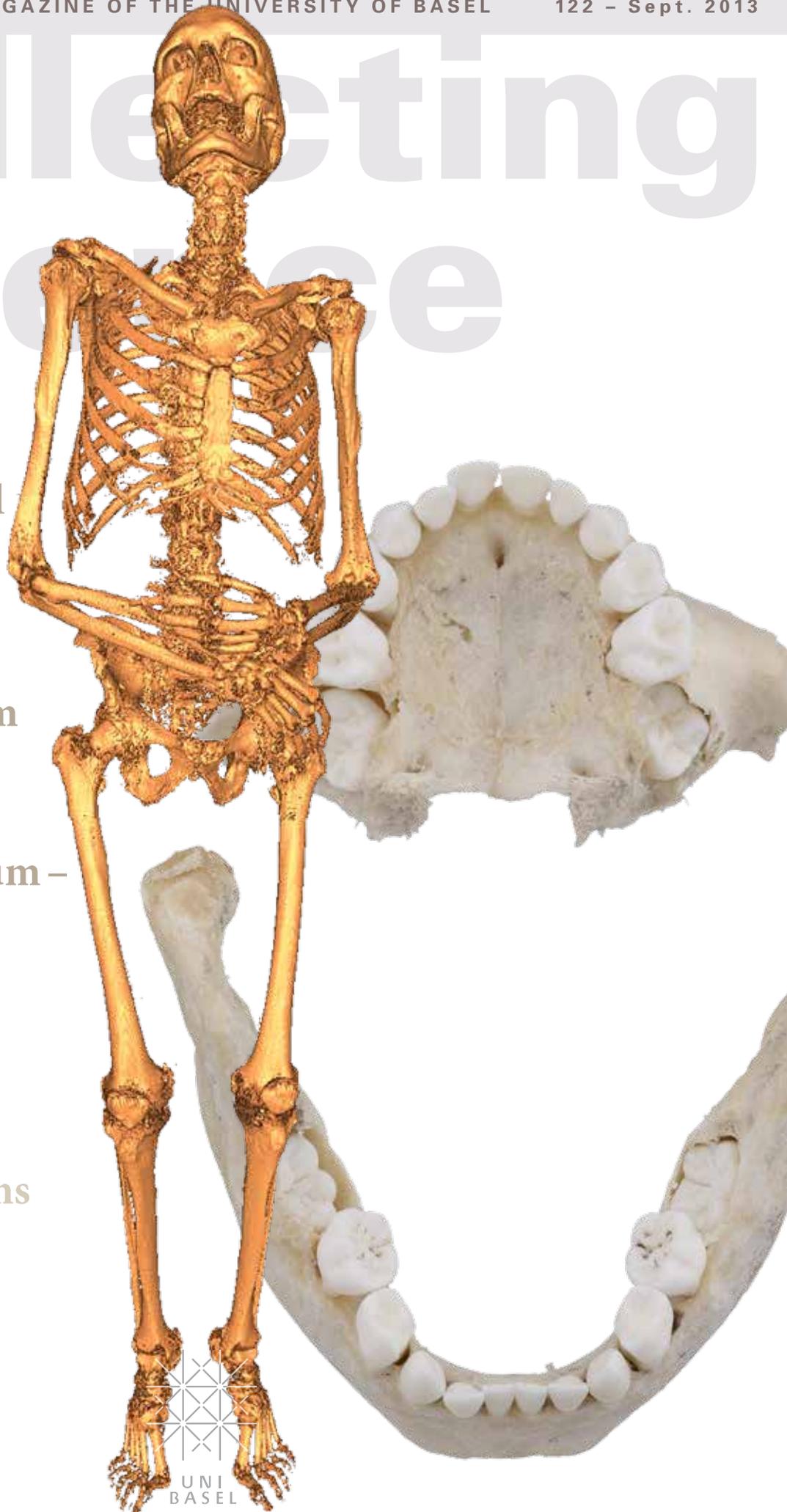


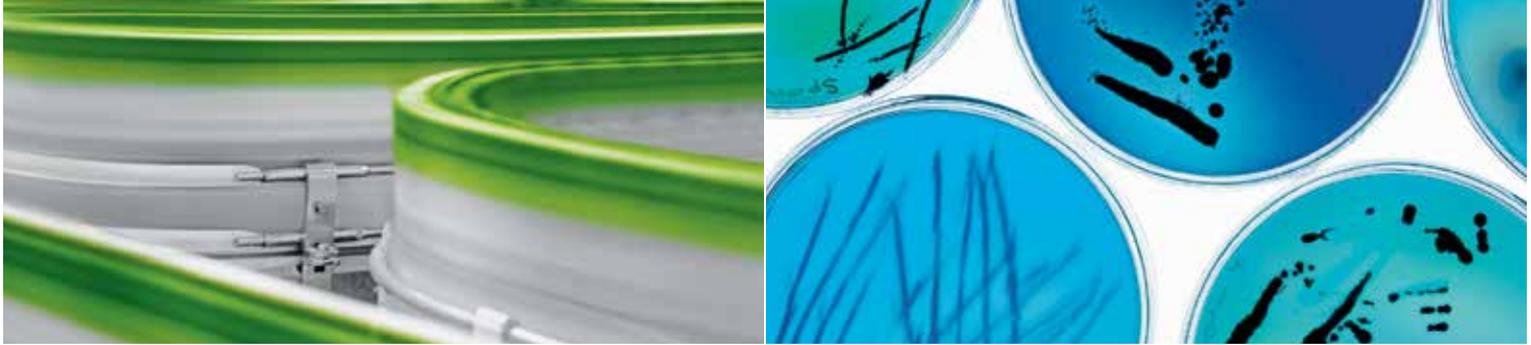
Collecting Science

Treasure troves of
knowledge
Cultural historical
objects
On preserving
and protecting
Pharmacy Museum
Apparatus and
instruments
Anatomical Museum –
old and new
Rocks, fossils,
minerals
Hospitals and
nursing care
Basel art collections

Interview with new Vice-Rector
Soccer and osteoarthritis
Italian cicadas



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Collective knowledge

Animal preparations, technical apparatus, fossils, medical instruments from the past, pictures and folios: The great value of scientific collections at higher education institutions is often underestimated. And yet for many disciplines, these collections remain an essential part of the research and teaching infrastructure – in addition to today's libraries, computer centers, and all manner of database designed to collate, preserve, and analyze information. With a history stretching back over 550 years, the University of Basel has a rich tradition of classical collecting and has in its possession objects and collections of considerable cultural and scientific value – for instance, the skeleton in the Anatomical Museum prepared by Andreas Vesalius, and valuable plant species, such as those collected by Caspar Bauhin – creator of the first botanical garden in the 16th century in Basel. There are also those unspectacular and little known collections, whose scientific utility and significance are not immediately obvious. In the various University institutes, over 40 collections are stored containing thousands of objects – many of these are still used in research and teaching or hold importance for a particular subject area due to the quality and size of the holdings.

Ever since the Hague Convention of 1954, there has been an obligation under international law to properly safeguard scientific collections as valuable cultural property. Such collections are often placed at risk and are insufficiently protected or made accessible; in many cases, entire collections disappeared or were even destroyed. The importance of scientific collections is a subject of current discussion at an international level. This year, the University of Basel has agreed on initial measures to protect and preserve its collections assuming here a pioneering role; until now, there have hardly been any approaches to preserving collections in existence in Switzerland. New impetus and ideas on the research and preservation of these collections arose recently from a conference in Basel. The focus in this issue is intended to provoke reflection on the significance of scientific collections and to showcase a selection of our University's own valued objects.

On a final note: Beginning with this issue, UNI NOVA will report not only on interesting research but also on other important news and the latest developments at the University.

Christoph Dieffenbacher, Editor UNI NOVA

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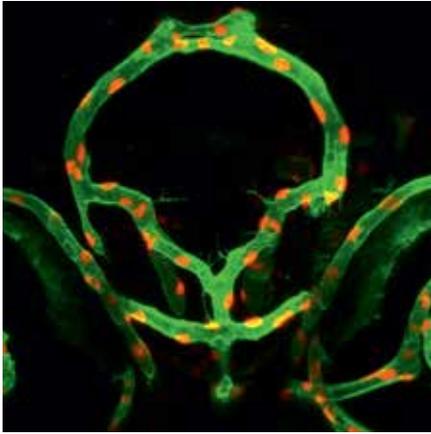
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Cover page and photography sequence

The cover photo and the sequence of photos in the focus section of this edition were created by photographer Daniel Boschung. He has juxtaposed selected objects from University of Basel collections with contemporary items that fulfill the same function. In this way he makes visible the unique character of an object taken from the history of science.



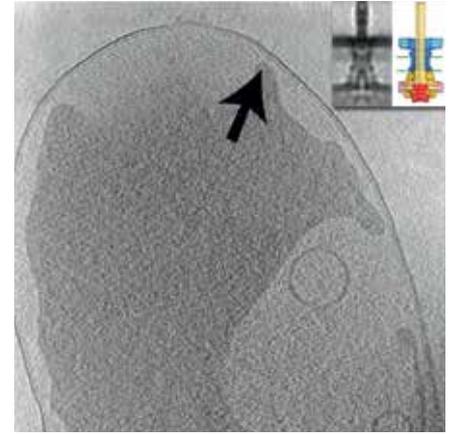
How a vascular system forms

The almost transparent embryo of the zebrafish provides a good opportunity to observe the formation and development of the vascular system *in vivo*. The leading cells – or tip cells – of two vessel sprouts play an important role here, joining together to form a tube and thus connecting the network that will subsequently develop. The group lead by Professor Markus Affolter at the Biozentrum of the University of Basel has now shown that this process follows a uniform plan: Once the tip cells of two blood vessels have made contact and formed a tube by hollowing out their cell bodies, they then split again to take up the configuration of a normal blood vessel cell that cannot be distinguished from the others. The research team has also shown that the molecule VE-cadherin signals to the blood vessel when contact has occurred between the two tip cells so that the ensuing process can proceed as normal. By fluorescing different proteins highlighting cellular structures during the formation of blood vessels in zebrafish, Affolter's lab has been able to document these complex processes in a living organism for the first time.



Smoking Bans and Life Satisfaction

A study by the Faculty of Business and Economics at the University of Basel has investigated the impact of partial smoking bans and higher cigarette prices on a person's life satisfaction. Reto Odermatt and Alois Stutzer analyzed the data for 40 European countries and regions between 1990 and 2011, surveying just under 630,000 subjects. In doing so, they considered the staggered introduction of price increases and smoking bans in workplaces and restaurants in the different countries. The results indicate that the negative impact of higher cigarette prices is observed only for smokers – the well-being of non-smokers is not affected. Furthermore, smoking bans are not directly correlated with life satisfaction in the population: Overall, neither smokers nor non-smokers are worse (or better) off. However, smoking bans do improve the well-being of people who wish to quit smoking but have previously failed to do so. The results support behavioral economic models, which state that bans can help smokers to control their tobacco consumption.



Bacterial syringe

Many bacteria invade their host cells by secreting a veritable cocktail of manipulating or toxic substances that lead to an uptake of the pathogenic bacteria into the cells. These bacteria do this using their own special apparatus – the so-called Type III Secretion System (T₃SS) – a type of nano-needle that injects proteins and toxins directly to or into the cells. Led by Professor Henning Stahlberg from the University of Basel's Biozentrum, a team of researchers has been able to present for the first time the 3D structure of a T₃SS *in situ* – that is, in the intact bacterial membrane. Using highly specialized methods such as cryo-electron tomography, X-ray crystallography, and computer modeling, the team has succeeded in identifying previously unknown structural details of the intact T₃SS of *Y. enterocolitica* – bacteria that can cause gastroenteritis. Furthermore, the team was able to demonstrate that some of the proteins in the needle base are highly flexible. The observed elasticity of the delicate injection apparatus most likely has a protective role: It allows the bacteria to adapt to different environments while maintaining an intact secretion system, thereby preserving their full infection potential.

“The role of a university is formative”



The new Vice-Rector for Teaching and Development at the University of Basel, Maarten Hoenen, believes that universities are institutions of knowledge that should guide and support young people in their development. Interview: Christoph Dieffenbacher

As a Dutchman living in Switzerland, which differences and similarities have you observed at higher education institutions in the two countries?

As is typical for small countries, interaction between people is largely defined by consensus and pragmatism. Everyone knows each other, and everyone sees each other all the time. However, there are also differences: The Dutch are quite experimental and proactive, and they will also stop doing something if it proves a failure. I find that the Swiss tend to deliberate more, and as a result have a higher degree of civility – and in economic terms, Switzerland is a global player.

An aim of the University of Basel is to achieve a higher international standing ...

Science and research are always international. If you are looking for the truth, you have to go to wherever it lies hidden. Nevertheless, I think that the University of Basel has great potential to be recognized internationally thanks to its geographical position, the “Made in Switzerland” brand, its proximity to France as well as through its close connections with industry and culture.

How do you see the role of the university in wider society?

The concept of the university was born in the late Middle Ages and has not changed significantly since then. In liberal societies, universities are institutions that claim sovereignty over facts and their interpretation. They should provide the general public with reliable knowledge and thus place them in a position to make responsible decisions, e.g. in politics; this is important in the case of Switzerland, which has a democratic tradition, but elsewhere, too.

Professor Maarten Hoenen (born 1957) was appointed Vice-Rector for Teaching and Development on August 1, 2013. His previous post was Professor of Philosophy at the University of Freiburg i. Br., where he spent nine years. After studying philosophy and theology in Nijmegen, Holland, he completed his doctorate in 1989 and taught in Amsterdam, Nijmegen and Leuven. His research interests include the philosophy and theology of the Middle Ages, the history of universities, and the critical edition of medieval philosophical and theological works.

Which direction do you think developments in teaching should take?

Teaching is more than simply the mediation of facts. A university that concentrates solely on academic content is redundant – you can find facts using all kinds of sources nowadays. We are engaging with students, young people, who are in one of the formative phases of their lives, and it is our duty to help them make their life decisions. I regard knowledge not as a goal in itself, but rather as a means of enabling human beings to develop into people with distinct identities. I am certainly more of a researcher than teacher, however, it gives me enormous pleasure to share my experience – also using new media.

Do you already have specific plans?

I do have some ideas, but I can't simply prescribe them. I am open to new initiatives and requests from colleagues, professors, and from students. A university should encourage ongoing dialog with its students, as these are their most important members.

Will you look to strengthen the humanities at the University of Basel?

We should stop clinging to the old 19th century division between humanities and sciences; instead, we should look for connections between them. The research methods are actually quite similar. We as humans are critical beings with the right to know who we are: Humanities scholars can offer insights into our society and its problems, and scientists can critically reflect on the way that people conceive themselves and the world around them.





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Protecting and preserving scientific collections

Collections are an important part of research and teaching in almost all disciplines. Such holdings are also compiled at universities to preserve historical objects and thus to document the development of the sciences. The University of Basel intends to step up its efforts to maintain its sometimes forgotten and threatened collections. Flavio Häner and Susanne Grulich Zier

When we think of collecting, our first thoughts are often of a pleasurable leisure activity. Be it soccer stickers, stamps or seashells – everyone has probably collected something at some point in their life. Yet collecting is much more than simply a way of passing the time. It can also mean systematically seeking out and gathering together objects and information, organizing and classifying, comparing and documenting, all with the aim of putting the plethora of objects collected into a meaningful context. Collecting creates knowledge. Science could not function without the systematic collation of data and things. From A for archaeology to Z for zoology – in practically all academic subjects, collections play a central role in generating knowledge.

Part of our cultural heritage

In addition to the indispensable scientific research and teaching collections, there are other collections with objects of a historical nature. Teaching models or research instruments that played a part in significant discoveries are retained in the individual academic departments to commemorate the achievements of researchers and to document scientific developments. The immense scientific and technological progress made over the last century and the associated restructuring of teaching and research have threatened to sideline these collections or even to relegate them to total obscurity.

Today, scientific collections are not only an important basis for research, but also part of our scientific cultural heritage. With a history stretching back more than 550 years, the University of Basel, too, maintains a number of collections in a wide variety of scientific fields. These rich holdings are closely linked with the University's history and not only formed the core of what are now five state museums (Natural History Museum, Historical Museum, Museum of Fine Art, Museum of Cultures and Museum of Ancient Art), but also provided the foundations upon which various academic disciplines were established.

Resource-intensive care

The University of Basel still maintains a number of collections and two museums of its own: the Pharmacy Museum and the Anatomical Museum. A multitude of collections present material objects that were created for the purposes of teaching and research. However, in contrast to the public collections in the museums, these are often hidden away in the individual institutes.

Looking after the collections both as research infrastructure and historical objects provides a challenge for a university that finds itself in constant flux. The collections require constant care that takes up enormous space and time. Scarce resources, pending relocations, and limited time to arrange objects in temporary storage create great demands for those responsible for the collections.

An international topic

The University of Basel is not the only institution to tackle the subject of scientific collections at universities in terms of development, preservation, and research. Back in 2000, the *University Museum and Collections* (UMAC) section was set up as a suborganization of the International Council of Museums (ICOM). UMAC is a platform for promoting international networks and collaboration between the numerous museums and collections to be found at universities. It aims to ensure that the often smaller and less visible institutions can also find their spot on the global museum landscape. Today, UMAC has around 200 institutional members from more than 40 nations.

The year 2000 also saw the foundation of the *Universeum* network, which focuses on the European region and aims to preserve and research the tangible and intangible cultural heritage of the sciences. As well as championing collections, *Universeum* also advocates the registration and maintenance of other academic infrastructures such as laboratories and lecture halls and the recording and preservation of particular

academic ceremonial acts and rituals. In the German-speaking region, the most important contribution has been the many years of service provided by the *Hermann von Helmholtz-Zentrum* für Kulturtechnik at the Humboldt-Universität zu Berlin, which led to the establishment of the German Coordination Centre for Scientific University Collections, in 2012. So far, initiatives of this type to protect and preserve scientific collections are rarely found in Switzerland.

The goal of long-term preservation

The University of Basel now intends to increase its commitment to its scientific collections. The Rectorate has therefore decided to launch a project to record the current status of the scientific collections and subsequently to use this information to identify the measures required. This should ensure that the objects are preserved for the future while at the same time raising awareness of these unique collections – not only within the University, but also among the public. The University therefore wishes to take further steps to increase knowledge of its own collections among experts and for a wider audience.

In September of this year, a meeting organized by the Pharmacy Museum was dedicated to the scientific collections at Swiss universities. The University of Basel is taking a pioneering role in addressing the topic of scientific collections in Switzerland in a context – both national and international – characterized by networking and cooperation between universities. A website will also be created to present the collections of the University of Basel. Further projects are in progress to ensure their long-term protection and preservation as part of our cultural heritage, and also to safeguard their use for contemporary research.

Flavio Häner is a doctoral student and research assistant at the Pharmacy Museum. Susanne Grulich Zier (M.A.) is university archivist at the University of Basel.



PATENTED
July 20, 1880
July 4, 1880
Oct. 18, 1881
Dec. 27, 1881

On collections in Cultural Anthropology

Collections of daily objects from earlier times and distant cultures have always been influenced by different approaches – they have sought to satisfy curiosity, to influence identity formation, to reveal interconnections, to instruct and indoctrinate and to demonstrate power. The cultural-historical collections of the future will bind the object more closely together with society and its members. Walter Leimgruber

Ever since the age of Enlightenment and the birth of Romanticism, scholars studying the lives of ordinary people – of farmers and rural communities at home, and of foreign and exotic peoples in far-off places – have faced one problem in particular: These people did not write their own texts, the core focus of arts scholars studying philosophy, religion, language and literature. While the lives of ordinary people can be described, direct evidence has tended to be material: various kinds of objects that were used in everyday life or for festivals and rituals, such as clothing and household items, tools, and weapons.

Shaping identity through cultural history

Ever since the Renaissance, compiling collections has represented a vehicle to satisfy curiosity and the thirst for knowledge. In the field of ethnology, this was a welcome development as collections had the potential to reveal information about processes that would otherwise not have been available to researchers. The end of the 19th and the start of the 20th centuries saw a peak in the collecting zeal in ethnographic disciplines, for it seemed as if a whole world and all those who had witnessed it were to be lost: The pre-industrial world of farmers and mountain people, of craftsmen, and of manual production was disappearing. At the same time, everyday objects and the lives of ordinary people served increasingly to define regional or national identities.

Scholarship, therefore, played an integral role in shaping notions of belonging from a local to a national level. Numerous different cultural-historical museums appeared that were dedicated to scientific inquiry as well as to the development of a collective identity. As the Europeans took great strides across the entire globe, there was also a growing interest in displaying foreign cultures to the local population. Expeditions brought together huge amounts of materials from all corners of the earth. Using objects, collectors believed that they could show cultural connections and developments that could not be found

in texts and stories, and they attempted to present the relationship between cultures, their various paths toward progress, the stages of cultural development and their defining rules.

The development of culture was usually subject to the same evolution-based systematic approach that was employed for natural sciences collections. Just as nature was organized and categorized, here too the culture and history of one's own people was to be ordered and structured; the testimonies to its activities were to be collected and used as an instance of identity formation. Museums conveyed the myths and histories of the peoples, their self-understanding, and their claim to power. Collections became places of instruction as well as of indoctrination of the masses.

Function, symbol, practice

Evaluations of everyday culture at home as well as of foreign, exotic cultures have changed over the course of time; however, a general interest in artifacts has remained. For a long time after the Second World War, functionalist and instrumental approaches dominated: These focused on the use-value of an object – both in the act of collecting itself, as well in research. Yet human beings do not only employ the objects that surround them in an instrumental and rational fashion; rather they charge them with positive or negative characteristics and ascribe to them a sense of originality. Objects have a symbolic character; they are vehicles for ideas.

This perspective led to the increasing privileging of a semiotic approach in which objects were read above all as an expression of “underlying” causal cultural values, norms, and conditions. Objects were interpreted as indicators, as means of understanding prevailing trends and mentalities, as symbolic of lifestyles, and as tokens that revealed complex circumstances. German cultural anthropologist Gottfried Korff considers the research of material culture as a “climbing frame in the history of social and psychological structures”, in that it illustrates the strong link between material

possessions and emotional behavior. Material substrates can be analyzed as “incarnation of an emotion and embarrassment norm”, as expressed by Norbert Elias.

A semiotic vs. semantic approach

The semiotic approach to material culture resulted in the acquisition of a considerable amount of knowledge, yet hindered research on the material aspect of the objects. A semiotic analysis investigates the meaning of the objects, but effectively also causes the materiality of the symbol to disappear. Semiotic approaches also neglect the specific everyday ability of the user both to decode and to generate independently such communication codes. It is therefore necessary for researchers to engage to a greater extent with the object-owning individuals as well as with the use and transfer of objects to address the level of everyday practice.

Current approaches tend to focus on the semantic aspects of an object; the meaning is no longer “underlying”, but is to be found in the situational context. The focus of analysis is thus shifting from the investigation of cultural structures and systems to the cultural practices that are revealed as emerging out of – but that cannot be reduced to – these structures. This approach foregrounds the human action aspects of an object’s use as well as the creativity and abilities of the actors in relation to pre-existing structures.

Multiplication of objects, global consumption

At a time when more goods are being produced, distributed, consumed and accumulated than ever before, investigations into the material world have taken on greater significance. Against this background, research on material culture has come into focus once again in recent years. Alongside other *turns* of the *cultural*, *iconic* or *spatial* varieties, some scholars are now speaking of a *material turn*. While people had several hundred possessions in former times, a modern household contains tens of thousands of objects.

This can be asserted not only for a multiplication of objects, but also for an increasingly finer distinction between them. It is worth asking then: What is there even to collect in this abundance of objects? The sheer volume is so great that, in contrast to historical cultures, only the most illustrative objects can be presented in collections. While ethnographers of the past compiled the most comprehensive and complete collections possible, new strategies must now be employed in order to limit and give focus to collections.

What can objects even still reveal about certain cultural patterns given that more and more items are produced for a global market, and given that everyone is wearing the same jeans, the same jewelry and using the same cell phone? In fact, it is precisely these object developments that can show cultural processes, globalization, and social assimilation, as well as the dissolution of borders. When closely examined, they can also illustrate the existing differences in an object’s use and attribution of meaning by various groups.

Yearning for clarity

The infinite amount of available objects also appears to be heightening the desire for order, originality, uniqueness, and authenticity. The rapid rate at which modern society is developing has resulted in objects being considered “old” more quickly than before, and the past appears increasingly foreign as it moves further away from the present at an increasing velocity. Where individual life histories end, networks of “collective memory” (Maurice Halbwachs) emerge, in which cultural memory is materialized and enshrined in professionally designed collections in museums, galleries, libraries, and archives.

Social transformations such as the dissolution of borders, a growing emphasis on the fluid, the processual and the permeable, the diverse range of combination possibilities, the formation of hybrid identities and progressively more complex cultural processes are accompanied by a desire for clar-

ity and belonging – as expressed in the current focus on cultural heritage. Many people increasingly perceive their environment as a site of highly diverse and at times contradictory cultural values and codes, and feel that they are missing the key. So they turn to tradition, to heritage, to that which has been handed down. This can give them a footing, offer orientation, anchoring and stability; it functions as a means of understanding and evokes a feeling of familiarity in an environment that seems confusing. As such, terms such as “genuine”, “old”, “original”, and “authentic” distinguish the objects that we collect.

Contexts and connections

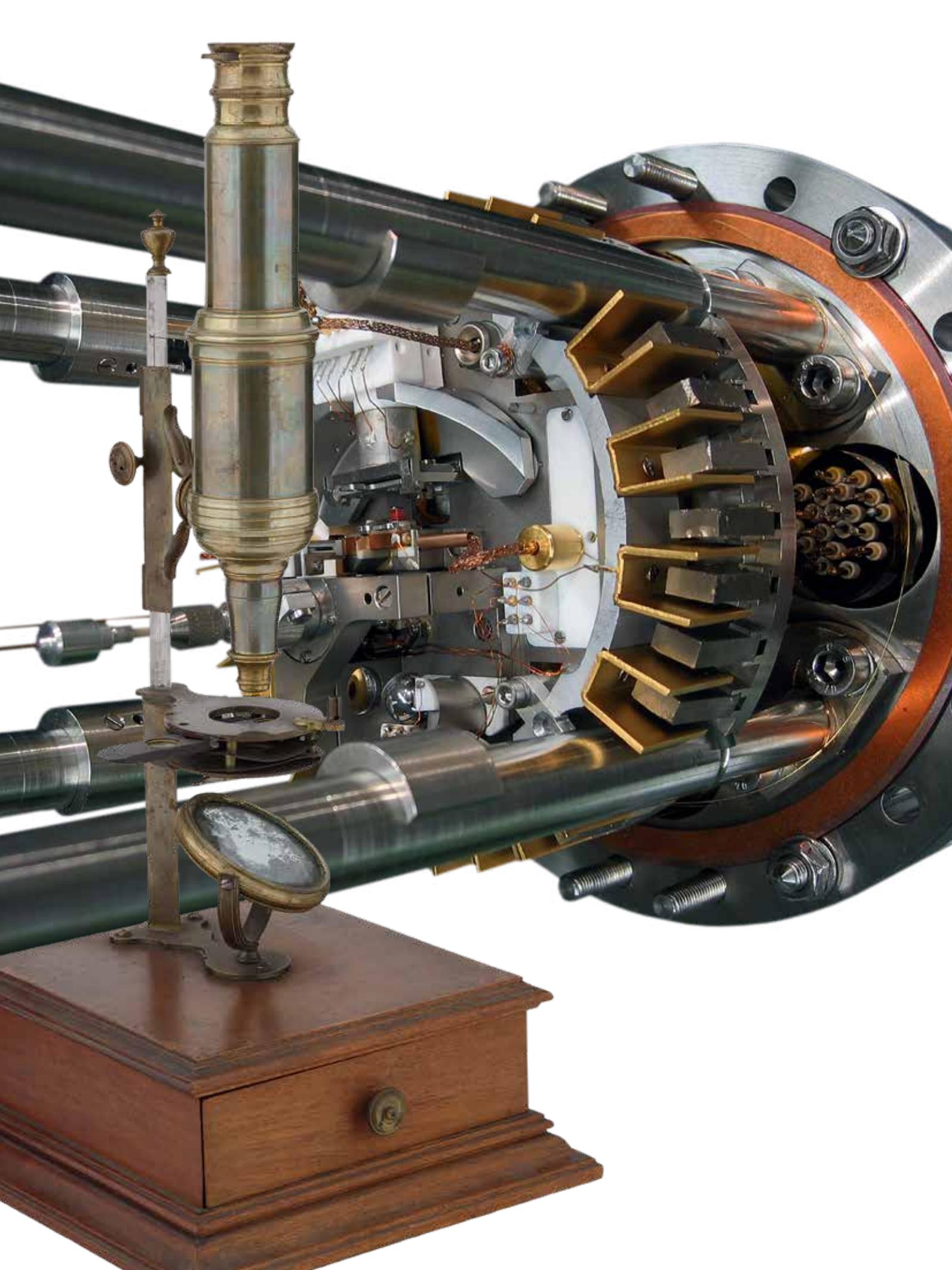
Old objects also inspire the creation of new ones. Items in a collection tell us about techniques and skills that are barely practiced any more, and which in some cases can no longer be reproduced. They invite consideration of production processes, the meaning of work, of aesthetics and sustainability. Artists, fashion designers and even technicians revisit old objects as a point of reference and source of inspiration.

Objects must always be considered in relation to their different systems of reference, whether these are economic and social structures, systems of values and standards or emotional and psychological bonds. However these connections are rarely documented in collections. More often, collections are designed according to material criteria such as the type of material or the display of outstanding pieces. The comprehensibility of the collection and quality of the objects are considered more important than the connections between them. The accompanying documentation will frequently comprise the technical details only, and rarely information for cultural contextualization.

One challenge for the future is, therefore, to develop context-based collection concepts that closely link the object to people and their surrounding social structures and practices. Referencing the context shifts the focus from the ob-

jects themselves to the interconnections between them and their wider context. As museum curator Susanne Wernsing very rightly says: “It is in the interspace between man and material, between user and device, and between visitor and exhibit, that the immaterial flourishes.” The division between material and immaterial culture is outdated and makes little sense. Collections are no longer simply repositories for material goods, but rather mediators of cultural perspectives.

Walter Leimgruber is Professor of Cultural Anthropology and European Ethnology at the University of Basel.



Repositories and treasure troves of knowledge

A 19th century preconception states that while humanities scholars are people with an interest in the past, natural scientists are empiricists who look to the future and need history for nothing more than anniversaries and biographies. However, a look at the history of the sciences suggests otherwise. Collecting, conserving, and archiving are important in all disciplines.

Barbara Orland

Scientists collect everything they need to study nature: Plants, animals, and bodily specimens, books and pictures, data, preparations, and instruments. Repositories and treasure troves of knowledge are bursting with words and objects, as well. It is the particular nature of these material things to develop a life of their own as three-dimensional objects. Once released into the world, they change their meaning, roam from place to place, and satisfy the most varied of interests.

Archivists and benefactors

Meteorology and astronomy are not the only disciplines to depend on temporal data, to require a “memory”. Some, such as geology or biological evolution theory, owe their entire existence to the collection of historical objects: fossils. Others – such as botany, zoology, mineralogy and anatomy – concern themselves with archiving the most illustrative specimens of individual species. They require stability for standardized taxonomies and nomenclatures, while epidemiologists need it for the definition of diseases. Even the oldest herbariums are invaluable to researchers. And when anomalous phenomena require explanation, all of the sciences fall back on traditional knowledge. Certainly, different disciplines have different aims and methods of recording the past; however, in general, natural scientists are more than mere hobby historians.

Scientific collections such as the Senckenberg Foundation, which was set up in Frankfurt in the 18th century, also demonstrate that, during their lifetime, scientists considered the gathering of papers, instruments, buildings, and laboratories as a project for the future. In the “deed of foundation” of 1763, childless city physician and naturalist Johann Christian Senckenberg decreed that his assets be used to care for the citizens of Frankfurt and to advance medical science. A *Collegium medicum* was installed in the residential building transferred to the foundation – along with its library and collections – to encourage Frankfurt’s medical fraternity to work together more closely and to erect a “temple to science”.

Collecting and science

In the 19th century, benefactors and their scientific corpora grew increasingly apart. The anonymization of the practice of collecting reflected the evolution of the sciences. Study of nature increasingly lost its aesthetic, educational and philosophical enjoyment of the “unity of nature”. Instead, natural sciences and technology, which were separated into individual disciplines, were regarded as the engine of progress.

Since the first world fair in London in 1851, panoramic exhibitions have aimed to show that free trade has enveloped the sciences, too. “See the works (...) of the civilized world!” enthused the German industrialist Friedrich Harkort. “It has built a crystal palace in London bigger than that occupied by any king on Earth. But the sparkling room is not filled with plunder, but with the most exquisite treasures of industriousness and the arts, the trophies of civilization.”

The image of scientists was also altered by a striving for excellence. The cult of the genius took hold; public icons became integrated into their own interpretation of history. Many scientists began to immortalize themselves through the medium of objects. For example, Emil von Behring, the German bacteriologist and researcher into diphtheria, emulated Louis Pasteur’s mausoleum by designing his own grave.

Deference saw private apartments and laboratories – interiors, apparatus and all – converted into museums. In 1953, with the permission of Otto Hahn, the Deutsches Museum in Munich assembled a crude wooden table with instruments that he had allegedly used in his work on uranium fission. For 40 years, the exhibit was presented to the trusting public under the title “The work bench of Otto Hahn”, until protests saw this historical misrepresentation removed.

From worthless to worthwhile

Usually, however, once their owners had passed away, most of the objects used for research in laboratories and teaching in lecture halls disappeared into cupboards and cellars, or were

destroyed and discarded. Sometimes, the heirs and directors of the relevant institutes donated the deceased's collections to universities and to the increasing number of natural history museums that had begun to appear since the start of the 19th century. Here, if not before, collections removed from their original context began to be used in the spirit of re-enactment.

As so often, Paris led the way. The reorganization of the scientific institutions provoked by the French Revolution brought together the royal gardens, cabinets of natural curiosities, and menageries in the *Muséum national d'histoire naturelle* – incorporating a research institute. Their European neighbors had no desire to appear inferior in the competition between the nations. Formerly private scientific collections became sites of bourgeois intellect and popular science open to the admiration of the public. As museum artifacts, former scientific objects and instruments were now dependent on the historical knowledge of teachers, amateur scientists, and museum curators.

This “musealization” had a further effect that might prove disadvantageous for scientific instruments in particular. In a museum, exhibits must be judged on their aesthetics, with their function or relevance to an experiment of secondary importance. As a founding member of the Leipzig Museum of Local Natural History stated in 1913, the “electrifying results of the modern natural sciences must be converted to a form accessible to the people and the youth”.

In particular, museums of technology and natural history consider themselves workshops of popular knowledge. Everything that ends up here is transformed into an aesthetic attraction, a work of technical art, complemented by museum models, lighting effects, and dramatic scenes. While there is no implication that museum organizers ignore scientific standards, but exhibition collections are subject to different rules of representation.

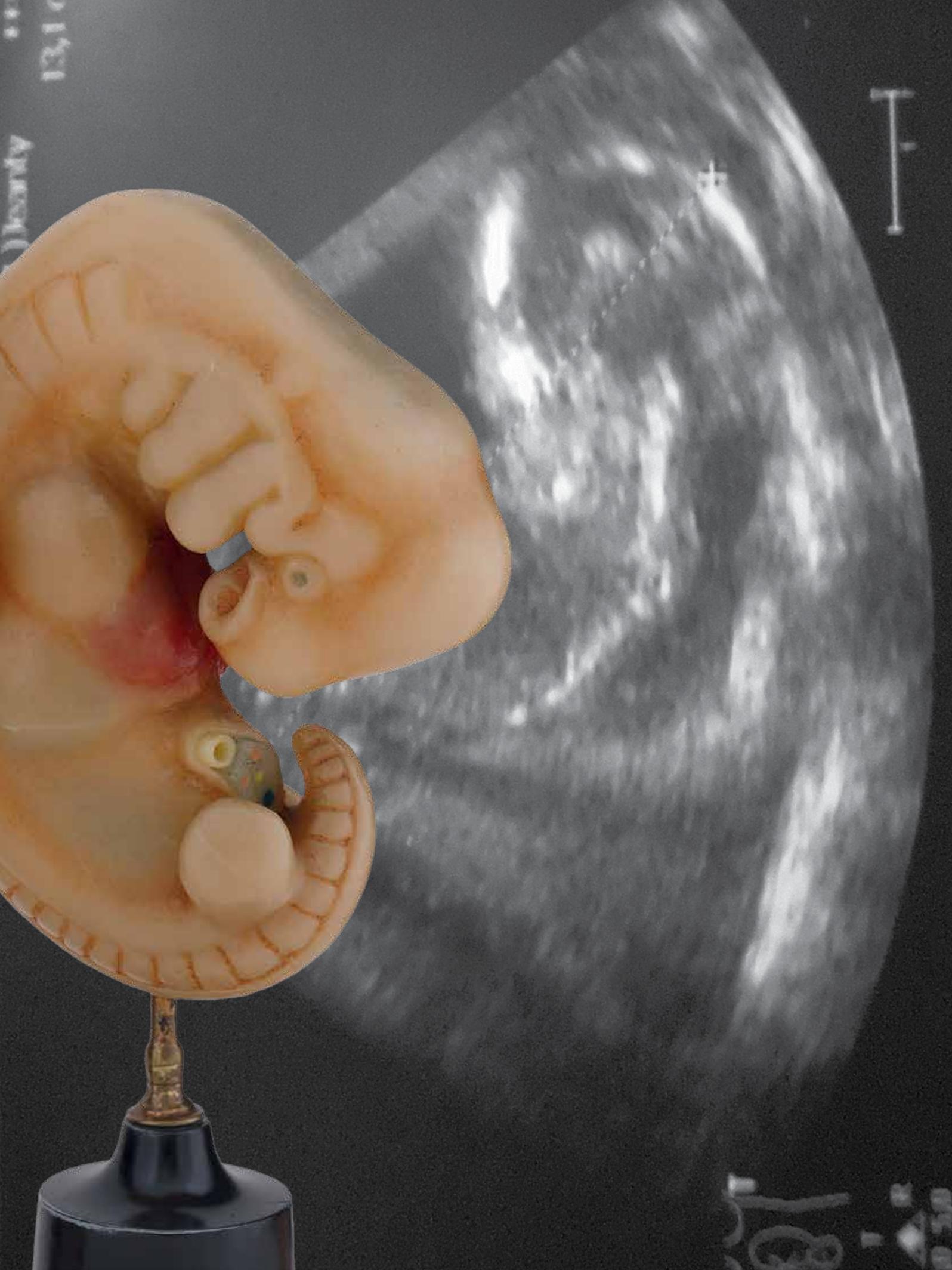
Handicraft, competition, and commerce

Ultimately, the public presentation of knowledge reveals the economic dimension of collecting. Gain played a role from the moment a collection was born. Just like the human skeletons used in “race-biological” research, the fossil trade brought collectors and grave robbers cold, hard cash. Researchers often produced preparations for sale. As an example, the zoological establishment in Nepal generated part of its financing by producing marine plants preserved in alcohol, which were dispatched to laboratories studying plant physiology. Above all, it was the value of an object that determined whether it was deemed worthy of preservation.

The delicate injections of colored wax and other substances into tissue and vessels produced by Berlin physician and anatomist Johann Nathanael Lieberkühn in the 18th century for microscopic examinations were so ornate that they were sold all over the world. After his premature death in 1756,

they fetched astronomical amounts. Catherine the Great of Russia paid 7000 rubles for a “specimen cabinet”. However, most were acquired by Gottfried Christoph Beireis, a chemist from Helmstaedt, Germany, who – as a patron – also had in his possession one of the famous mechanical ducks produced by French inventor Jacques de Vaucanson; this robot consisted of more than 400 movable parts and could flap its wings, quack, and drink water. Following his death, Beireis' heirs sold off the large collection. The medicinal items were sold to several anatomical museums, some pieces finding their way back to Berlin.

Dr Barbara Orland is a senior scientist in the Program of Science Studies at the University of Basel.



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Remedies from bygone eras in the Pharmacy Museum

Ceramic vessels, old remedies and medication, balances and weights, herbal books, amulets and entire laboratories and pharmacies: The Pharmacy Museum Basel provides an overview of the history of medicines – and thus of the early years of modern medicine and the natural sciences. The museum, now one of the world's largest and most significant of its kind, began life as a teaching and private collection. Michael Kessler-Oeri and Flavio Häner

Entering the Pharmacy Museum of the University of Basel is like stepping into another world. Even the inner courtyard of the “Zum Vorderen Sessel” building in the Totengässlein – where the printers Johannes Amerbach and Johannes Froben worked in the 16th century and guests such as Erasmus of Rotterdam and Paracelsus stayed – beckons the visitor to take a journey through the ages. Arriving in the museum, we find ourselves standing before the façade of the old “Barfüsser” pharmacy from around 1900. Innumerable objects from the last two millennia of pharmaceutical history await us in the historical collection.

Preserving pharmaceutical history

The Pharmacy Museum originates from an era in which collections of material objects were still a key part of scientific teaching and research. Its roots are in the private collection of Josef Anton Häfliger (1873–1954), a pharmacist and reader in practical pharmacy and pharmaceutical history, who in 1925 gave his collection of old pharmacists' vessels, obsolete medicaments, prescriptions, wooden carvings, images and books to the University. Professor Heinrich Zörnig, Director of the Pharmaceutical Institute founded in 1917, made several rooms available to house the items. The establishment of the collection in the Pharmaceutical Institute allowed Häfliger to introduce students to historical developments in practical pharmacy, its artifacts serving as a medium to teach them about the history of pharmacy and techniques for producing remedies and medication.

The collection evolved in direct connection with developments in pharmaceutical practice. In the first half of the 20th century, the entire field of pharmacy – from research to the production and sale of medicaments – experienced far-reaching changes. Medicines were no longer produced in apothecaries, but in the factories of large companies. Equally, pharmacists were no longer trained exclusively in apothecaries, but increasingly went to the university to learn their trade.

As a pharmacist and reader in practical pharmacy at the university, Häfliger was doubly affected by these changes. He realized that the traditional production techniques were being increasingly replaced by new procedures. This meant that many objects, tools, and instruments typically used to prepare medicines were no longer required and so were phased out of laboratories. In compiling his collection, he tried not only to preserve the objects themselves, but also to record the way they were used and, with them, the entire history of pharmaceutical products.

Expansion and international impact

At the 1927 annual meeting of the Swiss Society of Pharmacists in Basel, the teaching collection was officially renamed the “Swiss Collection for the History of Pharmacy”. This lent it increasing importance as a museum with the aim of preserving historical objects from the field of pharmacy. In 1928/29, a number of donations and acquisitions saw the collection in constant expansion. One of the most important purchases was the collection of Dr Theodor Engelmann, pharmacist and President of the Natural History Commission.

The acquisition of this extensive collection meant even less room for the objects. From 1930, Häfliger and Zörnig endeavored to extend the rooms. In the same year, they were able to take over the rooms previously occupied by a school of weaving. In 1931, the pair requested that further rooms in the property between Totengässlein and Nadelberg be added to the museum. These rooms had until then been used by the labor office as its work and accommodation registry office. Their request was approved by the government and the rearrangement of the collection began. In 1934, the annual congress of the International Society for the History of Pharmacy took place in Basel and helped bring the collection – just ten years old at the time – to an international audience.

In 1937, Zörnig, the long-time director of the Pharmaceutical Institute, stepped down, and the University of Basel



Laboratory from a former era: Interior of the Pharmacy Museum (Image: Daniel Boschung).

appointed Professor Tadeus Reichstein as Professor and Director of the Institute. Structural changes ensued for the collection, which, little by little, became restricted to the building formerly populated by the labor office. This meant that from the 1940s, the Institute and the collection were not only physically separate, but that ever fewer lectures and seminars were conducted using items from the collection.

From collection to museum

After Häfliger's death in 1954, the future of the collection came under discussion; proposals included joining together with Basel Historical Museum. However, the collection of pharmaceutical history remained independent and was now led by Dr Alfons Lutz, a pharmacist and friend of Häfliger, under the supervision of a museum commission. Official talk of a museum for pharmaceutical history began in the mid-1950s, and no major changes were made to the exhibition area from this time. Lectures on pharmaceutical history only resumed in 1965, when Alfons Lutz was appointed Honorary Lecturer.

This year also saw art historian Lydia Mez-Mangold begin the considerable task of cataloging and labeling the museum's objects. In 1972, and thanks to her wealth of knowledge about the collection, she became the first non-pharmacist to be appointed curator of the museum. In recognition of her many years of service, she received an honorary doctorate from the University of Basel in 1992. She was succeeded in 1979 by the archaeologist Laurentia Léon, who presided over the museum until 1986, when the torch was passed to pharmacist and pharmaceutical historian Michael Kessler.

In 1999, the time came for the Pharmaceutical Institute to relocate; the old laboratories could no longer meet the requirements of modern pharmaceutical teaching, nor could they accommodate the constantly increasing numbers of students. Although the collection was now housed separately from the pharmaceutical teaching facilities, the University

of Basel once again established a lecture in pharmaceutical history that is still held by Michael Kessler to this day. Preserving the structure of the Pharmacy Museum as a scientific teaching collection is currently a key aspect of the museum's policy. Due to the move of many museums toward educational exhibitions, the Pharmacy Museum of the University of Basel houses what is now a very rare academic exhibition. The museum has therefore become an exhibit in itself – and is proving extremely popular with today's public.

www.pharmaziemuseum.ch

Dr Michael Kessler-Oeri is Head of the University of Basel Pharmacy Museum. Flavio Häner is a doctoral student and research assistant at the museum.

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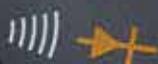
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Tradition and modernity in the Anatomical Museum

The Anatomical Museum of the University of Basel is one of the oldest museums specializing in human anatomy and enjoys international recognition for its historical and modern exhibits from experts and the general public alike. Valuable, unique anatomical preparations from the early days of modern natural sciences have survived until the present day. Magdalena Müller-Gerbl

Right through to the 19th century, anatomists and their collections made significant contributions to the advancement of medical science. Their preparations were similarly valuable for teaching and research, and their collections became key to acquiring new insights. Yet the collected items are not only significant historical monuments to the development of medical and natural sciences. As the German medical historian Thomas Schnalke so aptly stated, they are also among “the original objects of medical documentation and the practices of scientific observation, reflection, contestation, and publication derived thereof” and are thus “means of publication with their own merits and quality”.

A journey beneath the skin

As part of the Faculty of Medicine, the Anatomical Museum – one of the official museums of the University of Basel – opens up a window onto the world of medicine. As a public museum, its numerous exhibitions depict the structure of the human body. In an age of increasing health awareness, it therefore provides factual information to all interested parties. In addition to the permanent exhibition, a journey beneath the skin before “coming back to life”, special exhibitions are offered in collaboration with various clinics or other university institutions.

The alternating special exhibitions provide extra information on specific areas of the body in an easily accessible format. The latest findings on the structure and function of different organs and organ systems, such as the face, brain and back, stand side by side with developments in diagnosing and treating specific illnesses. Guided tours by experts allow the public to learn straight from the horse’s mouth, and the museum offers workshops for children and young people, too. The Anatomical Museum also provides an extensive teaching collection that – divided into organ systems – is used for the training and further education of medical students and personnel.

Vesalius and the beginnings of the museum

The establishment of the museum and its further development are closely connected with the history of the Faculty of Medicine at the University of Basel and the field of anatomy. One milestone in the history of the anatomical collection was the time spent in Basel by the Flemish anatomist Andreas Vesalius (1514–1564). Many foreign scholars were drawn to the city in the 16th century by the flourishing art of printing, including Vesalius, who is considered to be the true founder of modern anatomy. By working on human corpses, he freed himself from ancient anatomy and studied the entire human body in minute detail. These findings formed the basis for his epochal work “*De humani corporis fabrica*”, which was printed in Basel in 1543 by the renowned publisher and printer Johannes Oporinus. An original copy is displayed in the museum.

In order to oversee the printing of his work, Vesalius spent quite some time in Basel. On May 12, 1543, he held a “public anatomy”, that is, the dissection of the corpse of an executed criminal. This lasted several days. With the help of the surgeon Franz Jeckelmann, Vesalius then joined the bones back together with wire and donated the preparation to the university. Today, this skeleton is considered to be the world’s oldest anatomical preparation; it is preserved and displayed in the Anatomical Museum.

Platter, Jung, His

The Faculty of Medicine was further expanded by Felix Platter (1536–1614), who in 1571 was awarded a professorship in practical medicine and became a city physician. He prepared several skeletons, which he also bequeathed to the university. Unfortunately, these skeletons were damaged during the French Revolution and some parts were actually removed. The remaining pieces are displayed in the Anatomical Museum and are among the most valuable anatomical preparations in the entire world. Public anatomies had been taking

place in Basel since 1570, with each audience member paying an entrance fee. These public dissections then stopped in the 18th century, and anatomy retreated back behind its walls.

In 1822, Karl Gustav Jung (1794–1864) came to Basel as Professor of Surgery, Anatomy, and Obstetrics. Two years after he arrived, the city council provided him with a loan, among other things, and granted him permission to set up an Anatomical Cabinet – the precursor to today’s Anatomical Museum – in the “Unteres Kollegium” on the Rheinsprung. Under Jung’s leadership, a variety of preparations and wax models were produced and a few years later, the Anatomical Cabinet became an actual museum, which even then was open for public viewings on Sundays.

The university’s annual report for 1844 contains the following entry on visitor numbers to the Cabinet: “(...) and it was only with great effort that the curious onlookers could be held back during the time in which the establishment was closed”. The Anatomical Museum still has in its possession valuable wax models from the period around 1850, including models demonstrating the nerves between the neck and head, the vegetative nerve supply to the internal organs, and a greatly enlarged model of the ear.

Jung’s successors also appreciated the museum as a valuable resource; they introduced new preparation methods and continually extended the collection. Wilhelm His (1831–1904), Professor of Anatomy and Physiology from 1857, significantly advanced understanding of antenatal morphogenesis and function development through his fundamental work in the field of embryology. The museum still possesses many valuable wax models of embryos in various stages of development, as well as some instruments and devices for producing wax plate reconstructions. His developed a process for producing a series of sectional views so that entire embryos could be reconstructed in plastic down to the very last detail.

Expansion and relocation

With space becoming ever scarcer and no further scope to expand the “Unteres Kollegium” on the Rheinsprung, the only option left was to relocate the anatomy department. From 1885 to 1921, the Anatomical Institute – together with the Physiological Institute in the Vesalianum building – was housed between Petersplatz and Spalenvorstadt. The Anatomical Collection was stored partly in the basement and partly on the first floor. However, this building was soon bursting at the seams, as well.

It was under the direction of Professor Hanson Kelly Corning (1860–1951) that a new, separate building to house the Anatomical Collection was erected on Pestalozzi Street and opened in 1921. In moving the collection to the new institute, Corning adhered to a principle in Austrian anatomical studies that differentiates between two types of collection: An “exhibition”, which is open to the public on Sundays, and a “hands-on collection”, which contains preparations pri-

marily intended for use in lectures and courses. The Anatomical Museum was initially more of an archive, which is why a number of preparations were stored in the previous style. This presentation style remained unchanged until 1978: The most valuable exhibits were displayed amid a range of less interesting preparations.

An educational redesign

In 1980, those responsible for the museum redesigned some sections of the exhibition by presenting individual exhibits and preparations of the musculoskeletal system in a new way. In 1985, the museum was opened for the second time once the internal organ, nervous system and embryology preparations had been arranged systematically in accordance with the latest museum and educational theories. Educational presentation was one of the most important aims of the redesign process. In addition to new display cases and exhibition walls, this also included systematic arrangement and informative preparations using modern techniques. As well as comprehensible and standardized labeling, it was important to provide additional captions, drawings, photographs, X-rays, and anything else that would significantly improve the informative value of the exhibits.

The new museum concept, the latest installation techniques, and the bold decision to bring in some color and make things more relaxed have reduced the grisly image often attributed to the Anatomical Collection. This is undoubtedly one of the reasons why a growing number of schools are bringing their pupils here to increase their understanding of biology. In 1995, an event was held to mark the opening of the renovated museum in the new educational facility of the Anatomical Institute and to celebrate the fact that it was once again open to the general public; its format remains more or less the same to this day. Exhibits concentrate predominantly on original preparations of human body parts, organs and tissue that are arranged systematically and topographically, as well as on antenatal human development. Valuable historical exhibits, for example key pieces of medical educational history, also form part of the museum and it continues to document the evolution of model production providing a historical overview of preparation techniques.

anatomie.unibas.ch/museum/en/index.html

Professor Magdalena Müller-Gerbl is Associate Professor of Macroscopic Anatomy and Head of the Anatomical Museum of the University of Basel.

A foot in Basel and dancing balls of elder wood

Basel is home to an extensive collection of physics apparatus and instruments, which were used mainly in experiments to teach students. The oldest pieces come from Daniel Bernoulli, a member of a famous Basel scholar family. A few of these items, including some that are nearly 300 years old, are currently held in the Historical Museum of Basel. Ernst Meyer and Stephan Messmer

The University of Basel's physics collection has a long tradition dating back as far as the 18th century. Entry no. 1 in its inventory is a description of apparatus for an experiment "to demonstrate the hydrostatic paradox" that dates back to the mathematician and physicist Daniel Bernoulli (1700–1782). This experiment shows clearly that the pressure within a liquid is unaffected by the shape of its container, instead being determined by the height of the liquid column. Similar experiments are performed even today for students in introductory physics classes.

The physics cabinet: A cabinet of curiosities

The original items used in these early experiments to demonstrate physical principles are no longer part of the Department of Physics collection, but have mostly been donated to the Historical Museum of Basel. The instruments are on display as a physics cabinet at its Museum of Domestic Culture in the "Haus zum Kirschgarten". This is a sort of cabinet of curiosities made up of numerous pieces of experimental apparatus and instruments acquired by Professor Daniel Bernoulli and his colleague Professor Benedikt Staehelin. Back then, the public lectures at which experiments were performed using these instruments were a huge draw.

The oldest pieces of experimental apparatus still in the Department of Physics collection – optical instruments such as microscopes and telescopes – date from the 19th century. The quality of these instruments, especially their precision mechanics, is impressive. One feature of this period was the use of different units of length, which had not yet been standardized. Thus in Basel a foot was equivalent to 28.13 cm, as against 32.48 cm for the French foot; this was the origin of the saying that "die Franzosen auf grösserem Fuss gelebt haben als die Basler" (roughly translated as "the French lived life larger than the Baslers"). Only in 1877 was the foot abolished as a unit of length in Switzerland and replaced by the meter.

There are many more experiments in the Department's collection, including some involving dancing balls made of elder wood, which show how the balls are able to move, apparently by magic and without mechanical contact forces, when placed within electrical fields. These "party tricks" quickly gave rise to the first pieces of serious research, as well as the earliest technical applications in the field of electrical engineering. By the end of the 19th century, the precursors of wireless communication had also started to appear, beginning with experiments by the German physicist Heinrich Hertz in 1888. These experiments were reproduced in Basel in 1890 by Professor Eduard Hagenbach-Bischoff and Professor Ludwig Zehnder, hence the inclusion of a Hertz transmitter in the collection.

Early experiments with radio at the Bernoullianum

The Basel Professor of Physics, Hans Zickendraht, was a pioneer in the wireless transmission of data. An impressive illustration of a high-voltage generator from 1904 shows the production in spectacular fashion of a large number of discharges, including a 1.23 m spark discharge of 80 amps of primary current over about four seconds. In 1915, Zickendraht set up a radio testing facility in the Bernoullianum; eight years later, Switzerland's first radio broadcasts were transmitted from Basel.

Another item preserved in the collection is a precision wavelength meter – a sort of radio receiver – dating from 1925 and manufactured by the Société française radio-électrique in Paris. This is a fine example of the synergy between precision mechanics and electronic engineering. The set's glass casing and the intricate workmanship that has gone into the coil – consisting of copper tubes – are particularly impressive. The collection includes a large number of optical instruments such as spectrometers and polarizers, as well as papers documenting the research work of the Basel mathematician and physicist Johann Jakob Balmer. The visible lines in the

hydrogen spectrum are still called Balmer lines in his honor. He was also responsible for devising Balmer's formula, which helped lay the foundations for later quantum theory.

In the 20th century, nuclear physics became a focus of research at the university, alongside optics. Professor Paul Huber was responsible for constructing a series of accelerators, including 200 keV, 1 MeV and 4 MeV devices. These instruments were built in collaboration with the Basel firm Haefely & Co. Even back then, they filled entire halls. Part of the 1 MeV device can be viewed today at the Elektra Birseck Münchenstein site in Münchenstein. Due to the amount of space required for work in this area, the focus of nuclear and particle physics research later shifted to the large-scale experiments at the Paul Scherrer Institute and CERN. The collection includes some research instruments from the last 30 years illustrating the emergence of the nanosciences as a new



specialism at the University of Basel. With the assistance of its mechanical and electronics workshops, the University has built scanning tunneling and scanning force microscopes that can be used to depict surfaces at the atomic level.

Spark inductor from 1904: Spectacular electrostatic discharges described by Friedrich Klingelfuss, pioneer in electrical engineering and honorary doctor at the University of Basel (Image: Department of Physics).

Professor Ernst Meyer holds the Chair of Experimental Physics and Stephan Messmer organizes the physics lectures at the Department of Physics at Basel University.





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Rocks, fossils and minerals in the Bernoullianum

Earth Sciences is one of those disciplines in which collecting objects both large and small is key to research and teaching. For this reason, the Institute of Geology and Paleontology houses numerous diverse collections of fossils, rocks and minerals in Basel's Bernoullianum – including half a ton of material excavated from a highway tunnel. Andreas Wetzel and Leander Franz

Rocks are, to a greater or lesser extent, highly encoded documents that record the development of the Earth, life, and the processes that influence them, making geological collections a somewhat different type of library. Most of the pieces they contain cannot be read directly; they must be decrypted before they can be understood and interpreted. This decryption process must be learned, requiring knowledge and experience. And, as elsewhere, the more you decipher and read, the better you will become. In this discipline, it is therefore essential that documents already analyzed are kept and used to train future generations. Accordingly, the Bernoullianum of the University of Basel offers a diverse range of geological collections: Targeted toward teaching on the one hand, they also serve as reference material for scientific studies.

Taking the long view

From the beginning, earth sciences has been one of those disciplines in which extensive collections are created. In some cases, fascinating and interesting items – be it fossils, minerals or rock samples – are picked up (if you notice them), perhaps driven by a quite usual “collector’s instinct”. In others, objects are recovered that catch the eye in a particular moment: Upon making it to the Earth’s surface, such finds can of course be quickly destroyed again by natural processes. Earth scientists, therefore, tend to take a long view. Part of this is also the fact that it is precisely those processes that free an object – erosion and excavation, or digging and mining – that could well destroy it again in an instant ... And if the options are to remove it or to lose an interesting piece, then there’s no contest. Who knows whether it will still be there on the next visit, if this ever happens ... In any case, there are many good reasons for collecting rocks, which is why samples accumulate in researchers’ offices and laboratories. Later, some of these samples will find their way into collections, which expand and become more detailed as time progresses.

The oldest documented geological collection in the Bernoullianum is the already historical assortment of red sandstone rocks – used, for example, to build large sections of Basel Münster – amassed by the geologist Dr Alfons Merian (1857–1888). Dating at least back to his time, new pieces have been added each year. In the truest sense of the word, such collections encompass collective knowledge that must be preserved and passed on.

“Hand specimens” and reference collections

Some collections are used in teaching, for example for gemology, crystallography, exploration geology, mineralogy, hard-rock geology, paleontology, sedimentology, stratigraphy, structural geology, and the geology of Switzerland. Here, several thousand selected “hand specimens” teach students about the sheer diversity of rocks, fossils and minerals and how to identify them in the field. At the same time, there are reference collections of academic works – including *Diploma* degrees, Master’s and doctoral dissertations – that cover the key material being studied.

And while some pieces have, over time, taken up permanent residence in the Natural History Museum of Basel, the Bernoullianum – which houses the geological research groups – still has around 2,000 drawers of rock samples weighing approximately 10 to 15 tons. They may well weigh more, but have never been counted, let alone weighed. Many rock samples are complemented by “thin sections”, which are preparations normally 25 micrometers in thickness that have been produced for microscopic (polarization) examinations. In this way – to maintain the metaphor – the ciphers in these stony documents can be magnified and examined in detail. There are probably far in excess of 10,000 thin sections, but these too have never been counted.

The individual collections are taken care of by the current academic staff who add further interesting pieces found around the world, on student field trips, or during field work.



Left: Nodules of anhydrite (white) surrounded by mud (gray) from the Tabular Jura. Center: Thin section of anhydrite (from the Tabular Jura) in polarized light. Right: Anhydrite (white) and mud (gray) deformed while units of the Folded Jura were overthrust; thin layers originally represented nodules (Images: Department of Environmental Sciences).

And let us not forget retired geologists, who bequeath carefully selected specimens. Knowledge of what is available where is passed from one person to the next. The Bernoullianum does not have any full-time collection managers or curators.

Hypothesis on the Folded Jura

The objects collected are not necessarily “beautiful museum pieces” worthy of exhibition; instead, they are of scientific interest or importance to a particular subject area. One such example is the collection of rocks sampled during the construction of the Belchen tunnel – around half a ton of grey mudstone, gypsum, and anhydrite. How does one even keep such rocks? Geologists at the University of Basel have studied the formation of the *Folded Jura*, attributing it to the hypothesis of a distant thrust (*Fernschub*); this has now been accepted as valid and is also applied for other regions around the world.

To clarify: During the final phase of the Alpine orogeny, the already relatively elevated mountains were thrust even further toward the north deforming the area in front of it in different ways. Mesozoic sedimentary rocks – which also form the Jura mountains – slipped onto the underlying layers of salt, gypsum, and mudstone. Such rocks deformed due to slippage were repeatedly found in the Belchen tunnel, in other tunnels, and by drilling. Since the Mesozoic rocks in the Swiss Central Plateau are covered by a wedge of younger sediments (molasse) that become thinner toward the north, its great weight prevented folds from forming. Only where the weight of the overlying sediments was too low, folding did occur – much like a tablecloth that can be pushed across a flat surface without wrinkling if kept flat by overlying weight.

Reference collections therefore encompass materials that have already given rise to new insights – such as the Belchen tunnel rocks – and which are now undergoing further investigation with more precise or entirely new analytical methods, or from a different perspective. In contrast to museum

materials, specimens can also be “sacrificed” for use in destructive methods. Some reference material is also loaned to other universities both in and outside Switzerland.

To conclude, collections are an elementary part of teaching and research in geology. If not treated with sufficient care, they may very quickly lose their usefulness and thus also their value. Even if pieces from the Bernoullianum collection were transferred to the Natural History Museum of Basel, the remaining items could forfeit a not inconsiderable part of their original function if not handled with expert care.

Professor Andreas Wetzel is Professor of Sedimentology at the University of Basel. Professor Leander Franz teaches mineralogy and petrography in the Department of Environmental Sciences at the University of Basel.

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Sleeping beauties: Hospital and nursing collections in Basel

Preservation is the first step towards creating a collection that can be used in research and teaching. Until now, Basel's hospital and nursing collections have attracted very little academic interest, yet they could help prospective doctors and nursing scholars toward a better understanding of the clinical and social developments and changes within their field. Sabine Braunschweig



An iron lung from the Basel University Hospital's collection: Again and again, the Children's Hospital had to deal with outbreaks of epidemic diseases such as scarlet fever, measles, and influenza. It was particularly hard hit by several waves of poliomyelitis. In 1956, as in previous years, there were a large number of polio cases. Of the 124 children who were admitted to the Children's Hospital with polio, twelve were suffering from serious, life-threatening breathing difficulties. The Children's Hospital borrowed an iron lung from the General Hospital (*Bürgerspital*) to use in conjunction with its own breathing equipment. A team of nurses and doctors had already been to Copenhagen to undergo training in the early treatment of poliomyelitis (Image: Bureau for Social History, Basel).

Basel's hospitals are independent institutions, but each of them is closely linked to the University. Hospital departments play a vital part in the training of prospective doctors through the residencies they provide, while senior consultants at Basel University Hospital also hold chairs at the University's Faculty of Medicine. In addition, since 2000 the faculty has been offering degree programs in nursing science.

Three largely unknown collections

All hospitals probably have old pieces of equipment, instruments, and machines stored somewhere or other of which they have not yet been able or willing to dispose. However, items that are no longer used in everyday hospital and nursing care and that have been left lying in a storeroom do not amount to a scientific collection. Basel has three larger collections that are accessible in part to those with an interest in the subject, yet they remain largely unknown.

– For almost 20 years, the Historical Collection of the University Psychiatric Clinics (UPK) has been housed in the cellar of a residential building at the back of the clinic site. It traces the history of psychiatry under the leadership of successive directors of the clinic since the establishment of the Friedmatt lunatic asylum in 1886 and is open to the public on request. The original items in the collection convey a wealth of information. Together with the descriptions and photographs on display, they provide revealing insights into daily life in a psychiatric clinic, in particular during the last century.

– Another collection, owned by the University Hospital of Basel (USB), is currently stored in a basement, where it has been dust-proofed and packed into moving boxes. Many years ago, it was exhibited in the Markgräflerhof on Hebel Street. Then, due to a shortage of space, it had to be moved to the old Women's Hospital. When the hospital was demolished, it ended up in its current location. Staff from the hospital's infrastructure department rescued the collection before it was thrown out and are currently responsible for looking after it.

The machines, instruments, and small items of furniture in the collection date mostly from the 20th century and relate to diagnosis, treatment, nursing, and the general running of the hospital. The future of the collection is currently being decided.

The components of an X-ray machine from the early days of radiology form one of the centerpieces of this collection. In his workshop on Petersgraben, Friedrich Klingelfuss (1859–1932), a self-taught mechanic living in Basel, carried out groundbreaking work on medical applications of electrical engineering technology. His induction coils for X-rays were in demand worldwide. In 1910 he received an honorary doctorate from the University of Basel for his inventions.

– The third collection comes primarily from the University Children’s Hospital for the two cantons of Basel (UKBB) and its former nursing school; it also includes a few items from other Basel nursing schools. It is unique among Swiss collections and museums in having nursing as its focus. The approximately 1,000 items relating to neonatal, pediatric, and maternity nursing, as well as general nursing and nurse training, are currently held at a temporary site. However, this is unsuitable as a location for ongoing work to catalogue the collection and for academic research and therefore urgent action is needed to safeguard the collection’s future.

Resource for research

In the 1960s, as reusable items were replaced by disposable ones, the former pediatric nurse and vocational teacher Verena Kuhfuss began to collect used instruments and nursing equipment. In doing so, she was motivated by a fascination with the nursing expertise they represented – which was in danger of being lost – as well as by a delight in these beautifully made and decorated objects. When teaching the history of neonatal and pediatric nursing, Verena Kuhfuss was able to use this old equipment to illustrate changes in nursing and their effects on nurses’ working conditions.

For example, it used to be one of the nurses’ duties to mend torn rubber gloves and to wash and sterilize glass syringes. Following the introduction of disposable materials, there was no longer any need for these housekeeping tasks. But with them disappeared any awareness of the need to treat items with care. Only in recent years have environmental concerns again begun to feature in the running of hospitals.

The nursing collection records the practice of an important health profession over an entire era and has potential as a rich source for academic research. It is particularly valuable as it includes a large number of photographs of nurses at work and in training, along with transcripts of conversations with retired nursing staff who have since died. The exhibition “wohl & weh. Vom Kinderspitäli zum UKBB” (which translates as “In sickness and in health. From the Children’s Hospital to the UKBB”) that was staged in the health center at the old Children’s Hospital on the Rhine in early 2011 showed how objects, illustrations, and extracts from interviews can be brought together in an informative public display.

Future prospects

The Basel Hospital History Society is currently looking at how Basel’s hospital and nursing collections can be preserved and developed appropriately. Its aim, in collaboration with the Institutes for the History of Medicine at the universities of Bern, Lausanne and Zurich, is to see them put to good use both as a fruitful resource for medical, nursing, and social history and for use in degree programs in history, medicine and nursing science.

Financially sustainable ways of preserving collections of fundamental importance such as these are currently being sought at a national level in Switzerland. Built up over decades, they document not only the modernization of health care but also the internal development of these institutions and the fact that their staff felt the need to produce a visible and tangible record of the changes to their environment.

Dr Sabine Braunschweig is a historian and qualified adult educator. She runs her own Bureau for Social History in Basel (www.sozialgeschichte-bs.ch).

Basel's art collections and their history

The history of collecting is divided into a series of different phases. From a cultural-historical perspective, Basel is unique in having collections that include leading contributions to each of these phases. Axel Gamp

Collecting seems to be fundamental to human nature. After all, *Homo sapiens* started out not just as a hunter, but also as a gatherer – and this was at a time long before the formation of settled communities. Collecting during this early period must have been chiefly about the battle for survival, but in the evidence left behind by early humans there are hints that this was not its sole purpose.

In the ancient world, we find collections motivated purely by the wish to amass large numbers of identical or particularly precious objects. Philostratus's *Eikones*, a famous work from the second or third century AD that has given its name to a National Center of Competence in Research at the University of Basel, is basically nothing more than a description of a private picture gallery. Another example – this time from our own region – is the late Roman silver hoard from Kaiseraugst. It is unlikely that its wonderful vessels and serving dishes were meant for daily use; rather, they seem to have been intended as luxuries for display, and hence as collector's items.

Cabinets of curiosities

In the Christian era, the churches took on a leading role as collectors. Of course – and the Basel cathedral treasury provides eloquent testimony to this – their interest centered on items that supported Christian worship. However, soon the collections came to include objects of interest more for their curiosity value. With the exception of the classical cameo of Medusa that forms part of its “golden figure of King David”, the Basel cathedral treasury contains nothing of this kind. Elsewhere, there was more to admire: tusks, for example, such as the famous ‘Olifant’, an ivory hunting horn formerly held at Muri Abbey that can now be seen at the Kunsthistorisches Museum in Vienna.

In the late Middle Ages, when the princes were extending not just their power but their palaces, they created collections modeled on those of the church. Here, however, the emphasis was reversed: Curiosities moved center stage while sacred

objects were steadily pushed into the background. Still, even then, only objects of particular interest were retained. Much more crucial now was the distinction between *naturalia* and *artificialia* – that is to say, between items found in nature and those created by humans.

The Amerbach cabinet

This division is reflected in one well-known Basel collection: the Amerbach cabinet. From the 16th century onwards, four generations of the Amerbach family steadily built up and expanded their collection, building on the estate left to them by Erasmus of Rotterdam. Here, works of art and oddities from the natural realm rubbed shoulders in a cheerful encounter that provides the starting-point for the new permanent exhibition at Basel Historical Museum.

Although the main gallery features pieces not just from the Amerbach cabinet but also from some of the city's other early collections, the traditional 16th-century division has been retained, with various different display cases being devoted to the *artificialia* and the *naturalia*, respectively. To these have been added the *scientificia* – objects used in scientific research, such as globes, and the *antiquitates*, consisting of archaeological discoveries from the ancient world – which the Amerbachs would probably have classified as *artificialia*.

The cabinets of curiosities created during this period were designed to capture as fully as possible the entire micro- and macrocosm of the time, although sometimes the grounds for inclusion were extremely subjective and individual. The Amerbach cabinet formed the core of the first public art collection of any kind. In 1661, it was bought by the city council on the recommendation of the mayor, Johann Rudolf Wettstein, and handed over to the university.

Connoisseurial collections

Cabinets of curiosities, with their claim to provide a complete representation of reality, started to lose ground only

towards the end of the 17th century. The emergence of the modern collector was accompanied by the development of criteria of connoisseurship. An important move in this direction occurred in Paris around 1670, following the bankruptcy of Eberhard Jabach, a banker from Cologne. When his extensive collection was put up for auction, Louis XIV's minister, Colbert, chose to purchase the paintings and drawings only, turning down the sculptures, prints and handicrafts. With the establishment of genre divisions, connoisseurial criteria suddenly became fundamental to collecting.

In Basel, we can see this process at work in relation to the Margraves of Baden-Durlach, who were resident at the Markgräflerhof on Hebel Street from the early 18th century and employed the painter and city councilor Johann Rudolf Huber (1668–1748) as an advisor. While early inventories of the princes' possessions list paintings and handicrafts side by side, later versions suggest that only paintings were exhibited. Both the content of works and the aesthetic or erotic pleasure to be derived from them played a role in this regard: Family trees and depictions of the princes' own territories related to their position as rulers, whereas the value of paintings by Holbein, Cranach, Rubens or the Caracci clearly lay in their artistic merit. Around the middle of the 18th century, Margrave Karl Wilhelm, a notorious womanizer, had a cabinet of nudes installed behind his bedroom that brought together many of his mistresses in a state of undress. Here was connoisseurship of a very particular kind.

The margraves' adviser Huber also supplied works for the private collections of rich Basel notables, which expanded considerably during this period. The *Itinéraire alphabétique de la Ville de Bâle, de ses environs et de son canton, à l'usage des voyageurs curieux*, published anonymously in 1782 but compiled by Achilles Ryhiner-Delon (1731–1788), a member of Basel's ruling elite, lists all the private collections held in the city. That of Councilor Samuel Heussler-Burckhardt (1713–1770) stood out in that it was the only one set up along

connoisseurial lines. The collector had sought to acquire paintings representing all of the important national schools, namely those of the Netherlands, Germany, France, and Italy; the Italian school was further subdivided into north Italian, Venetian, Florentine, and Roman works. Heussler made use of his international connections to build up this collection. At one point an agent from Venice offered him the 'Banishment of Hagar', by the Roman baroque painter Pietro da Cortona, which currently hangs in the University's Theology building. Before buying it, Heussler not only had himself sent a drawing of the work, which survives at the Kunstmuseum's Department of Prints and Drawings, but had several Venetian painters certify that it was genuine.

A museum at the heart of the city

The Amerbach cabinet was initially kept at the house "zur Mücke" on the cathedral square, but in the first half of the 19th century this came to be seen as inadequate. Following the division of the old canton of Basel in 1832–33, there was a campaign, supported largely by private sponsors, to raise funds for the construction of a museum in the city, which opened on the Augustinergasse in 1849. Designed by Melchior Berri, this was the first truly purpose-built museum in Switzerland. Here there was still no attempt to separate handicrafts and works of art. Objects were handed over to the Historical Museum, founded in 1894, only gradually, until eventually all that remained was the public art collection, now of course greatly augmented by purchases and donations. Since 1936, this has been housed at the city's Kunstmuseum.

This year's Picasso exhibition marks another turning point in the history of collecting in the city. In a 1967 vote, he became the first living artist to obtain the broad support of its population, thus providing a democratic basis for collecting for the first time.

Dr Axel Gampp is Associate Professor of the History of Art, in the Department of Art History and Musicology at the University of Basel.

Gender segregation at work



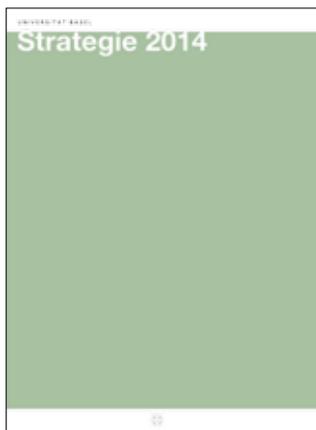
Gender segregation in the workplace is more pronounced in Switzerland than in the rest of Europe: Most women have “typically female” jobs, and most men have “typically male” jobs. In a representative longitudinal study of 6,000 young people, only 22 of the women and 20 of the men who wanted to enter a profession that is considered untypical for their respective gender were successful in doing so. This is inherently problematic. Jobs that are commonly held by women are of lower social status, have fewer promotional possibilities, and are generally very poorly paid – which serves to perpetuate gender inequalities. This also makes it difficult for young people to achieve their potential and to find the jobs that would suit them best. An additional problem is the lack of women in natural and engineering sciences and the scarcity of men in caring professions and in primary schools.

So why have efforts to overcome gender segregation in Switzerland been so unsuccessful? Measures so far have been applied too selectively, although most mechanisms and factors are actually interconnected and affect the entire process of education. From an early age, children only focus on the professions that are perceived as typical and appropriate for their own gender. This perspective rarely changes, even with career counseling. Children and young people have to make educational and professional choices at a very young age in Switzerland, which means that they take decisions at a time when they are heavily influenced by gender norms. Moreover, young people are not only confronted by the difficulty of breaching gender norms by pursuing an “untypical” career; they also have to fight against enduring prejudices that dictate that they do not have – and are incapable of learning – the skills necessary for the job as a result of their gender. A

huge amount of self-confidence and motivation is necessary to pursue an “untypical” career. Ongoing support from parents (primarily) and teachers is required to help young people face the daily pressure of non-conformance with gender norms and gender roles. For this reason, the few young people with “untypical” jobs tend to have above-average academic achievements (usually in maths and reading) and a high degree of self-confidence.

While there is now greater equality when it comes to the division of domestic tasks, traditional conceptions of the primary role of men and women in the family remain resolute – which also has a significant influence on career choices. Most women question how they will be able to combine a family with a job early on in their lives. True, women can now pursue a career, unlike in the past. However, they still see themselves as primarily responsible for looking after the young children, which means that only the kind of “female” jobs that allow them to do so come into question. Men see themselves as the main breadwinner, and therefore choose a career according to the salary and job opportunities. Their choice of work must enable them to fulfill this role. In spite of growing acceptance of other kinds of family structures and gender norms, there remains considerable social pressure on young adults to conform to dominant gender norms by learning certain skills at school and by following particular educational and professional paths. The situation is even more pronounced in Switzerland through the lack of infrastructure to enable both men and women to combine a family with a career, such as childcare facilities and all-day schools. There appears to be a high degree of distrust in the ability of the state and federal states to provide appropriate childcare.

Andrea Maihofer (*1953) has been Professor of Gender Research and Director of the Gender Studies Center at the University of Basel since 2001. She studied philosophy, German and pedagogy in Mainz, Tübingen, and Frankfurt am Main, where she wrote her post-doctoral “Habilitation” in sociology in 1996 on “Gender as a Mode of Existence”.



Strategy 2014: “Strengthening strengths”

In “Strategy 2014”, the University of Basel defined several thematic focal areas in which the established fields of “Life Sciences” and “Culture” are to be consolidated and further developed. This commitment is intended to shape the institution’s profile and secure its position as a regionally integrated but internationally oriented university offering the full range of disciplines. Life Sciences will remain the primary focal area among the academic disciplines. Equally well established and well connected internationally are the fields of Visual Studies and Nanosciences. Further areas of focus are Sustainability and Energy Re-

search, European and Global Studies, and Narrativity. The University of Basel sees itself as a strong research-oriented university with a firm commitment to promoting excellence not only of individual researchers, but also of entire groups. Bachelor’s and Master’s programs will continue to be developed to provide a range of attractive and high-quality degree courses oriented toward learning outcomes; early career researchers are also to be given specific support as part of new doctoral programs. In addition, the University is to strengthen its profile by expanding cooperation with regional, national and international partners.



Confucius Institute to be opened

In partnership with the East China Normal University, the University Basel is to establish a Confucius Institute. The Institute – which is to be housed in a building on the Steinenring – is due to be opened with a celebratory event at the end of September during the Chinese “Moon Festival”. The first events will take place in the fall semester; a full range of courses is to be launched at a later date. Confucius Institutes support language and culture and are run by the Office of the Chinese Language Council International together with

local partners. Their role is to promote Chinese language and culture around the world in the same way as comparable established institutions, such as the German Goethe Institute. The first Confucius Institute was established in Seoul in 2004; there are over 300 of these cultural centers at present in over 80 countries, including some in Switzerland. Financing is shared jointly between China and the host country. The city of Basel has maintained a twinning partnership with Shanghai since November 2007, which includes exchange in the fields of life sciences and healthcare.

European research funds

Success for Basel projects at the European Research Council (ERC): Prof. Christoph Dehio from the Biozentrum and Prof. Martin Wallraff from the Faculty of Theology were each awarded a highly sought-after ERC Advanced Grant to the value of around three million euro. These funds are designed to support exceptional, independent, and established researchers in pursuing important and unconventional research projects for a period of up to five years. Four younger researchers at the University of Basel were each awarded an ERC Starting Grant of approximately 1.5 million euro each over five years: Prof. Malte Helmert,

Assistant Professor of Computational Intelligence at the Department of Mathematics and Computer Science, Prof. Sonja Hofer, Assistant Professor of Neurobiological Networks at the Biozentrum, Prof. Martino Poggio, Argovia Assistant Professor of Nanotechnology at the Department of Physics, and Prof. Florian Seebeck, holder of an endowed professorship in Molecular Bionics at the Department of Chemistry. ERC Starting Grants are among the most prestigious sources of funding for early career researchers in Europe; these grants reward researchers with proven potential for innovative projects in basic research.

A high-rise for the Biozentrum



Construction of the new Biozentrum began just a few weeks ago. More than 70 meters tall, the striking building is set to commence operations in three years' time. For the Biozentrum's director, the new structure represents a "major opportunity" not only for the University, but also for a life sciences site that serves the entire region. Christoph Dieffenbacher

Excavation of the building pit for the new Biozentrum began in the "Schällemätteli" area at the start of August. The preliminary works and frontage will follow from next spring until the end of 2015, with the construction proper commencing in 2016. The occupants are set to move in in 2017. The new building will be built next to the University Children's Hospital for the two cantons of Basel (UKBB), the existing Biozentrum buildings and the Pharmazentrum. The project stems from the Zurich consortium *ilg santer and b+p baurealisation ag* and the joint developers are Basel-Stadt and Basel-Landschaft. Each cantonal parliament has agreed to allocate CHF 158.2 million to the project. In addition to the Biozentrum, the new building will also house the Computing Center, lecture halls, and a public cafeteria. The building is surrounded by a public square that serves as a campus but is also open to the local neighborhood. Inside, the free-standing building – with its 16 upper floors

and three basement floors – will accommodate around 600 staff and 800 students.

The decision to provide a new building for the current Biozentrum was mainly justified by a lack of space in existing buildings, but was also due to technical difficulties at the current site. "Over the last few years, space here has become so tight that important research groups such as bioinformatics had to be moved elsewhere," explained Professor Erich Nigg, Director of the Biozentrum and cell biologist. There was a chronic demand for lecture and seminar rooms and the utilities and energy supply in the almost 45-year-old building were outdated and thus expensive to run. And finally: "Modern microscopes and other complex equipment require a considerable degree of cooling, temperature constancy and protection from vibration."

For the University and the two cantons that support it, the new Biozentrum is one of their largest ever superstructure projects. Later, the

Departments of Biomedicine, Physics (with nanosciences) and Chemistry as well as the Department of Biosystems of ETH Zurich will also take up residence on the surrounding "Schällemätteli" campus. Concentrating everything into a single area in this way will optimize collaboration and promote the exchange of ideas and cooperation with industry and start-ups.

Nigg goes on to explain that there are no plans to expand the Biozentrum significantly in the new building, but groups moved here could integrate further and accommodate additional teams of young researchers. The building would allow the two cantons involved to set a "pioneering example"; other Swiss universities such as Lausanne and Zurich have also made significant moves in this direction. Nigg hopes that the new building will "send out a signal and act as a catalyst for other construction measures urgently required at the University of Basel".

“New” Institute for European Global Studies

With a new director, expanded research and teaching programs, and a reorientation toward the global, the University of Basel’s Institute for European Global Studies is becoming a platform for the interdisciplinary analysis of Europe in a globalizing world. Anne Zimmermann



New management and reorientation: The Institute for European Global Studies in a villa in Basel’s Gellert district (Image: Christian Flierl).

The University of Basel’s Institute for European Global Studies (IEGS), known as the *EuropaInstitut* in German, celebrates its 20th anniversary this year and is undergoing significant expansion and reorientation under the guidance of its new director, Professor Madeleine Herren, who joined the IEGS in April 2013. The “new” Institute will play a prominent role in developing European and Global Studies at the University, a goal that was set out in its 2014–2021 strategic plan.

Founded in 1993, the IEGS initially focused on the interdisciplinary study of economic, legal, and political aspects of European integration. Since this time, a global Europe has emerged with rich and intricate relations, not only with the Americas but increasingly with Asia and Africa as well. National borders are becoming increasingly fluid and new forms of identities arise, through migration, through transcultural forms of life, and through local manifestations of far-reaching networks.

Synergy, cooperation, partnership

Professor Herren plans to extend the research profile to reflect this current

Aims and Objectives

The Institute for European Global Studies (IEGS) at the University of Basel develops interdisciplinary concepts for research on a global Europe and has the following objectives:

- to establish European Global Studies as a conceptual platform for innovative research on Europe
- to create an attractive and competitive environment for project-based research
- to pool interdisciplinary and trans-methodological expertise on Europe, Africa, and Asia
- to invite research fellows to help design projects
- to support young researchers, in particular doctoral students and postdocs, in an international and multidisciplinary research environment
- to provide Master's and postgraduate study programs that focus on future issues concerning Europe in the context of economics, law, political science, and history
- to develop a think tank for methodologies for the combined use of analog and digital resources

situation and emphasizes the mutual benefits of collaboration with the well-established African Studies department at the University of Basel. In view of the increasing importance of Asia for Europe and the European Union, the IEGS will profit in particular from Basel's new partnership with East China Normal University in Shanghai.

"It is not only a single process of integration in Europe but rather that Europe has become a laboratory for different layers of globalization," she explains. In her previous appointment as Professor of Modern History and co-director of the Cluster of Excellence "Asia and Europe in a Global Context" at Heidelberg University, Professor Herren and her colleagues developed "transculturality" as a tool to study topics with global coverage and local consequences. In Basel, she focuses on collaborative research topics of importance in Europe, Asia, and Africa. "Consider the subject of aging: In 2050 there will be more people over 60 than children under 15. This demographic development will have severe economic, cultural, and political consequences not only for Europe, but also for Asia and Africa."

Host to and provider of European Global Studies

Focusing on three main fields of research: Society, Law, and Economics, the IEGS will maintain its interdisciplinary approach and will continue to welcome visiting scholars. Thanks to additional funding, the Institute will also be able to appoint two additional assistant professors, to offer doctoral grants, and to invite a number of visiting research fellows. Professor Herren would also like to expand the role of the IEGS as an attractive host for third-party funded projects.

While the IEGS will continue to offer the Master of Advanced Studies (MAS) and Certificate of Advanced Studies (CAS) in European Integration, the successful MA in European Studies will be expanded to become an MA in European *Global Studies*. Graduate students are to be involved in research at a relatively early stage of the program. They will benefit from an attractive learning environment with the latest digital tools and will be given training in using databases to support the research process. The University of Basel offers a particular advantage for interdisciplinary, globally oriented research: "Basel is a

traditional university in the classical European style that houses a rich variety of disciplines. This character lends itself particularly well to innovative, interdisciplinary research projects."

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Anne Zimmermann, PhD, was a collaborator in the Department of Communication & Marketing at the University of Basel.

Soccer and osteoarthritis research

His clinics are attended by top athletes from home and abroad requiring advice and treatment. He also works on new approaches to researching and treating osteoarthritis, one of the most widespread conditions suffered by modern society. 41-year-old Victor Valderrabano, Chairman and Professor of Orthopaedics at the University of Basel for four years now, is considered an authority in his field. Christoph Dieffenbacher

Since the session is taking a little longer than expected, the visitor takes a seat in the waiting room of the orthopaedic department at the University Hospital of Basel and spends a few minutes with patients who have problems with their joints. Entering the small office on the first floor, the first things he notices are the small cups, pennants and badges: Gifts from patients from the world of international sport. A soccer magazine lies on the desk. Later, the chairman shows him a cupboard containing a collection of signed jerseys from soccer players from all over the world, further expressions of gratitude to the successful sports physician. Naturally, there are no names to be seen – doctor-patient confidentiality.

“As a child, I was fascinated by soccer, and I’m still completely addicted,” says Victor Valderrabano, in his white doctor’s coat. A slender man with delicate features, he constructs his sentences carefully. Raised in Zurich, he describes how he played so well as a junior club member that the moment came when he had to choose between soccer and school. School came first. It was not immediately clear that he would go on to study medicine after high school; engineering had also been suggested as a potential career path, for example, civil engineering.

He decided to become a doctor because he wanted to help people and because it required manual skills as well as specialist knowledge. For him, medicine is “an ideal mixture of different activities”. His interest in orthopaedics was sparked during his studies. This field deals with the mechanical traits of the human body, and above all with our

musculoskeletal system; with bones, joints, muscles, ligaments, and sinews. Another positive aspect in orthopaedics is the fact that the results of his work become evident relatively quickly.

Following his first doctorate from the University of Zurich and his orthopaedic training in Basel and Davos, he moved to the University of Calgary in Canada, which he describes as “a fascinating country with stunning natural surroundings”. For him, however, the city near the Rocky Mountains was also a place of pioneering research that was to have a decisive influence on the young researcher’s career path. Here, he studied biomechanics, and concluded this period of study with another doctorate: A somewhat rare combination of subjects that brings together medical knowledge with a sort of “engineering expertise”. Today, he says, this directly benefits the patients who come to him for operations.

“Sport has become more aggressive”

Valderrabano’s research specialism is osteoarthritis, premature wear to the joints that constitutes the most common or-

thopaedic complaint and costs billions in Europe alone. It affects around ten percent of the world’s population, and this figure is rising. Causes include not only longer life expectancy, but also the fact that many people suffer sports injuries in their leisure time that years or even decades later manifest themselves as osteoarthritis. Nowadays, it is normal for older people to want to remain active. The professor gives examples of a 73 year old who wants to keep fit to go

Professor Victor Valderrabano is Professor of Orthopaedics at the University and Director of the Orthopaedic Department at the University Hospital of Basel (UHBS). Born 1972 in Zurich, where he also studied medicine and, following his first doctorate in Basel, went on to specialize in orthopaedic surgery and traumatology and sports medicine. He then moved to Calgary, Canada, to study biomechanics, attaining another doctorate in the process. He specializes in osteoarthritis, as well as biomechanics and sports orthopaedics, and has already received several prestigious awards. Professor Valderrabano is married and has two children.



Surgery offers the ideal combination of handcraft and specialist medical knowledge: Prof. Victor Valderrabano (Image: Andreas Zimmermann).

surfing, or the people over 60 who consider it normal to be able to run marathons on a regular basis.

However, pathological wear to the joints can also be caused by excess weight and lack of exercise, even in young people, explains the medic: consequences of our modern civilization. As Valderrabano says, today's schoolchildren are also at greater risk; often encouraged to take up sports too early and without the necessary preparation, their sporting activities are "more aggressive, faster, and more powerful" than previously: "Take skiing for example: Carbon skis are totally different from the little boards we used to have."

Avoiding artificial joints

The chairman goes on to explain that people affected by osteoarthritis often do not realize it for some time. Minor, painful ailments can then suddenly appear that subsequently escalate and lead to muscle wastage. Many patients later become housebound, negatively impacting their professional and social relationships. Prevention is therefore particularly important – and this means movement, movement and more movement: "We were designed to move." One major problem is the fact that the articular cartilage, which requires constant massage to remain mobile, is far too inactive in our day-to-day lives. By contrast, the hobbies we pursue and the sports we practice exert too much pressure on it – and we know what happens next.

Through his research at the Osteoarthritis Research Center Basel, he aims to better understand the causes and progression of osteoarthritis. He and his team try to avoid using artificial metal joints for as long as possible. "Our goal is to retain the natural joint, for example by mechanical means," says Valderrabano. Unlike a few decades ago, synthetic materials foreign to the body would no longer be the first resort in a case of osteoarthritis; instead, the condition is treated using natural materials. To accommodate the different nature of each patient's complaint – with its highly heterogeneous development – his concept draws upon various disciplines: New biomarkers are tested, for example, and biomechanical and molecular-biological methods are used such as incorporating cells from the patient's own body.

"We are known for our innovative therapies for both professional soccer players, athletes, skiers, and tennis players and for 'normal' osteoarthritis patients, too," states the professor – and not without pride. For professionals who rely on the performance of their muscles and joints to earn a living and want to get the best from their bodies, the team tries to delay – as far as possible – the looming, often pre-programmed road to osteoarthritis. Novel approaches aim to provide patients with better and longer-term treatment and to optimize rehabilitation. His young, truly international research group, which covers many disciplines, can count on international recognition – a fact reflected not least in their numerous publications and patents.

Sharing good fortune

To conclude, Valderrabano explains that successes in treating celebrities are not his only concern. To treat osteoarthritis across the globe, the researcher has also set up the "Mobility without Borders" foundation, which helps patients who come from less affluent countries and who are suffering from complex joint conditions to travel to Basel for treatment – for example, a young man from Ukraine who has had a prosthesis implanted in his severely damaged right hip. "Through the foundation, I want to share the luck I have experienced in my life so far with people who need it." It may be a mere drop in the ocean, but this commitment reflects at the very least his original reasons for becoming a doctor.

Valderrabano's working day is minutely organized: Beginning at 6 a.m., he often works through to 8 p.m. He spends two days a week in the operating room. But does this hard worker have enough time for the sporting activities necessary to keep his own joints in working order? As well as following a healthy diet, he tries to exercise as often as possible. "I jog two or three times a week, but other activities like sailing, tennis and skiing have to wait until I take a vacation." He also manages to fit in a soccer game here and there.

Valderrabano lives with his wife and two young children – a daughter approaching her third birthday and a nine-month-old son – in Hofstetten, Solothurn, Switzerland. And the little ones keep him on the go out in the countryside after work following those long, stressful days in the clinic, and on the weekends. Maybe one day we'll see him out playing soccer with his children ...

Listen closely: Singing cicadas in Italy

Many people associate the striking song of cicadas with memories of Mediterranean holidays. The Mountain Cicada (*Cicadetta montana*), with its very high, softer song, was documented as far back as 1772 by Tyrolean naturalist Johann Anton Scopoli. But it was just ten years ago that Slovenian, French and Swiss researchers discovered almost simultaneously there was a whole complex of at least a dozen singing – and sometimes completely different – varieties involved. Research for a thesis at the University of Basel looks at the species complex of the Mountain Cicada in the Italian mountains. Thomas Hertach

A training course in the Aargau Jura in 2003 was to change my life significantly: From a distance of about 20 meters, I heard a very high song that – after ruling out all grasshoppers and other acoustically active species – I attributed to a singing cicada as yet unknown to me. Older participants in the course were unable to hear the song. This discovery immediately fascinated me, and my subsequent Internet research introduced me to two Slovenian and two French researchers who were working independent of one another to identify closely related species of the well-known Mountain Cicada (*Cicadetta montana*).

Serenading females

Singing cicadas have a structure on their abdominal base with membranes made to vibrate by a muscle; an air pocket directly under the singing muscle provides the necessary resonance. Cicada songs must be specific to a certain species because they are the most important means for the male to communicate and attract a partner. Their multi-year development cycle as a larva and an adult life that lasts just a few weeks means that cicadas never have the opportunity to learn from their parents – their song is inherited.

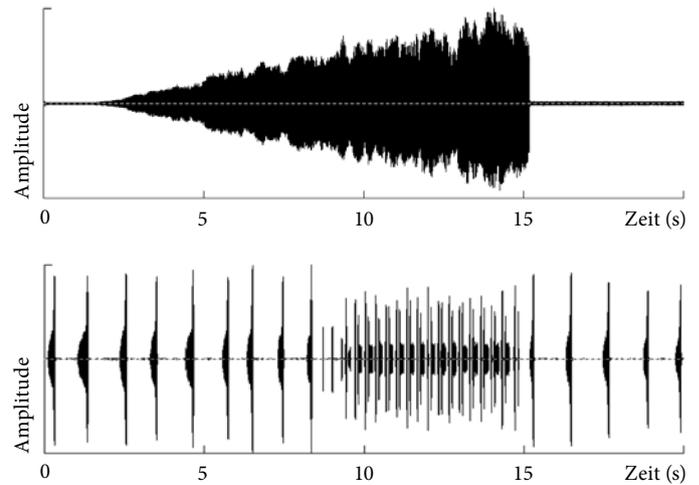
The unknown Aargau cicada was scientifically described by French researchers in 2007. One year later, what had become my most important hobby became my profession: I decided to immerse myself in the species complex in a doctoral thesis supervised by Professor Peter Nagel at the University of Basel, and to be the first to use this new knowledge to investigate the species complex in Italy. After what is now my seventh multi-week journey through Italy this year – around

15,000 kilometers on a scooter – I now have a great deal of knowledge about the Mountain Cicadas species complex and, more generally, about cicadas in our neighboring country to the south: Thousands of data points from Como to Pantelleria and from Trieste to the Aosta Valley have been collated, and dozens of hours of audio recordings and around 200 specimens have been collected.

No fewer than eight different song patterns have been identified in Mountain Cicadas, of which five had not yet been documented when I began my thesis. But which taxa – a taxon is a group of organisms recognized as a systematic unit – are separate species and which are simply to be considered subspecies or even local varieties? Some song patterns are closely related, and there are even crossovers in a few populations. In very complex song patterns, such as that of the Southern Italian *Cicadetta anapaistica* newly documented in this thesis, each creature lends a certain degree of individuality to their song.

Genetic surprises

I recorded the song of the cicadas with highly sensitive ultrasonic microphones and then analyzed in detail their rhythm, frequency, and relative power using a computer. The song patterns are combined with genetic and morphological analyses and contrasted with the geographical distribution. The genetic analysis returned some surprising results: There are distinctly different singing varieties with practically identical genotypes, but also closely related song patterns with significantly different genetics. This is presumably caused by a very rapid splitting of different taxa due to external influences and



Very similar appearance, but completely different songs: Uniform in the widespread *Cicadetta montana* (left and top right) and highly complex in the Southern Italian *Cicadetta anapaistica* (center and bottom right). Images: Thomas Hertach).

Familiar, and yet not ...

Singing cicadas (*Cicadidae*) appear in ancient Greek myths and in the famous fable by Jean de la Fontaine. They are an integral part of many a Mediterranean holiday, and in the South of France the image of the “cigales” is used to advertise to tourists. Since their song is usually connected only with Manna Ash Cicadas (*Cicada orni*), which have made their way into residential areas, many Southern Europeans also believe that there is only one species of cicada. The songs of many large species may be striking, but the creatures are hard to spot or even to catch for scientific purposes. The perfect camouflage, paired with astonishing attentiveness and shyness, make most European species a challenging subject to research. This may well be the main reason why cicadas are relatively poorly studied, even in Europe.

Ten species of cicadas in Switzerland

In 2015, a book is due to be published in the “Fauna Helvetica” series that will present in detail what are now ten Swiss species of cicadas. As recently as 2000, it was assumed that there were only five species to be found in these parts. As in Italy, the discovery of the Mountain Cicada species complex helped increase the number of species in Switzerland; two well-known species have also been added that still form individual, previously overlooked populations on the fringes of Switzerland. Five species are large and have a very loud song, but confine themselves to the cantons of Valais, Ticino and particularly favorable locations in Geneva, Grisons and Vaud. In contrast, *Cicadetta montana* can be found, for example, in bright pine forests throughout the whole of Switzerland.

subsequent hybridization processes with distantly related groups. Morphology and morphometry – a computer-based process that compares ratios of freely selectable length measurements – indicate clear tendencies in many taxa. However, by the end of the analysis, very few could be entirely distinguished from their nearest relatives.

Evolution is an ongoing process, and the beginnings of a species cannot always be pinpointed exactly. The development of this cicada species complex is a relatively recent event. Our classification of the Mountain Cicada group will be much more precise than that of researchers in the 18th and 19th centuries, who – interestingly – barely gave any consideration to the creatures’ song. They could not embark upon journeys with the same speed and knew absolutely nothing about genetic analysis procedures, computer-based morphometry or ultrasonic microphones. Synthesizing the various methods produces an overall picture that gives the best possible indications as to how the taxa are ultimately to be interpreted. Nevertheless, it is barely any easier to determine classifications now than it was 200 years ago.

Biodiversity research should always be linked with practical protection. Some of the newly discovered species or subspecies are rare or restricted to small areas. Attempts are therefore being made to contact the numerous regional and national parks in Italy to raise awareness of the cicadas. In some areas where grazing is too intensive, vegetation regeneration measures would also have to be taken to preserve the many voices that make up the cicada choirs of Italy’s large and often very indigenous mountain forests.

Thomas Hertach is a doctoral researcher in Biogeography at the Department of Environmental Sciences, University of Basel.

How court records can influence sentencing

In Switzerland, the records of criminal proceedings are produced in written form in the first instance. A Basel research project is investigating the practice of court reporting – including, for example, the extent to which such records can influence the verdicts that courts hand down. It is also looking into the possible use of audio and video recordings as a much simpler and cheaper alternative to transcripts. Nadja Capus

An old man is found murdered in his bed. The investigating officer interrogates the main suspect, his son, for more than two hours about what happened. The son admits that he struck the victim, but claims that his father was later involved in an argument with a neighbor. Questions, answers, definitions, feelings: Having an accurate record of examinations is crucial when a case comes to court. Such records provide an important basis for the work of prosecuting authorities, courts, and defense counsels. They can help determine how the circumstances of the case and those giving evidence are perceived, and thus the sentence that is eventually passed.

Interrogation held in written form

In Switzerland, court proceedings are recorded principally in written form. For a long time, practice varied from canton to canton; only in the last two years has it been standardized, in line with the provisions of the Swiss Code of Criminal Procedure. This poses a challenge, as transcripts must be ready to be signed off right after the interrogation or trial to which they relate has concluded. The advent of computer technology, replacing handwritten records, has greatly facilitated the production of court transcripts, but the basic task remains the same – to convert a complex cross-examination into written form within a short time.

The Basel research project is looking at the practice of court reporting in criminal cases and investigating how the transcripts are produced and used, together with the impact that they have. Besides examining documents, the researchers have been conducting interviews with criminal court judges. The team includes specialists in criminology, jurisprudence, sociology, and psychology.

There is a range of questions to answer. What form do transcripts take? Are the questions transcribed; is the answer reported in indirect speech; are non-verbal actions recorded; and how does the length of the written record compare with that of the examination? Was a translator present? Do police transcripts differ from those of public prosecutors? What form do court transcripts take? Do the transcripts for cross-examination of people accused of crimes differ from those for questioning of witnesses, or do the transcripts for cross-examination of people who have confessed to crimes differ, perhaps, from those for persons who are pleading not guilty? Is there a connection between the way in which evidence is recorded and sentencing?

Criminological study of these records is necessary because the use of transcripts may be superseded by new technologies – it would be just as simple to produce an audio or video record of interrogations. The consequences of such a change of media for criminal trials remain unclear, however. Although there are clear advantages to using audio and video records, they also raise new questions. The current position in Switzerland is that audiovisual documentation should be deployed only in order to supplement the written record. Its use is restricted to exceptional cases, mainly – one suspects – because going through audio and video recordings is much more time consuming. One of the project's principal aims is to provide a factual basis for future amendments to legislation, as well as for the training that is offered to prospective and serving members of the judiciary and police service.

Professor Nadja Capus is an SNSF Professor in the Faculty of Law at the University of Basel and heads a research project entitled “The Changing Face of Criminal Procedure”.



Transformations

Ovid's *Metamorphoses*, one of the most popular works of mythology ever written, has influenced literature, music, and the visual arts up to the present day. Change, transformation, metamorphosis – these are the underlying themes not only of the tales of gods and heroes assembled here but of literature as a whole, in terms of its development and continuing influence. The work displays a wealth of knowledge of mythology and culture, which finds meaning in the writer's portrayal of transitions and the dynamic interconnectedness of all things. As a "carmen perpetuum", the "Metamorphoses" takes forward the never-ending work of recreation and remodeling of a world that remains in the process of becoming for as long as stories are being told about it. The interdisciplinary essays in this volume look at both the work itself and its influence on subsequent artists. Its reception in different languages, cultural circles and media shows it was recognized and made use of as a showcase and repository of artistic creativity at an elemental level. This is illustrated with reference to, for example medieval Latin culture and the reception of myth in modern Europe. Contributors examine the reception of the work in areas such as philology, literary history, musical theater, and cinema. The volume's editors, Professor Henriette Harich-Schwarzbauer and Professor Alexander Honold, hold the chairs of Latin Philology and Modern German Literature respectively at the University of Basel.

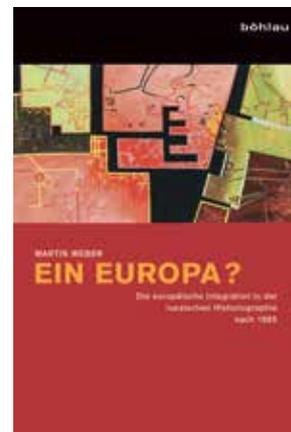
Henriette Harich-Schwarzbauer and Alexander Honold (eds), *Carmen perpetuum. Ovids Metamorphosen in der Weltliteratur*. 324 pp., 6 illus., 1 col., hardback. Schwabe Verlag, Basel 2013. 48 CHF



Protestant life in Basel

In the mid-1960s, the Protestant church in Basel lost more of its members than ever before. There was a full-scale collapse of Protestant life in the city, symptomatic of a fundamental "crisis of the church". The relationship between church and society had changed fundamentally. Issues such as the status of women and relations with the radio and television media provide clear evidence of this change. In his dissertation, completed at Basel University's Department of History, Basel historian Urs Hofmann looks in detail at the decline of Protestantism in the city from the 1920s through to the 1970s. Drawing on magazines published by the church and by church-associated groups, as well as official church records, he describes how the representatives of the Evangelical-Reformed church viewed these dramatic changes and the strategies they employed to deal with the crisis. The author identifies at least two different but parallel discourses. During the five decades covered by the study, there were numerous attempts to reposition the church within society – and in some cases, it managed to adapt to social change with astonishing ease. However, there was also a strong sense of crisis within the Protestant church dating as far back as the beginning of the 20th century, when there was still no discernible evidence of developments presaging its decline. With that in mind, could it be that today we are witnessing a "renaissance of the religious"? Hofmann's analysis provides some interesting pointers on this question as well.

Urs Hofmann, *Innenansichten eines Niedergangs. Das protestantische Milieu in Basel 1920 bis 1970*. 320 pp., includes numerous diagrams and tables, hardback. Verlag hier + jetzt, Baden 2013. 49 CHF



Europe and Russia

This book examines how the process of western European integration was viewed in Russian historiography. What shaped the relationship between Russia and Europe? What information was available in Russia about the process of European integration? What stereotypes underlie Russia's own perception of its position in Europe, as well as Europe's perception of Russia? The author discovers that Europe was perceived in the first instance as a community of values, faith or law, and looks at the image of Russia as part of Europe, with a duty to act co-operatively. Other topics explored include the question of whether modernization can be equated with Europeanization and Russia's understanding of itself as the other part of Europe. The study analyses the historiographical literature published since the start of perestroika in 1985, as well as the most recent literature from the post-Soviet period. Its author, Dr Martin Weber, studied the history of international relations, majoring in European studies and Slavonic languages at Basel and Geneva; he currently works in nonprofit management and as an advisor. He received his doctorate in modern history from the University of Basel for this study.

Martin Weber, *Ein Europa? Die europäische Integration in der russischen Historiographie nach 1985*. 263 pp., hardcover. Böhlau Verlag, Vienna, Cologne and Weimar 2013. 53.90 CHF

Bettina von Helversen



Dr Bettina von Helversen has been a research associate at the Department of Economic Psychology, Faculty of Psychology, at the University of Basel since 2009. Born in 1977 in Freiburg im Breisgau, Germany, she grew up in Erlangen, where she went to university and gained a degree in psychology. Dr von Helversen wrote her doctorate at the International Max Planck Research School on the Life Course (LIFE) – part of the Max Planck Institute for Human Development in Berlin. She also completed a one-year postdoc there in the Department of Adaptive Behavior and Cognition before moving to the University of Basel. Her teaching and research interests include how people make judgments and decisions, and how they deal with risks. In particular, she investigates the strategies that are used in making decisions, and the extent to which the choice of strategy and value of the decision are dependent on factors such as mood, stress, and cognitive resources.

Decision Science News

<http://www.decisionsciencenews.com>

This blog by U.S. Psychologist Daniel Goldstein contains well-informed and concise posts about the latest findings in the field of decision-making research. Topics range from the factors affecting whether someone is willing to donate their organs, and the decision-making strategies of Swiss customs officers, to the tricky subject of probability theory. The website is definitely always worth a visit.

Dan Ariely

<http://danariely.com>

Daniel Ariely is perhaps one of the most interesting characters in decision-making research. After witnessing a tragic accident when he was younger, he began to research why people make irrational decisions and how you can influence their decision-making behavior. In his blog, he explains his research and its day-to-day relevance for the general public. One of his objectives is to give scientific answers to readers' questions on everyday decision-making: Why do socks get lost in the washing machine, for ex-

ample, or which argumentation strategy should grandparents employ if they wish to visit their grandchild but are estranged from their daughter, the child's mother?

Forschung erleben – Participating in research

<http://www.forschung-erleben.unimannheim.de>

This site from the Department of Social Psychology at the University of Mannheim aims to engage people in psychology research and to encourage them to take part. New, interesting, and important findings are presented, and there is the opportunity for visitors to the site to take part in different experiments.

TED – Ideas Worth Spreading

<http://www.ted.com>

TED is a real treasure trove, not only for topics in psychology, but also for other subjects in economy and science. Here you will find amazing videos on all manner of subjects.

Gehirn und Geist – Mind and spirit

<http://www.gehirn-und-geist.de>

A website from the *Spektrum der Wissenschaft* magazine, which researches the interface between psychology, neuro- and cognitive sciences. Only part of this website is open access, however the articles are well researched.

Essentscheidungen – On eating decisions

<http://essentscheidung.ch/>

This blog emerged from a Master's seminar on the psychology of eating decisions that was run by my colleague Dr Benjamin Scheibehenne at the University of Basel, and is compiled by students. It offers an overview of research in the field and explores topics such as the factors that determine the success of a diet, for example.



Art and culture of digital media

We live in a media society and are barely aware of the implications. Not least since the NSA spying scandal of summer 2013, many questions have been raised: How should we live without a private sphere? How is our life affected when more and more of it is quantified and tracked? How is society changing, given that it is increasingly shaped by the idiosyncrasies of digital technology? The online journal *Dichtung Digital* asks these kinds of questions, contributing to the body of scientific reflections on digital art and culture through extensive case studies and theoretical debates. The journal was founded in 1999 by Professor Roberto Simanowski from the Department of Philosophy and Media Studies at the University of Basel. The 42 editions to date have included 430 articles by over 100 scientists, artists, and cultural managers from 20 different countries.

Beginning in 2013, *Dichtung Digital* will be published twice a year as a peer-reviewed journal, with each publication containing around ten articles in German or in English. The range of subjects includes the poetics of multi-linear and multimedia texts, interactive installations and video games, the politics of cultural techniques, as well as the communication forms of new, mobile social media. In addition to academic articles, the column entitled *Media Education* provides a platform for discussions about the theoretical and practical aspects of media competency in education or vocational training. The *Notes* column contains short reviews of current media studies books, conference reports, and event announcements. The fall 2013 edition (no. 43) features a collection of interviews with leading figures in digital media studies and digital humanities from the USA, in which they speak about aesthetics, politics, and media education.

www.dichtung-digital.org

Digital Media Studies**Fall Semester 2013****Digital Media Studies in Practice – How the Humanities are responding to new media**

Series of interdisciplinary lectures organized by the Seminar for Media Studies and the faculty working group on “Digital Media Studies”. Every Tuesday from October 1 at 6:15pm, Alte Universität, lecture hall 118, Rheinsprung 9, Basel.

Carthusian Monastery**September 25****Basel monastic libraries: The Carthusian monastery**

Talk held at Basel University Library with Dr Ueli Dill. 6pm to ca. 7:15pm, University Library, meet at the lecture hall, 1st floor, Schönbeinstrasse 18–20, Basel. Information on future events: www.ub.unibas.ch

Violent Masses**September 26 – 28****Gewaltmassen – Selbstorganisation und Eigendynamik kollektiver Gewalt**

Public conference hosted by the Seminar for Sociology. Musikwissenschaftliches Seminar, lecture hall, ground floor, Petersgraben 27, Basel. Free entry; no need to register. Further details: www.gewaltmassen.ch

Nobel Prize Winner**October 1****The Future of Europe**

Public lecture given by Professor Joseph E. Stiglitz, winner of the Nobel Memorial Prize in Economic Sciences in 2001. 6:30pm, Basel city casino (Stadtcasino Basel), Steinenberg 14, Basel.

Global Europe**October 15****Global Europe: History as a process of complex interrelationships**

Public inaugural lecture given by Professor Madeleine Herren-Oesch, Europainstitut, University of Basel. 6:15pm, Alte Aula der Museen, Augustinergasse 2, Basel.

Renaissance**October 22****Renaissance zwischen den Welten. Beziehungen, Akteure, Dinge**

Public inaugural lecture given by Professor Lucas Burkart, Professor of History (Late Middle Ages and the Italian Renaissance). 6:15pm, Alte Aula der Museen, Augustinergasse 2, Basel.

History Lecture**October 24****Basel History Lecture 2013**

Lecture given by Professor Barbara Stollberg-Rillinger, Universität Münster. 6:15pm to 7pm, Aula of the University *Kollegienhaus*, Petersplatz 1, Basel.

Gender Studies**October 25 and 26****Geschlechterverhältnisse: Umbrüche – Krisen – Kritik**

Academic conference on relations between the sexes on the occasion of the 60th birthday of Professor Andrea Maihofer. Oct 25, 2pm–8pm; Oct 26, 9:30am–6pm, Gender Studies Center, Petersgraben 9/11, Basel.

Global Journey – Weltenreise**November 15****Global Journey 2013: Blood – from phlebotomy to cancer treatment**

With Professor Markus Affolter, Professor Beat Ernst, Professor Michael Hall, Professor Viola Heinzelmann, Dr Michael Kessler. 7:30pm, Schauspielhaus, Theater Basel, Steinentorstrasse 7, Basel.

Theories of Democracy**November 26****Participation and exclusion.****On a paradox in democratic theory**

Public ‘Habilitation’ lecture given by Dr Katrin Meyer, associate professor in Philosophy. 6:15pm, Museum auditorium (Alte Aula der Museen), Augustinergasse 2, Basel.

Geographic Societies**December 12****European geographic societies as mediators between academia and the general public (1850–1950)**

Public lecture given by Professor Ute Wardenga, Leipzig. Organized by the Basel *Geographisch-Ethnologische Gesellschaft*. 6:15pm, Geographic Institute, 5th floor, lecture hall, Klingelbergstrasse 27, Basel. Further lectures on “Geography and the public”: www.gegbasel.ch

The Spine**until February 2014****Spine:****Miracle construction or faulty design? Twinges and tweaks in your back.**

Special exhibition at the Anatomical Museum, University of Basel, Pestalozzistrasse 20, Basel. Opening hours: Monday to Friday 2pm – 5pm, Sunday 10am – 4pm. Guided talks and workshops for the public. Admission fees: 5 CHF/3 CHF

Further information on future public events: www.unibas.ch > Events

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Postal address: UNI NOVA, University of Basel, Communications & Marketing, Postfach, 4003 Basel. Editorial office: Tel. + 41 (0)61 267 30 17, Fax: + 41 (0)61 267 30 13. Email: ch.dieffenbacher@unibas.ch; subscriptions: uninova@unibas.ch

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Head of Communications & Marketing

Email: matthias.geering@unibas.chor uni-nova@unibas.ch

Go! Uni-Werbung AG, Rosenheimstrasse 12, 9008 St. Gallen, www.go-uni.com,

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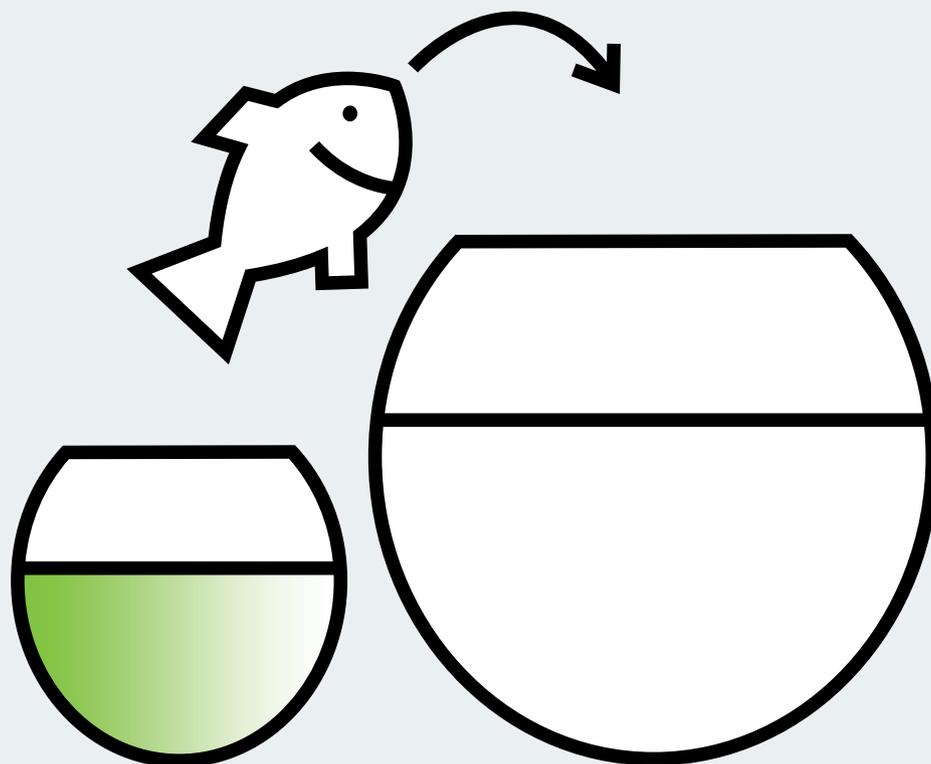
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vom 31. Oktober bis 1. November 2013

In Live-Webinars werden über zwei Tage die Studiengänge (MAS, DAS, CAS) der postgradualen Weiterbildung an der Universität Basel vorgestellt. Es besteht die Möglichkeit, via Chat-Funktion direkt Fragen an die Studiengangverantwortlichen zu stellen. Gleichzeitig steht Ihnen das Advanced Studies Team für persönliche Beratungen im Kollegienhaus zur Verfügung.



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