



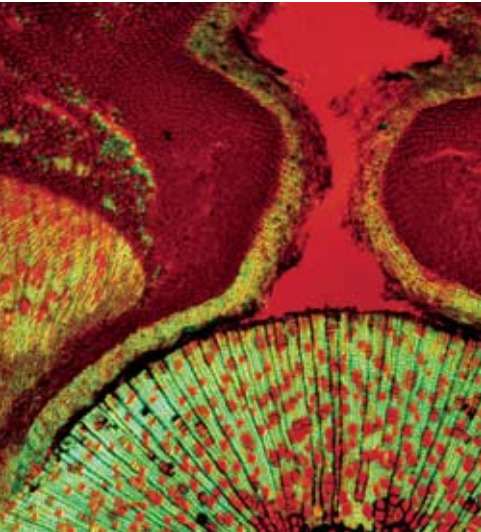
Leica S8 APO

Visibly Better

StereoZoom® Leica S8 APO: fully apochromatic stereomicroscope with 8:1 zoom, 300 Lp/mm resolution and peerless 70 µm depth of field for research, medicine and education

Leica
MICROSYSTEMS

Visibly Better – StereoZoom® Leica S8 APO



Salix, damaged branch, section

Competitive research is becoming increasingly interdisciplinary and international. Important tasks in the future will be related to complex systems that can not be covered by individual scientific disciplines. For example, international climate research programs involve a network of scientific worlds that include meteorology, geosciences, geography, atmospheric sciences, marine and polar research, sedimentology, geophysics, biogeochemistry, hydrobiology and paleoclimatology, as well as biodiversity research, economics, social sciences, mathematics and information sciences. A perspective extending beyond the horizons of individual disciplines and the bundling of competence fosters an understanding of the interaction of biological, geological, physical, chemical and ecological processes of the earth as an overall system and permits predictions to be made about the future.

Scientists of all disciplines need ever more powerful tools and methods to realize their research agendas. The stereomicroscope plays a decisive role in preparation, processing, sorting, in-vivo experiments and international data exchange in research related to biological, geological, forensic and medical objects.

Faster, more precise, more efficient

Leica Microsystems optical instruments have a worldwide reputation among researchers for innovation, performance, value, ergonomics and precision. The StereoZoom® Leica S8 APO in Leica ErgoDesign® once again proves our technological edge. The Leica S8 APO is the first 100% apochromatic, planar stereomicroscope with a Greenough optical system. It offers unparalleled contrast, image sharpness, resolution, clarity, color fidelity and reproduction precision for faster, more efficient investigation. Leica S8 APO effectively offers more than any other stereomicroscope with a Greenough optical system – for an astonishingly favorable price.

Unparalleled: 300 line pairs/mm resolution plus 70 µm depth of field at 80x magnification

The apochromatic correction of the Leica S8 APO lens system delivers users precise detail information of fine, low-contrast structures such as animal cells, insects, microorganisms, plant cilia or foraminifera. Of all Greenough stereomicroscopes, the Leica S8 APO provides an 8:1 zoom range, the highest maximum magnification, the largest numerical aperture, the highest resolution, peerless 70-micron depth of field and 10% larger object fields with the 10×/23 wide-field eyepieces!

Digitally networked, of course

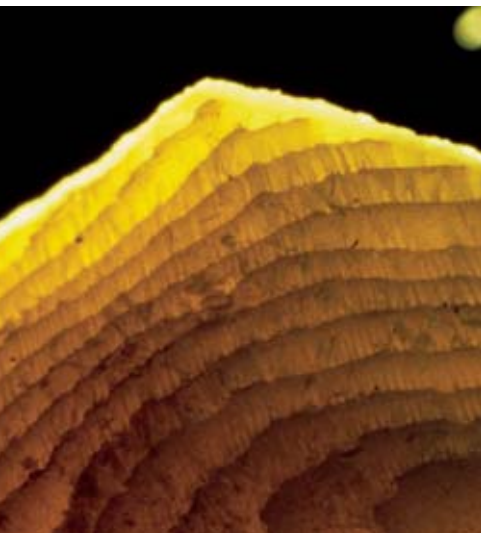
Scientific cooperation in interdisciplinary networks is becoming increasingly important for attaining research goals quickly and optimally. Indispensable for worldwide communication: high-performance Leica Microsystems digital cameras and software with convenient functions for frame-grabbing, image editing, archival and analysis. The photo port is a standard feature of the Leica S8 APO.

Details, configuration tool and online ordering

For further information on its features and user benefits, please visit our website.

Configure and order your StereoZoom® Leica S8 APO online:

www.stereozoom.com



Cuttlebone, sepia



*"A scientific discovery is never the work of a single person."
Louis Pasteur – "the guy with the milk" – universal scientific genius
(1822 – 1895), the founder of the science of microbiology, inventor
of pasteurization and developer of vaccines
for rabies, anthrax and fowl cholera*

Room for expansion?



Objectives: apochromatic 0.63 \times , 1.6 \times , 2 \times ,
achromatic 0.32 \times



Ergonomic wide-field eyepieces for wearers
of spectacles 10 \times /23, 16 \times /15, 25 \times /9.5, 40 \times /6,
soft eyecups



Incident-light stand with gliding stage



Base for transmitted light to incident-light
stand with polarizer and analyzer



Cup stage with Petri dish

Ergonomic 10 \times /23 wide-field eyepieces for maximum observation comfort

- Max. 23mm field diameter
- Diopter adjustment from +5 to -5
for eyesight correction
- Soft, detachable eyecups
to prevent eye infections
- Graticules for measuring
and counting
- Variants: wide-field eyepieces
16 \times /16, 20 \times /12 and
wide-field eyepieces for spectacle
wearers 10 \times /23, 16 \times /15, 25 \times /9.5, 40 \times /6
with 22mm exit pupil

Ergonomic 38° viewing angle for a relaxed posture

- Synchronous interpupillary distance
adjustment from 55mm to 75mm

Well-positioned zoom magnification changer, parfocal and parcentric

- Entire zoom range covered by a single
revolution
- Focus remains constant throughout zoom
range (parfocal)
- Image remains centered when changing
objectives (parcentric)
- Adjustable zoom limits
- Lasting precision thanks to the latest
technology

Apochromatic objectives 0.63 \times , 1.6 \times , 2 \times , lead-free

- Peak imaging quality
- With objective 2 \times maximum magnification
640 \times , maximum numerical aperture 0.2 NA,
maximum resolution 600 Lp/mm
- With objective 0.63 \times maximum field
diameter 36.5mm, working distance 101mm
- Achromatic objective 0.32 \times for large
field diameters of up to 72mm and
working distance 200mm

Incident-light stand with sub-base for transmitted light and glass stage plate \varnothing 120mm

- Direct transmitted light
- Angled to darkfield-like transmitted light
for low-contrast, translucent objects
- Illumination with fibre-optic light guides
- Variants: heating stages, polarizer,
gliding stage, swinging-arm stand

Integrated 100% video/photo port

- Universal for digital still and video cameras
- High-resolution Leica DC camera line for a range of requirements
- Modular image editing and analysis software – Leica Image Manager, QWin

Fully apochromatic, distortion-free Greenough optical/zoom system for best possible resolution, contrast, imaging and color fidelity

- Apochromatic 8:1 zoom
- 10× to 80× zoom range
- Numerical aperture 0.1 NA, resolution 300 Lp/mm, depth of field 70 microns (at 80× magnification with 10×/23 eye-pieces)

Microscope carrier

- Installable in high or low position
- Optics carrier can be rotated 360°

Powerful, compact cold-light source

- Direct connection to stand
- Highest total light flux of 63 lm at the fibre-optic light guide source
- No 100Hz flicker, no scattered light, constant color temperature 3200°K
- Voltage-sensitive power supply, stable illumination with automatic mains voltage adjustment

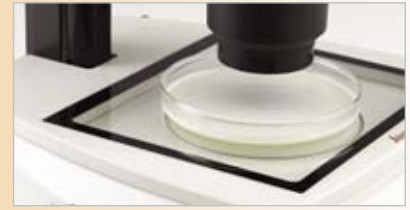
Well-positioned focusing drive

- Individually adjustable operating torque for effortless focusing
- Precise travel along the optical axis; the image remains centered
- Variant: tiltable focus arm for swinging-arm stand, motor focus

The StereoZoom® trademark has been registered in the Principal Register of the US Patent and Trademark Office.

Leica Design by Christophe Apothéloz

Of course!



HL-RC™ transmitted-light stand with Leica MATS Thermocontrol heating stage for highest demands



Laser emitting diode, illuminations, transmitted-light base, ring illuminator and spot



Leica L2 cold-light source with 2 swan-neck light guides, free-standing



Digital imaging system from the Leica DC camera line



Archiving and image editing software, here the Leica Image Manager

An eye for detail

Peak Performance – World-Class Optics by Leica

The exploration of our complex environment mainly takes place in laboratories. In both research and education, expectations are high when it comes to instrumentation. A useful stereomicroscope must permit fast, precise determination of detail, deliver reliable results in repeated experiments, ensure convenient, fatigue-free handling and provide options for a wide range of examination methods and generation of digital data. The StereoZoom® Leica S8 APO will far exceed your expectations in many regards.

Highest resolution

Normally, large apertures and high resolutions can only be attained in an optical system at the expense of depth of field. With the Leica S8 APO, we have succeeded in combining a large aperture with a high depth of field and a pronounced 3D image. Of all stereomicroscopes based on the Greenough principle, the Leica S8 APO with 10×/23 wide-field eyepieces delivers the highest values: unparalleled 70 microns depth of field, numerical aperture 0.1 NA, resolution 300 Lp/mm, zoom 8:1, zoom range 10× to 80×. The great depth of field simplifies working with tools and aids in the comprehension of interconnections without frequent focal corrections.

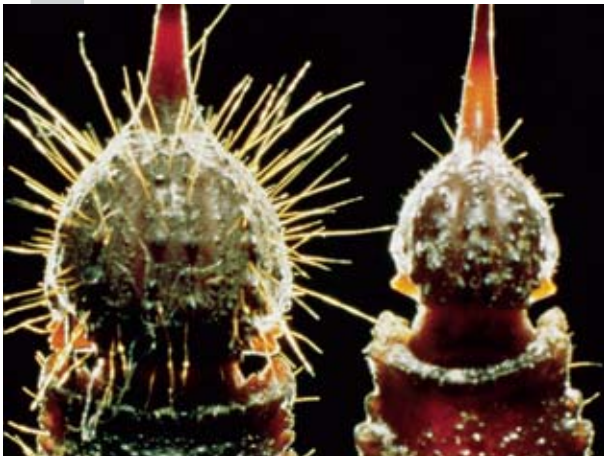
Apochromatically explore the finest structural worlds

Leica S8 APO is the world's only fully apochromatic, corrected Greenough stereomicroscope. The sophisticated optical/zoom system renders the finest structural details with extreme sharpness and permits densely packed structures to be distinguished clearly. Non-corrected lens systems result in distracting color fringes and loss of detail in fine structures. With its apochromatic 0.63×, 1.6×, 2× supplemental objectives, the Leica S8 APO delivers peak performance with up to 640× magnification and 600 Lp/mm resolution.

The zoom range can be limited at both ends by stops at two user-defined magnifications. Experiments can thus be reproduced quickly and precisely under identical conditions.

optics

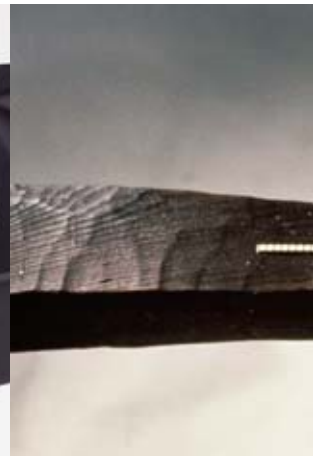
Yew (*Taxus baccata* L.)
bow without string, approx.
5,000 years old, overview



Comparison of scorpion stingers with transmitted light, dark field and incident light



8:1 zoom with 2 adjustable zoom stops for repetitive tasks



Perfect 3D image for working on and observing whole objects

Stereomicroscopes enhance natural, three-dimensional vision and are indispensable in scientific research and educational environments. Using Leica 10×/23 wide-field eyepieces, the upright, laterally correct fields of view are 10% larger than with the eyepieces of other manufacturers. Users can observe three-dimensional objects such as plants, rock samples or microorganisms in their entirety without time-consuming repositioning, comprehend connections and interactions, film moving specimens and process them with tools. The 8:1 zoom permits the continuous enlargement of interesting details for thorough examination at high resolution.

Compact Greenough optical system

The optical system of the Leica S8 APO has two independent optical paths arranged at a 12° angle, each with its own objective and eyepiece. As the objective pair is tightly spaced, the design of this stereomicroscope type is very slim at the bottom. The advantages hereof are a clear view to the object field, unhindered access to the object and plenty of room for tools. In the StereoZoom Leica S8 APO, the optimally corrected center of the objective is used for imaging. This results in large, planar viewing fields with optimal chromatic correction and good contrast.



*"Research is to see what everybody has seen, and to think what nobody else has thought."
Albert Szent-Györgyi von Nagrapolt, Hungarian biochemist, 1983 – 1986,
discoverer of vitamin C, Nobel Prize for Medicine, 1937*

Cittern, cornetto and lute: rediscovering the sound of the Renaissance

Annual rings: documents of the past

A heavenly orchestra of 30 golden angels, hovering 12 meters up in the dome of the Freiberg funeral chapel, have been guarding a secret for four centuries. The string and wind instruments they are holding are real! Originally assumed to be plaster models, the instruments were analyzed as part of an interdisciplinary research project during the renovation of the chapel. Detailed endoscopic, x-ray spectrographic and dendrochronological investigations have confirmed that 21 intact original instruments have been preserved under the bronze paint. Thanks to this unique discovery, it will now be possible to create a 1:1 reconstruction of a complete set of period instruments in playable condition and reawaken the forgotten sounds of the late Renaissance. Soon we will know how a curved cornetto – a wind instrument originally thought lost forever – once sounded.

Chronicle of a tree

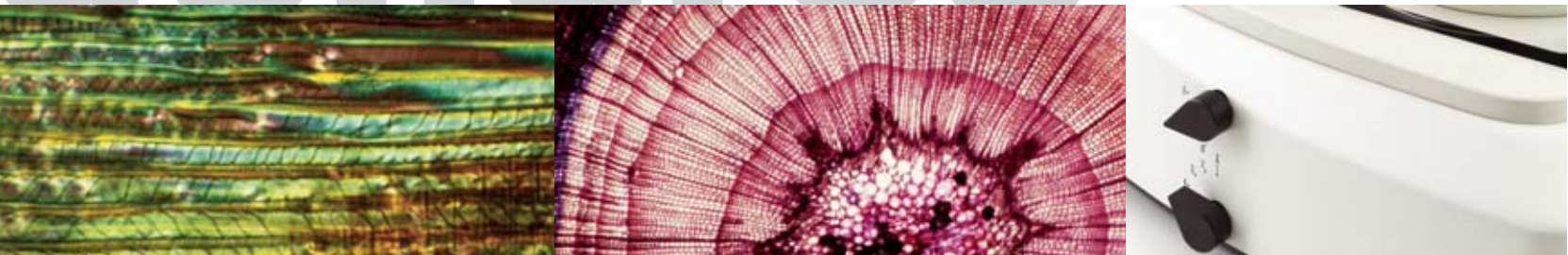
Dendrochronology (from the Greek: dendros = tree, chronos = time, logos = reasoning, study) is a method of dating wooden objects of archaeological or art-historical interest. Dendrochronologists take advantage of the fact that trees growing between 23° and 66° northern and southern latitude keep exact records of their environmental circumstances. Year after year, cambium cells under the bark produce pairs of rings – a light one for the main growth period and a darker one in the autumn. The width of the growth rings reflect the changing environmental conditions experienced by the tree. Under good conditions – plenty of sun and water – growth is strong and the annual rings are wide and soft, with large pores. A narrow ring with smaller, thick-walled, harder cells indicate that the tree had a cold, dry summer to contend with. Dendroclimatology takes advantage of these properties of the annual rings to gather information about the climate in the past (see page 12).

dendros

Taxus baccata, approx. 5,000 years old, thin sectioning

Norway spruce (Picea abies)

HL-RC™ high-performance transmitted-light base



A wooden calendar

A prerequisite for cross-dating a wood sample of an unknown age is the existence of a tree-ring chronology corresponding to the type and growth region of the sample. Creating a tree-ring chronology requires examining and comparing a large number of samples from trees of the same species. The years in which the trees were felled must be known. The result is a continuous calendar from the year in which the tree was felled, right back to the first year of its life. If multiple chronologies of a single species and different ages overlap by a number of years, it becomes possible to extend the tree-ring chronology by centuries. In Europe, for example, comparative chronologies are available for oak (10,000 years) and spruce (6,000 years). The sequence of annual rings of an undated wood sample can now be compared to a suitable tree-ring chronology. This technique permits the dating of Neolithic settlements as easily as musical instruments from the 16th century.

Environmental history in finest cell structures

Using micron-precise sections and the Leica S8 APO stereomicroscope, the variations in hardness, porosity and pore distribution of the annual rings can be distinguished clearly and measured with great precision.

The voice of an angel

C. elegans



Leica L5 FL fluorescence system



Drosophila blue fluorescence



Tracking down hereditary diseases

His incomparable voice was a source of fascination on stages all over the world. His melancholy jazz ballads moved his audiences and received many awards. For some, his astonishingly high tenor is a mystery; for others it's the voice of an angel. Jimmy Scott, the 78-year-old jazz legend with a bell-like voice, is a victim of Kallmann's syndrome. At the age of 10 his physical development stopped; he remained small and his voice never broke. Kallmann's syndrome is a hereditary disease marked by hypogonadotropic hypogonadism (lack of pubertal maturation) and anosmia (lack of sense of smell). Out of every 10 000 boys and 50 000 girls, one child is born with this genetic defect.

Hereditary diseases in the focus of medical genetics

Humans have around 100,000 genes. A single fault in one gene is enough to alter the program of cells with potentially serious consequences for the organism as a whole. Disorders passed on from generation to generation are known as hereditary diseases. Kallmann's syndrome is one of around 5,000 known monogenic disorders. Medical specialists from a range of fields are working together on an interdisciplinary basis to explore the causes of human hereditary diseases. The research centers around the chromosome mapping of relevant genes. The goal hereof is to uncover the mechanisms behind mutation-related disorders. In the long term, researchers anticipate the development of new treatment options for genetic defects.

The search for "pathological genes" in the model

Model organisms such as the fruit fly (*D. melanogaster*) and the nematode (*C. elegans*) play an important role in the investigation of mutations in individual genes. The animal model permits mutations to be "reconstructed" and conclusions to be drawn regarding their functions in individual genes. The knowledge gained from the model organisms are relevant for an overall understanding of processes related biological development.

Efficient selection, sorting and dissection

The Leica S8 APO with the Leica L5 FL fluorescence system is a cost-effective, convenient and user-friendly instrument for the manipulation of expressed models. Delicate structures in living cells that are virtually invisible in unstained specimens are displayed in impressive relief contrast without artificial staining with the innovative HL RC™ high-performance transmitted-light base. Its Rottermann Contrast™ technology offers a wide range of illumination options to extract a maximum of information from any specimen.

"Genes can be read like a text – for example, the sentence 'Get his red hat' consists entirely of words with three letters each. I chose this example because genes are encoded in groups of three. Three DNA building blocks always stand for an amino acid. A genetic change can cause one letter to be missing. The remaining letters then all move up one within the groups of three and the result no longer makes sense. If you were to take the T out of 'get', the result would be unintelligible. Genetic defects may also occur in which an entire word is missing. In these cases, an amino acid is missing in the genetic product. Genetic changes change the meaning of the information". Dr. Elke Holinski-Feder MD, City Clinic of the Ludwig Maximilian University, Department of Medical Genetics, Munich, Germany

You set the standard

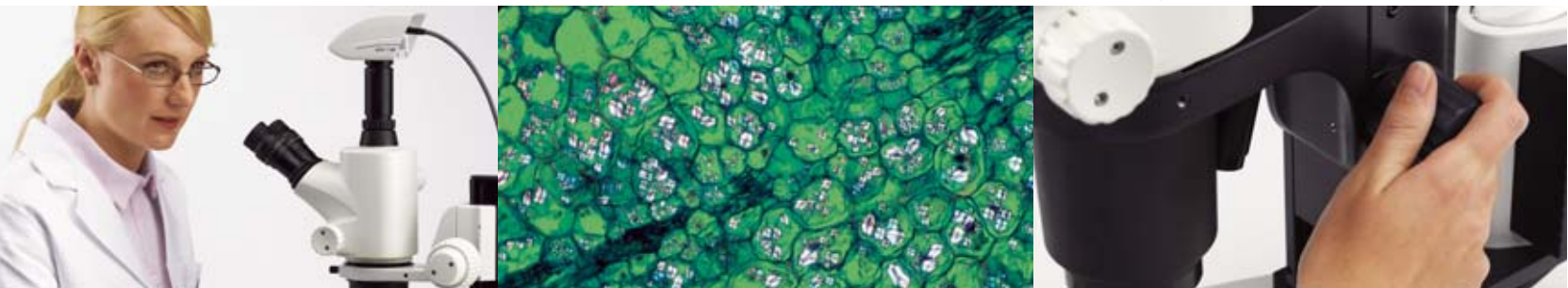
Designed for long-term use – ergonomics and more

Ergonomics isn't a buzzword for us, but a topic of fundamental importance in product development. We take the entire human – his or her senses, locomotor system and brain – into consideration in our fully integrated approach. Our goal is to ensure the interdependence of as many system elements as possible to guarantee the user's comfort, concentration and efficiency. Leica ErgoDesign® fully exploits the design and technical possibilities of modern optical manufacturing: innovative technologies, quality optics, selected materials, ergonomic design, extremely precise workmanship and tightest possible production tolerances.

Leica optics – objectively better

Your first look through the wide-field eyepieces will thrill you. See for your self how the Leica S8 APO eases and enhances visual work – over long periods, without eyestrain. The combination of multiple-coated, corrected lens system and an ergonomic 38° viewing angle support natural viewing and a fatigue-free posture.

Potato tuber with starch deposits, transmitted light – polarization Precise focusing without exertion



Ergonomic wide-field eyepieces: see 10% more

Leica's 10×/23 wide-field eyepieces let you view 10% more of the object than comparable eyepieces from other manufacturers. Orientation is easier, connections can be identified quickly without continuously moving the object, and the physical effort of visual accommodation is eliminated. In the case of eyepieces spectacle wearers, the exit pupil is 22mm in front of the eyepiece lens. The additional space provides ergonomic advantages to users with and without spectacles.

Adjustable eyepieces provide eyesight correction over a range from + 5 to – 5 diopters. Soft, detachable eyecups block out distracting room light and help prevent eye infections (separate eyecups for each user!).

"Ergonomics is a scientific approach to reaping the greatest rewards in this life with minimal effort and maximum satisfaction, for one's own well-being and that of those around us." Wojciech Bogumil Jastrzebowski, Polish scientist (1799–1882), the "Father" of "Ergonomji"



Everything perfectly under control

The sophisticated design of the zoom and focus controls accommodates a comfortable hand position and supports natural eye-hand coordination. A practical feature: a single turn covers the entire zoom range from the lowest to the highest magnification. The instrument will remain perfectly in focus (parfocal) throughout the zoom operation, with no need for annoying corrections. State-of-the-art technology with a patented magnetic assembly system, highly precise single-spindle design and Delrin gearing guarantee that the zoom action will remain even, silky and precise even after years of hard use.

Always in focus

The fine motor skills of the human hand are only effective if the hand is not called upon to exert an appreciable amount of force. The ease of focusing can be adjusted individually to minimize the effort required of the musculoskeletal system.

The Leica S8 APO remains precisely in its optical axis and stops at exactly the desired point when focusing – it never moves by itself or loses the selected focal plane. The image even remains centered when changing objectives the instrument will still be at the same point of observation after focusing. This precise action offers the best preconditions for combining multiple images with different focal planes to a complete image using the multifocus module of the Leica IM1000 image management software (see page 15).

The glacier that destroyed St. Petronella

Climate history in finest cell structures

"The chapel of St. Petronella once stood sheltered by an overhanging band of rock at the foot of the lower Grindelwald glacier. The saint exerted a miraculous power over the glacier and its waters took on healing properties. As the centuries passed, however, the chapel slowly disappeared under the glacier. From time to time, whenever the village was threatened by calving, the silver tone of the bell could be heard through the ice." During the 16th century the climate became ever colder – the "small ice age" had Europe in its grip. Within twenty years, the lower Grindelwald glacier in the Swiss Alps grew by one kilometer, crushing forests, meadows, haylofts and the St. Petronella chapel.

Endangered splendor: glaciers

The white giants were once considered to be destructive enemies – now scientists fear their disappearance. Grindelwald, Aletsch and Pasterze – especially Alpine glaciers are melting at an alarming speed. Europe's fresh water reserves are in danger. Global warming is a reality and the glaciers are the first indicator of the coming changes. Modern climate research has been working to develop a climate history in order to understand the factors that affect the climate and to be able to predict climate changes in the medium and long term. Geoscientists, physicists, meteorologists, biologists, paleontologists, glacier researchers, geologists, dendroecologists, climate historians, paleoclimatologists marine explorers and marine geologists are working hand-in-hand to investigate the complex interactions of the Earth's systems on an interdisciplinary basis. Their detective work often only yields results as part of a big picture, spanning the scientific disciplines to provide clues for the causes of ice ages and other climate fluctuations.



Foraminifera (Elphidium), polarization



Fossilized fish scales, 220 million years old



Dark brown barrel-shaped pupae

Fossils as witnesses

Natural climate archives such as the annual rings of trees (see page 8), pollen, ice cores and sediment from continental and marine drilling serve as data sources, as well as historical recordings and measurements. Pollen is the most important research object for paleoclimatologists on land. Pollen often accumulates in lakes in meter-thick strata, forming a detailed record of the vegetation history of a region. Pollen analysis clearly distinguishes species adapted to specific climates, which in turn permits conclusions about historical temperatures. When analyzing macrofossils, scientists study seeds, roots, nuts, insects and other small organisms of a given stratum. Flushing the matter with water separates the individual particles for sorting under a stereomicroscope.

Treasure trove for climate historians

High-resolution optics capable of exploring the finest cell structures of the delicate, often colorless, low-contrast organisms without damage are prerequisite to accessing the information stored in foraminifera, pollen and remains of plants. The Leica S8 APO is an outstanding stereomicroscope for the precise classification and perfect documentation of species diversity. A range of accessories and high-resolution digital cameras are available for the Leica S8 APO to document drilling cores with informative relief contrast or in polarized light.

"We need to understand more about these kinds of extreme climatic events – their frequency, ferocity, distribution, and causes. This type of multidisciplinary research can really extend our knowledge and expand our awareness of the potential for future events."
Gordon Jacoby, Senior Research Scientist Tree-Ring Laboratory, Lamont-Doherty Earth Observatory, Columbia University, New York

Witnesses for the prosecution

The fly clock of forensic biologists

The corpse of a man murdered with a sickle is discovered in a field. The officer investigating the case orders all of the farmhands to lay their sickles down at their feet. Shortly thereafter, swarms of flies settle onto one of the sickles. While it had been cleaned, the insects nevertheless detected traces of blood no longer apparent to the human eye. The murderer breaks down and confesses. This incident occurred nearly 800 years ago in China and is the first case in which insects contributed to solving a crime, as documented by the Chinese legal expert Sung Tz'u in his forensic textbook, "Hsi yuan chi lu".

Silent witnesses at the scene of the crime

Three to four days after death, coroners can no longer determine the exact time of death using classic properties such as body temperature, post-mortem lividity, changes to the pupils, muscular twitching or rigor mortis. Enter the forensic entomologists. Their task is to examine the corpse and its vicinity for the presence of insects. Arthropods are often silent witnesses of a crime and provide information that has destroyed many an alibi. Flies lay their eggs on corpses within 15 min of the last breath. Larvae hatch from the eggs, and flies emerge from the pupae. Forensic biologists can determine the time of death of a corpse with great accuracy on the basis of these stages of development.

When did death occur?

The forensic biologist takes soil samples from the scene of the crime and collects grubs, insects and larvae as exhibits. The composition of the insect species, as well as their age and size, are typical for specific phases of decomposition, as each species will settle on a corpse and leave it again at a specific time. The soil samples and samples of matter adhering to the clothing of the victim are examined with a stereomicroscope and the insects found are secured, sorted and identified. The zoological identification can also determine whether the victim was killed at the place where the corpse was found. Larvae or pupae are permitted to develop and the duration of the individual phases leading up to the adult fly are registered. To ensure the accuracy of this "fly clock", the conditions at the scene of the crime (soil and air temperature, humidity) are reproduced in the laboratory. It thus becomes possible to determine the time that it took from the initial egg-laying for a fly larva to reach same state of development as those found at the scene of the crime. This data is then used to calculate the time of death.

Exact determination of species

The forensic biologists use a stereomicroscope equipped with a high-performance camera to scan the samples, perform entomological analyses and to ensure the determination of species. The powerful apochromatic lens system of the Leica S8 APO and the high-resolution Leica Microsystems digital cameras permit the identification of typical characteristics such as chaetae, mouthparts and antennae to precisely determine and document species which are often very similar.



"Murderers don't take insects into account. Flies notice when someone's dead. They immediately land on eyes or wounds and lay their eggs there within minutes. If no other clues are available, the maggots are called upon as witnesses."
Dr. Mark Benecke, "Lord of the Maggots", on the "busy little assistants that work for me free of charge". Certified Forensic Biologist

Green algae, *Draparnaldia glomerata*, main filament and short lateral branches. Algae can help forensic biologists determine the route a waterborne corpse has "traveled".

*"If I have seen further than others, it is by standing on the shoulders of giants."
Sir Isaac Newton, British philosopher, physician, physicist and mathematician (1643–1727), the discoverer of Newton's rings and gravity – supposedly after being struck on the head by a falling apple.*



Leica S8 APO with Leica digital camera
on incident-light base and motor focus
with Leica UMC control unit

Limitless thought and research

Comprehensive systems for digital information exchange

In times of globalization and rapid evolution toward a knowledge-based society, the exchange of experience and knowledge between individual scientific disciplines in a spirit of partnership is becoming increasingly vital. Teams integrated in tight networks of international cooperation are essential to prevent the overlap of research efforts and to ensure the efficient use of funds. The carefully-targeted promotion of highly qualified, young scientific talent is also of central importance to success in the increasingly competitive environment of the 21st century.

From stereomicroscopes to digital cameras and application software, Leica Microsystems delivers comprehensive, custom-tailored, future-oriented packages for professional image creation, archiving, analysis, editing, presentation and printing. The StereoZoom® Leica S8 APO delivers quality data for further analysis, scientific publication, international information exchange and higher education.

Interface for image creation and presentation

Its high resolution and accurate imaging predestine the Leica S8 APO for high-quality image processing, suitable for analysis as well as presentation to large groups of viewers. Its integrated photo/video port facilitates quick, simple camera installation. A selection of high-quality C-mount video objectives ensure versatility in framing image details. The observation and photography optical paths are switchable. The maximum amount of light is thus available for all requirements.

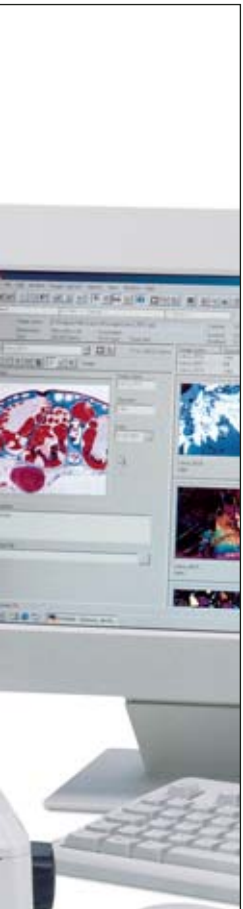
High-performance camera systems

The rapidly growing need for qualified knowledge is calling for fast, convenient digital cameras with ever-higher resolutions and comprehensive image processing software. Our camera line ranges from standard cameras for universal deployment to high-end cameras for scientific microscopy, medicine and biotechnology. To name a few examples:

- With a genuine 12 megapixels, the Leica DC500 is the ultimate professional digital camera for analyses, measurements and further processing of quality image data.
- The specialty of the 5.07 megapixel Leica DC480 is imaging at lowest light levels.
- Living cells, motion sequences, low light levels and rapidly-fading fluorescent specimens are ideal subjects for the highly-sensitive Leica DFC FX camera line.
- The Leica DFC320 digital camera delivers brilliant, detailed, high-resolution images for precise documentation and reporting.
- The Leica DFC280 digital camera stands out with its performance and ease of use. Flicker-free live images in real time guarantee precise results for measurements and image editing.

Image management at the highest level

Leica Microsystems digital cameras use a TWAIN interface for convenient and intuitive operation. The camera software features a wide range of frame-grabbing and editing functions and can be integrated in many common Windows applications (MS Office, Photoshop, etc.) as well as professional image management and image analysis software such as Leica IM1000, QWin and FW4000. Leica IM1000 is a modular image management program suitable for all applications in research, biology, medicine and education. A broad selection of application modules is available for Leica IM1000, such as measuring, multifocus, image correlation, timelapse, image superimposition, presentation, and many more. Thanks to its modular concept, Leica IM1000 can be tailored to your requirements and budget.



StereoZoom® Leica S8 APO – Technical Data, Features

Optics carrier

Instrument type	fully apochromatic high-performance stereomicroscope with 8:1 zoom and integrated photo/video tube	
Lens system	– 12° convergent Greenough optical system, lead-free	– apochromatic, corrected, parfocal – use of optimally corrected objective center
Zoom	– 8:1, apochromatic – patented magnetic assembly system	– Delrin gearing – highly precise single-spindle design
Zoom range	10×–80× (with 10×/23 wide-field eyepieces)	
Resolution	– 300 Lp/mm (with 10×/23 wide-field eyepieces)	– 600 Lp/mm (with apochromatic objective 2×)
Numerical aperture	– 0.1 (with 10×/23 wide-field eyepieces)	– 0.2 (with apochromatic objective 2×)
Dept of field	70µm (with 10×/23 wide-field eyepieces)	
Field diameter	23mm (with 10×/23 wide-field eyepieces)	
Maximum magnification	640× (with apochromatic objective 2×)	
Working distances	– standard: 75mm – with 1.6× APO objective: 37mm – with 0.32× achromatic objective: 200mm	– with 2× APO objective: 25mm – with 0.63× APO objective: 101mm
Objectives	– apochromatic 0.63×, 1.6×, 2× – achromatic 0.32×	
Viewing angle	ergonomic 38°	
Interpupillary distance	55mm – 75mm, synchronous	
Integrated video/photo tube, switchable	– 100% visual light in both eyepieces for 3D viewing – 100% light for video/photo and 100% visual light in left eyepiece	
Adjustable zoom limits	stops at top and bottom	
Ergonomic wide-angle eyepieces, fixed and adjustable, with eyecups	10×/23, 16×/16, 20×/12	
Ergonomic wide-angle eyepieces for spectacle wearers with eyecups	10×/23, 16×/15, 25×/9.5, 40×/6	
Diopter adjustment	from + 5 to – 5	
Soft, detachable eyecups	– to block out distracting room light and help prevent eye infections – straight and angled type	

Stands, lighting

Incident-light stand	with stage plate Ø 120mm	
Transmitted-light stand	– HL-RC™ high-performance base – Base for transmitted light for incident-light stand with movable reflector for angled illumination – Bright field, bright- and dark field transmitted light stands – Laser emitting diode transmitted-light stand	
Ergonomic focusing	– Types: coarse, coarse/fine, tiltable for swinging-arm stand – Adjustable ease of movement	– parcentric – motor focus system
Focusing range	135mm with standard-type focusing drive/column	
Microscope carrier	– mountable in 2 positions, high/low	– Optics carrier can be rotated 360°
Swinging-arm stand, FlexArm	wall and table mounting	
Stages	– Leica MATS heating stage thermocontrol system, polarizer/analyzer, gliding stage, cup stage	
Light sources	– Leica L2 cold-light source, coupled to the stand, with a variety of fibre-optic light guides and accessories for coaxial, vertical, transmitted light	– Leica L5 FL fluorescence system – LED-ring light and spot

Accessories

Video objectives	0.32×, 0.5×, 0.63×, 0.8× with C-mount for a variety of CCD cameras	
Digital imaging systems	Leica DC and DFC camera line	
Software	Leica Image Manager, QWin, FW4000	
Photomicrographic systems	Leica MPS30 and MPS60, fully automatic, with databack	
Measuring graticules	For measuring lengths and for counting	

For detailed technical data, scope of delivery and ordering information, please see our detailed leaflet M1-188-4 or our website at www.stereozoom.com