans.

Another Thuringian breed, albeit of somewhat less noble stock, is the redoubtable Doberman. In the 1870s, an animal-skinner from Apolda began interbreeding stray dogs, eventually producing an outstanding guard dog. The breeder’s name, “Dobermann,” was eventually applied to the dog itself.





## Succulent grilled sausage

32 | *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 darne 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

33 | *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

### 34 | *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

### 35 | *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" celebrated 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 projected against the 800 m<sup>2</sup> 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

### 36 | *The Satiricum in Greiz*

In the former German Democratic Republic, the town of Greiz got away with something the ruling Communist 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

### 37 | *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

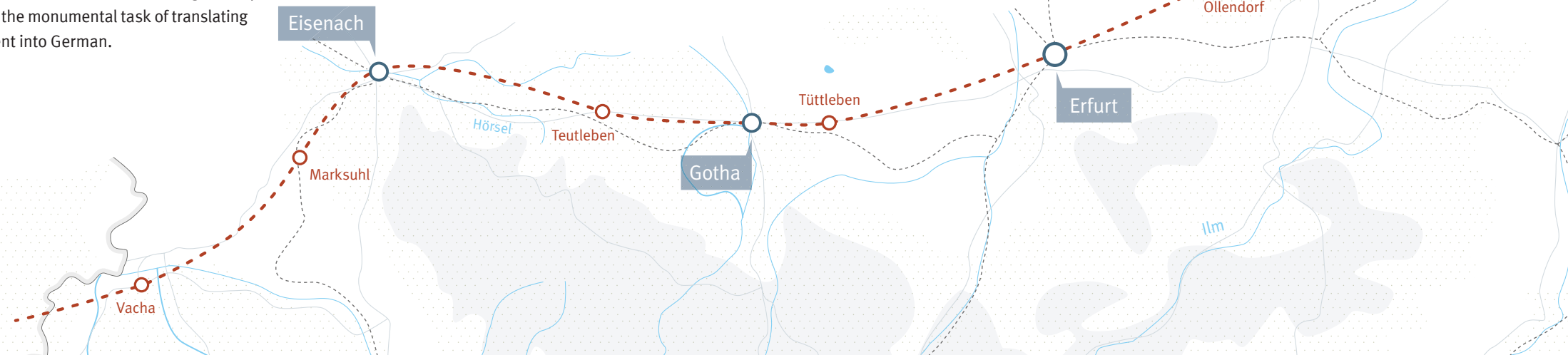
### 38 | *Thuringia and the Via Regia*

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. 37).

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 Buttstedt, 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.





## Italian baroque in Gotha

### 39 | *The Ekhof Theater*

In the 17<sup>th</sup> 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 18<sup>th</sup> 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*

It’s lucky that Erfurt was in financial straits in the late 19<sup>th</sup> century, or the city might have torn 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. The bridge’s ensemble of half-timbered houses spanning the river Gera is inhabited to this day. Among the long-term tenants (for almost 20 years): Joachim Leuschner, a former engineer, and his wife Gabriele, a wood carver.

#### *Mr. Leuschner, why should the Krämerbrücke be included in a list of Germany’s top 10 sights?*

The Krämerbrücke is often compared to the Ponte Vecchio in Florence. Yet it’s more than just a popular tourist site. It has remained a place where people actually live and work, which makes it unique. In olden days, the Krämerbrücke was home to potters and sieve makers, and even today, craftsmen and artists still have their shops and workshops along the bridge. Our neighbors include a lady who makes ceramics, a book-seller, a puppet maker, and a chocolate maker, plus other folks who don’t actually have a shop on the bridge. When we sit on our front stoop with a newspaper and a glass of wine, we’re often accosted by tourists, who are surprised by how normal our life is here.

#### *How can the bridge’s unique atmosphere be preserved?*

Sure, fast food chains, drug stores, and clothing stores would love to move in here. But the city of Erfurt has decided to preserve the historic milieu of this site, which is why they chartered the Krämerbrücke Foundation in 1996. The foundation uses set criteria to decide who gets a shop or apartment here.

#### *Surely it can’t always be romantic living in a listed monument?*

True. My wife and I have to climb lots of steps, since our house has seven floors – if you count the cellar, shop, and attic. We have to warn our taller guests not to bump their heads on the door jamb! And the crooked walls require some creative decorating. But an old half-timbered house has its advantages, too: The slope of the floors actually makes them easier to clean, since the debris always rolls into the same corner. Just kidding! We wouldn’t think of leaving. Every wall, every niche is one of a kind. We love this house of ours!





## Gold, silver and the “Black Death”

### 41 | Erfurt rediscovers a lost treasure

Erfurt 1349: armed townspeople rampage through the town’s Jewish Quarter, torching the houses and killing everyone within. The mob had been incited by a slanderous rumor that Jews were responsible for spreading the “Black Death,” the terrible bubonic plague epidemic then raging throughout Europe. In 1998, almost 650 years later, construction workers digging near Erfurt’s Old Synagogue (the oldest still standing in Europe) discovered a treasure hidden under an old cellar stairway: 3,000 French silver coins, huge silver ingots, and more than 700 pieces of jewelry made by gothic goldsmiths, including an exquisite gold wedding ring from the early 14<sup>th</sup> 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 come down to us via churches and monasteries, very little jewelry or artwork from wealthy private households survives. Thus, 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. This unique historical treasure was named “Best European Tourism Project for 2011” by the British Guild of Travel Writers.



## 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<sup>th</sup> 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 14<sup>th</sup> 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!

## 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 indulging 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.



## Contemporary medieval 48 | *A modern skywalk for Leuchtenburg Castle*

In 2013, the Leuchtenburg Castle near Kahla will be fitted out with a skywalk, a pier made of glass steel, poised almost twenty meters above the ground. This will allow visitors to look down onto 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 that bought it in 2007 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 does the 21<sup>st</sup> century!

Leuchtenburg Castle was once the administrative seat of the Dukes of Wettin. Later it functioned as a court, a prison, and even a youth hostel. Today, it is used as a conference/event center and museum. While safeguarding 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 13<sup>th</sup> to 16<sup>th</sup> 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 19<sup>th</sup> to the 21<sup>st</sup> 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



## Going on the safe side

50 | *The father of the German insurance industry*

Humanity has a strong need to protect itself against untoward events. But it wasn't until the expansion of trade and the development of banking and finance that the idea of insuring against risk came into its own. One of the pioneers in this field was Ernst-Wilhelm Arnoldi. In 1820, this clever entrepreneur founded the German Traders' Fire Insurance Bank (Feuerversicherungsbank des Deutschen Handelsstandes) in Gotha, followed seven years later by the first German life insurance bank. Arnoldi had laid the cornerstone of the Gothaer Versicherung Group, which remains an insurance

giant to this day, thereby earning himself the title of "father of Germany's insurance industry." Arnoldi's basic concept involved reciprocity: he collected premiums from those who sought insurance against certain risks and invested the proceeds profitably. If the insured event actually occurred, he would cover the loss as agreed. Arnoldi's mutual insurance society became a model emulated throughout Germany and in other countries. His achievements are commemorated by Gotha's Museum of Insurance History, the only one in Germany.



## A day of hope at the height of the Cold War

51 | *Willy Brandt breaks the ice in Erfurt*

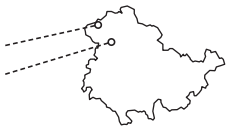
"You are to receive West German Chancellor Willy Brandt!" The directive from Moscow could not have been clearer and the East German leadership had to comply. After arduous negotiations ironing out the details of this unprecedented visit, Chancellor Brandt was formally received by Willi Stoph, Prime Minister 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.*





## 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 19<sup>th</sup> century. The faithful still flock to the tiny shrine, and their visits are still known as “horse pilgrimages.” On September 23<sup>rd</sup>, 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.





## 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).



## 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.



## 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."





## Galloping back to a gilded age 57 | Horse races on Mt. Boxberg



Thuringia has its own famous horse-racing purse, and a sizeable one at that: the “Great Prize of Thuringia.” This famous horse race was held annually on Mt. Boxberg from 1879 until the start of the First World War under the auspices of the Duchy of Saxony, Coburg and Gotha. The purse was the most generous in Germany, and the prestige awaiting the winning steeds, jockeys, and owners was huge. To add even more excitement, the “Great Prize of Thuringia” was accompanied by a lively folk festival attended by thousands from across the region.

Even the two World Wars were unable to permanently shut down the Boxberg race track, and the occasional race took place here also during the Communist period. The year 2000 saw the establishment of the Gotha-Boxberg 2000 Racing Association, dedicated to recreating the golden age of the Boxberg races. Luckily, the stately Victorian-era spectators’ stands have been preserved, so that the facility still exudes the charm and elegance of days gone by. Another plus: The area around Mt. Boxberg also happens to be a popular outdoor recreation area.

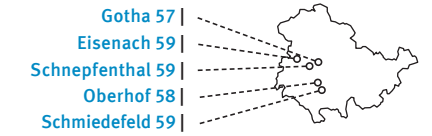
## Cross-country on foot or skis 58 | Outdoor paradise: the Rennsteig Trail

“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 18<sup>th</sup>-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*

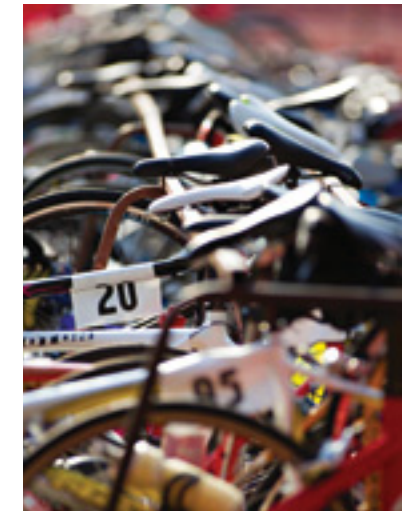
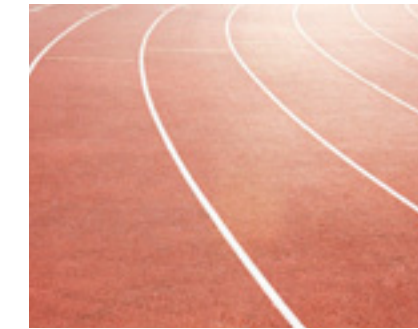
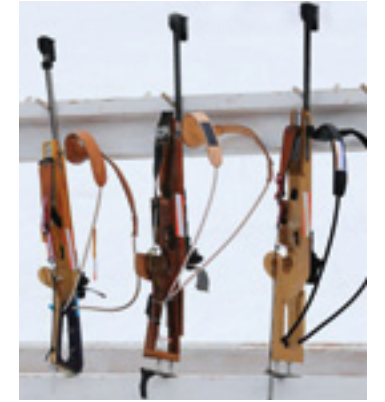
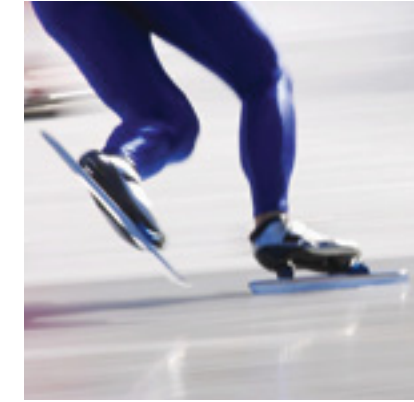
When the snow cover is insufficient, ski jumpers roar down the ramp along a special plastic mat – developed in Thuringia of course. After all, a well-known winter sports destination can't just shut down when the thermometer climbs above freezing. But Thuringia doesn't just supply top-flight equipment for sporting events; it supplies winning athletes as well! 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.
- › **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 champion.
- › **Clemens Fritz:** soccer, runners-up title at the European Soccer Championships 2008, GFB-Cup winner 2009 (both with Werder-Bremen).
- › **Silvio Heinevetter:** handball, goalie of the German national team, winners of Super Cup 2009.
- › **Andrea Henkel:** biathlon, 2x gold at the Olympic Games, 8x gold at the World Championships.
- › **André Lange:** bobsledding, 4x gold at the Olympic Games, 8x gold at the World Championships.
- › **Olaf Ludwig:** cycling, 1x gold at the Olympic Games,

2x overall winner at the Friedensfahrt, 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:** 200 meter run, 1x bronze at the Paralympics.
- › **Bernd Schneider:** soccer, German national team member from 1999 to 2008, runners-up title at the World Cup in 2002, 2x runners-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:** speed skating, 1x gold at the Olympic Games, 1x gold at the World Championships.
- › **Kristina Vogel:** track cycling, 1x gold at the Olympic Games, 2x 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 | *Dance and Folk Festival, Arena of Culture, and the Weimar Summer*

The joyful noise of drums, pipes, fiddles, rattles, and myriad other instruments fills the air as some 80,000 visitors jam into the town’s streets and squares. In early July of each year, the town of Rudolstadt, a former ducal seat on the great bend of the Saale River, turns into a sort of Woodstock for aficionados

of “World Music.” They’ve come to watch up to 1,000 artists from all over the world performing on the 25 or so stages set up between Heidecksburg Palace, the Old Town, and Heinrich Heine Park. First held in 1991, the Tanz- und Folkfestival Rudolstadt, or “TFF” as it’s known among insiders, is Germany’s



largest festival of World Music. For those who can’t make it in person, Deutschlandradio broadcasts many of the concerts.

Another major event with cross-regional appeal is the Kulturarena festival in Jena. Two years after German reunification, theater impresarios joined forces with the local ministry of culture 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 intervening twenty years, the Kulturarena Jena has grown into a grand festival of theater, film, and music. Popular German bands like Element of Crime and Einstürzende Neubauten have performed here, as have British star violinist Nigel Kennedy and Norwegian saxophonist

Jan Garbarek. Word is out that Weimar is more than just an open-air museum of German classicism. Cultural highlights like the Concert Nights, the Bach Biennial, the Weimar Master Classes, the Trekolor Film festival, the Bauhaus Summer School, and the Poetry Lounge are drawing whole new audiences to the city on the Ilm river. Together with the Arts Festival and the Genius Loci Festival of Projection Art, these events have all been subsumed under a single umbrella since 2012: the Weimarer Sommer (Weimar Summer). Professor Dr. Christoph Stözl, President of the Franz Liszt Academy of Music, sees a bright future ahead: “Weimar in the summer is an amazingly pretty urban backdrop, one whose aura is comparable to that of other beautiful towns like Salzburg.”





## „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's 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 de-train 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.



## The sputtering “Swallow” 63 | *Germany’s favorite moped*

It’s noisy and gives off smelly fumes, but that does not make it any less popular. In Communist East Germany, the moped known as the “Swallow” was more of a workhorse than a soaring bird. Though it had already gone of out production by the mid-1980s, many of these robust vehicles continue to putter along the streets of Germany – East as well as West. Today, the Swallow still has 30 fan clubs all over the country. The moped’s manufacturer, the Simson company based in Suhl, was once one of the most successful worldwide brands in motor sports, turning out top-of-the-line mopeds named after different birds: besides the Swallow, there was the Sparrow, the Hawk and the Sparrow Hawk. The Sparrow was in production for twenty years and a total of 1.2 million units were built. But the legacy continues: EFW-Suhl GmbH has recently announced plans to bring this classic moped back onto the market as the “e-Sparrow,” an environmentally friendly electro-roller.



## 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 night-cap 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 19<sup>th</sup> 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 Schöenberg 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 spent 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 arithmetic and logic. Together with his famous student Ludwig Wittgenstein, 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 scholarly Latin. This allowed him to impart his arithmetic techniques even to common tradesmen or merchants. Reprinted all the way into the 17<sup>th</sup> 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*

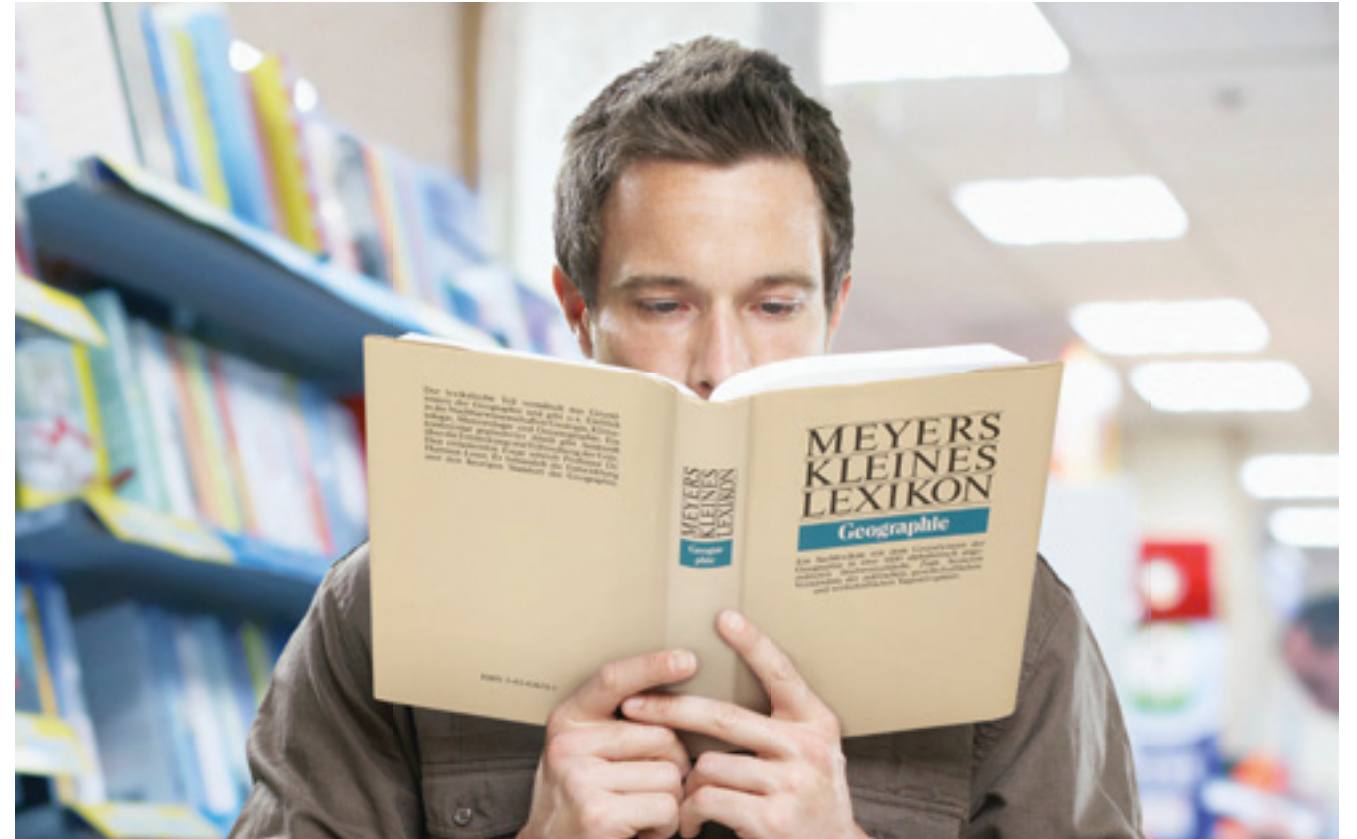
Due to its geographic location, the town of Schleiz has long been a place where one could hear any number of regional German dialects spoken, and primarily Thuringian, Franconian, and Saxon. When Konrad Duden, originally from the Rhineland, became principal of a local secondary school in 1869, he found 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 19<sup>th</sup> 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*



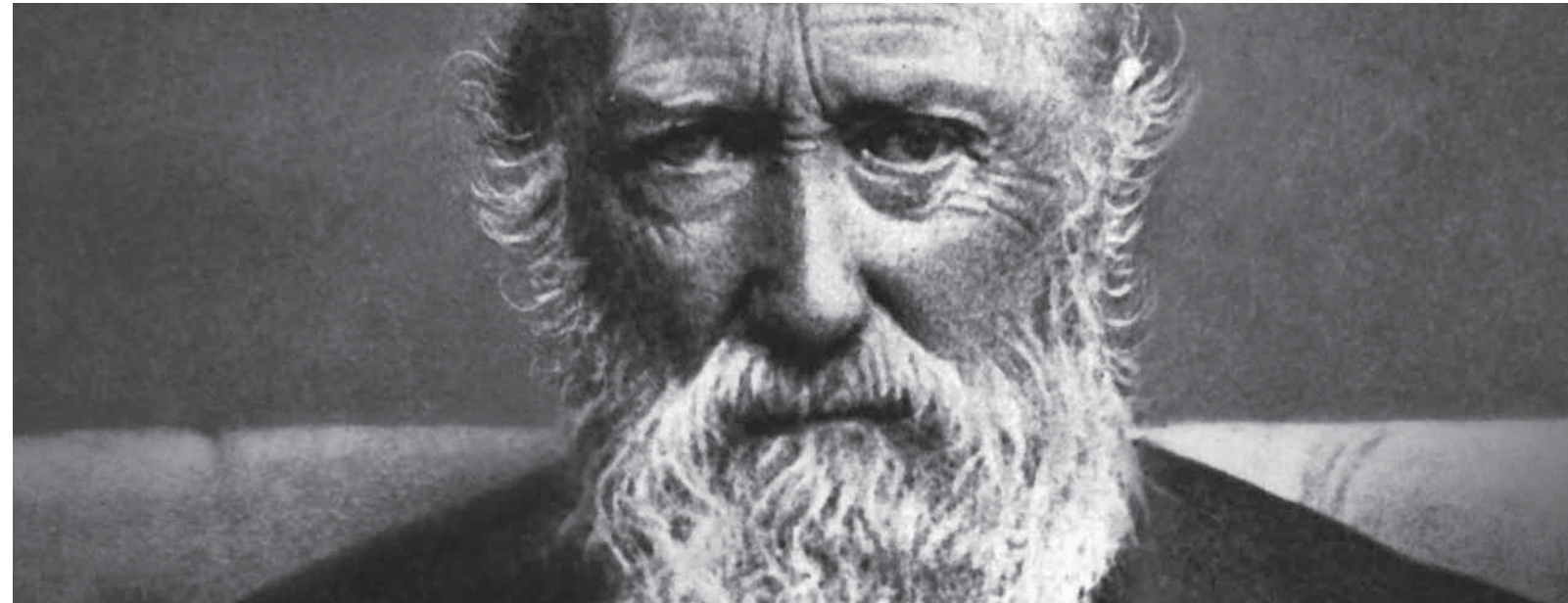
Once upon a time there was a lad named Ludwig who lived with his uncle in Meiningen. Ludwig was a sluggard at school, and his uncle often punished him by confining him to his room. There was only one thing that Lazy Ludwig worked hard at: writing stories and collecting fairy tales. In fact, Ludwig Bechstein 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 19<sup>th</sup> century. From polar explorers to African adventurer – they all wanted to be featured in his geographic bulletins known as Petermanns Geographische Mitteilungen.





## The Protestant faith on canvas

### 79 | *The Cranach Altar and its riddles*

It was the Year of our Lord 1555. In Augsburg, the Imperial Estates of the Holy Roman Empire adhering to the Catholic faith concluded a peace treaty ending their bloody conflict with the followers of Martin Luther. In Weimar, the painter Lucas Cranach the Younger was just completing the altarpiece for the parish church of St. Peter and Paul that his father had begun during the years of religious wars. This is the account to be found in many art history guides, and it is lovely except for one minor detail – it is probably not accurate. More recent investigations (using infra-red light, among other technologies) suggest that Cranach the Elder cannot have been involved in creating the work.

Thus, more than 450 years later, the famous Cranach altarpiece still holds unsolved mysteries. In the middle panel of the triptych, we see Martin Luther and Lucas Cranach the Elder standing beneath the crucified Christ. Luther points to a Bible, reminding us of the Word of God, while Cranach is fervently praying, communing directly with God. Between the two of them, the two figures capture the essence of Protestantism on canvas. But – why did Cranach the Younger paint his father facing the viewer? More questions are raised by the figure on the left side-panel of the altar: this is Duke Johann Friedrich I of Saxony, who had first sheltered Luther from his enemies. Some experts believe this figure serves to complete the “Trinity of the Reformation.” Others draw attention to how sickly and moon-faced the Duke looks. Was Cranach merely depicting reality, or was he highlighting the Duke’s status as a loser of the Wars of Reformation? After all, Johann Friedrich had forfeited much of his territory by 1547, and, perhaps more importantly, his title as Elector.





## The workingman's avant-garde

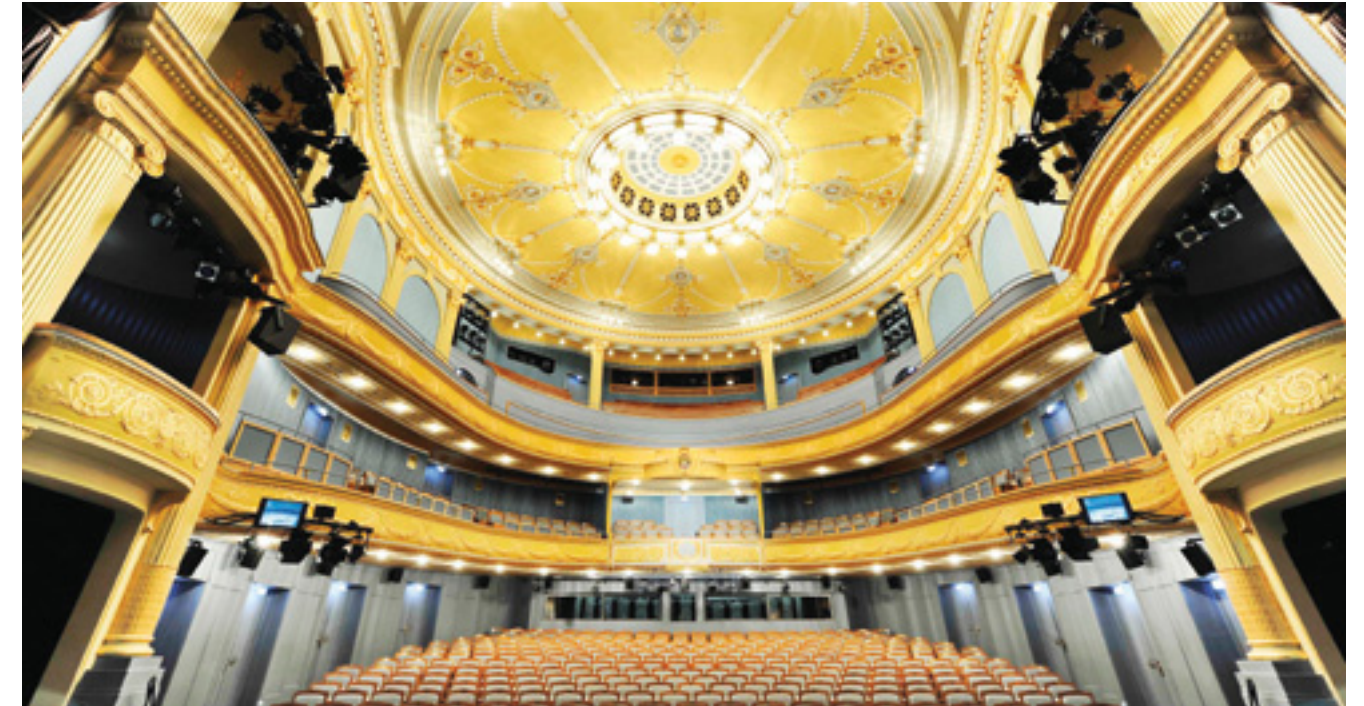
### 80 | *The painter Otto Dix*

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, experimenting with cubism and futuristic formats. He is best known for his uncompromising realism, 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 19<sup>th</sup> 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 180<sup>th</sup> 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 2<sup>nd</sup>, 2011, ordinary Germans joined forces with some of their favorite entertainers to show what Jena really stands for: tolerance, diversity, and openness.

## 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



## Becoming an instant composer

85 | *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 lame excuse: not enough time, lack of talent, difficulty with 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 without further ado. 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!





## 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 minutes. 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.



## 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 hydrogen 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 personal 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

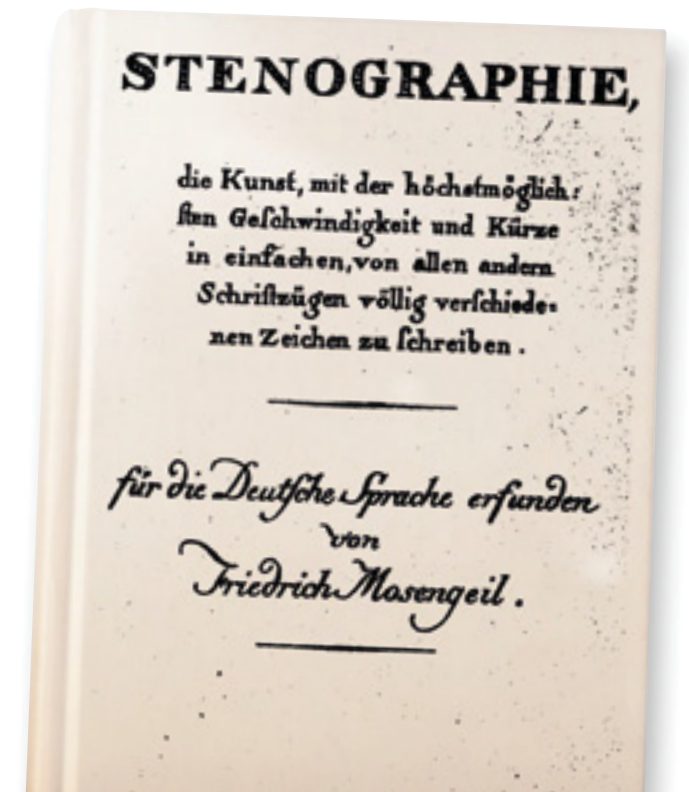
### 90 | Christoph Wilhelm Hufeland

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 conversations. 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.





## 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 Photovol-taik 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?*

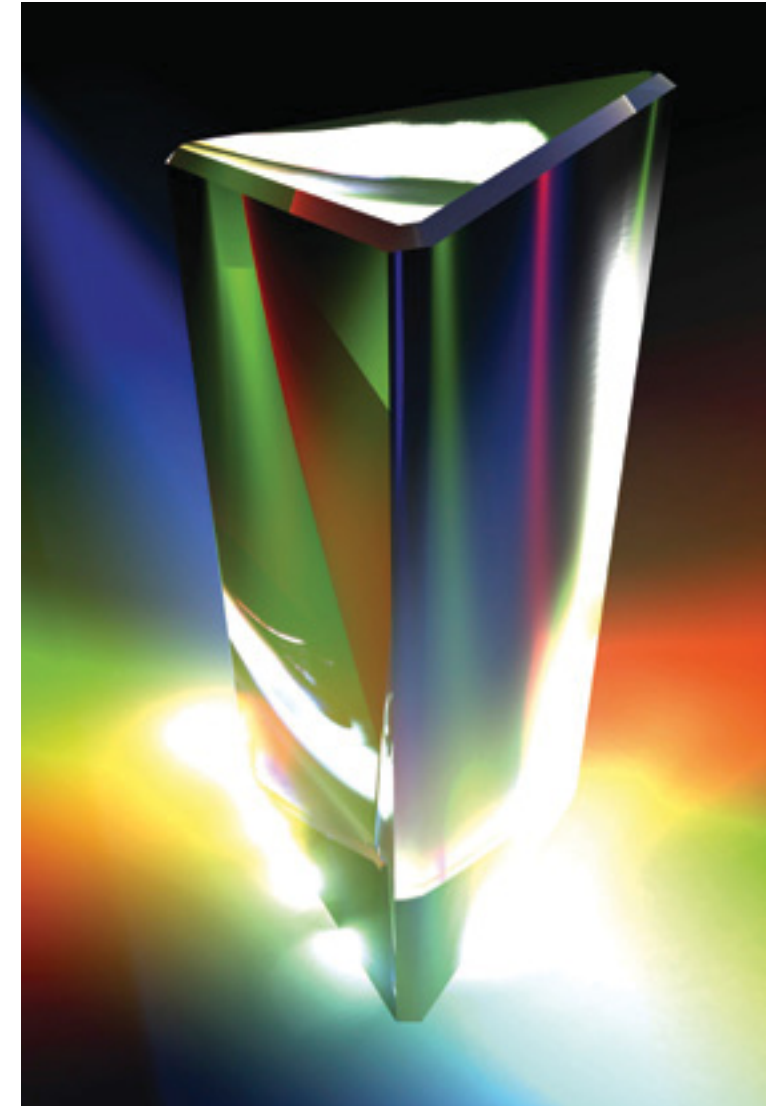
*Not immediately, that’s for sure. But high-tech research often has the added benefit of stimulating or accelerating the development of practical applications. In somewhat modified form, our sensors could prove useful in medical technology, for example.*

## Lost and found

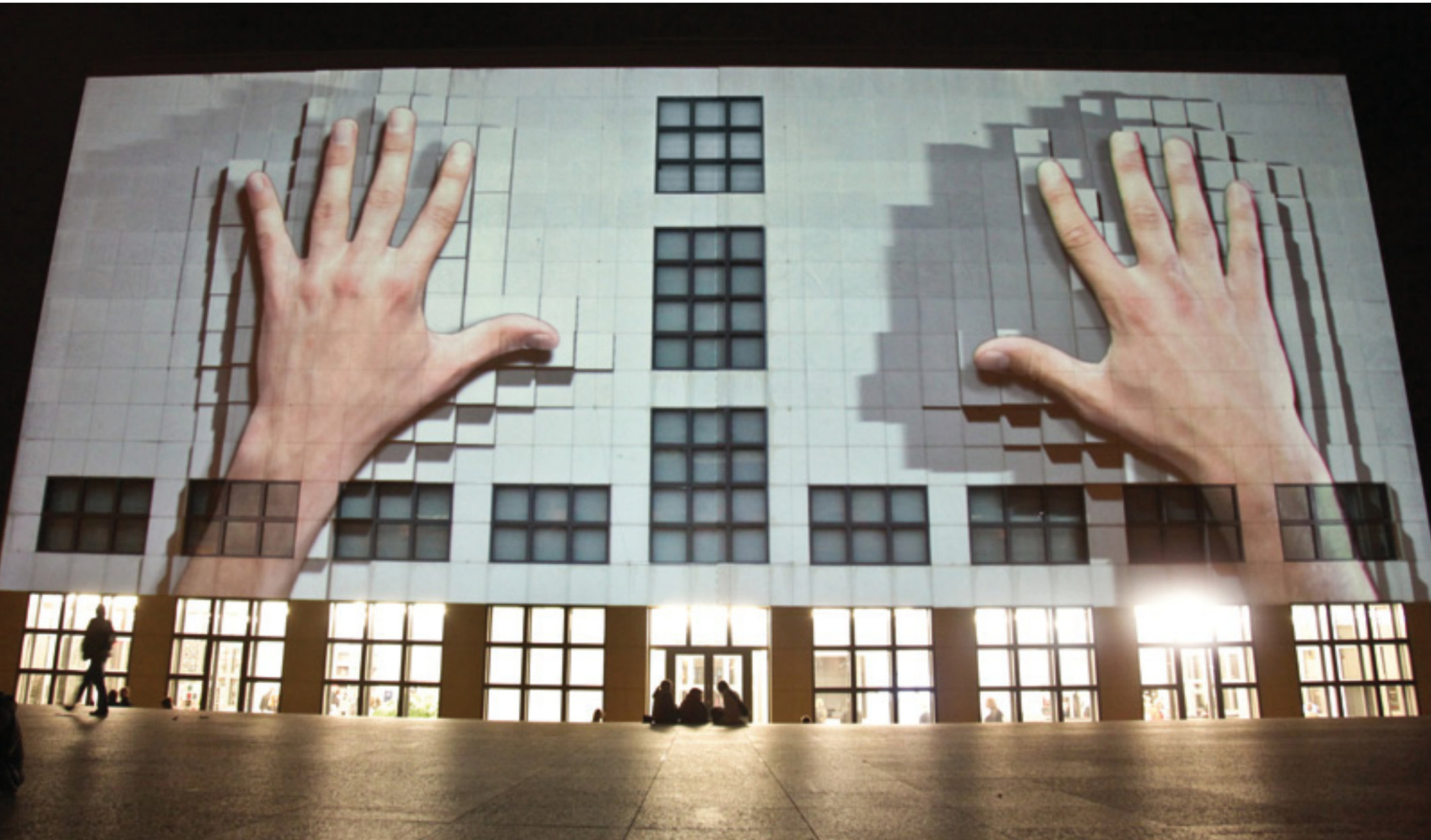
93 | *Ritter discovers UV light*

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, thereby 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 light 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*

Hundreds of passers-by have stopped to gawk at the façade of the Galerie der Gegenwart museum of modern art in Hamburg. In a perfect visual illusion, one square after another looks as though it is being pushed out of the façade, as if the whole building were bulging precariously towards the viewer. Suddenly the exterior wall vanishes, revealing the gallery's interior stairways! Presented by Urbanscreen in 2009, this cutting-edge 3D video art was created using the MXWendler Medienserver, a software package developed in Weimar. Programmed by architect and computer graphics artist Hendrik Wendler along with designers from the Bauhaus University, the Medienserver can adapt practically any façade or backdrop to the projected image of one's choice. The results have proved impressive, and 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 "Watergate" use it to create surreal dance and party environments.



## 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. When the line was turned back on, the resulting surge overloaded the networks in a number of other countries, resulting in a massive power outage. The only region immune was Eastern Germany, thanks to the timely activation of a “fuse” in the local network: the Goldisthal pumped-storage hydroelectric plant near Sonneberg, the country's biggest. 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 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 off line on stormy days to protect the power grid. The sun is another energy source subject to the vicissitudes of the weather – it's not always shining when you need the electricity. Thus, pump storage units can allow more intensive exploitation of 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.

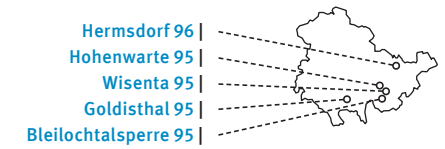


## Ceramics for the environment

### 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 developed 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. After the EU outlawed the use of potentially toxic mercury in thermometers in 2009, Geratherm took up the challenge, and now offers mercury-free thermometers in its product palette.







## 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 collaboration 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 chances 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.



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The locations of our 100 stories



Thuringia in Germany



Thuringia in Europe

