

New Website Marks Anniversary



al Chancellor Helmut Schmidt delivered an hour-long speech in which he reminded the audience of the responsibility of science to the common good. Overpopulation, the globalized economy, nuclear weapons, climate change and the clash between Western culture and the Islamic world were among the challenges Schmidt cited as opportunities for science to meet the onus upon it. Sociologist J. Rogers Hollingsworth of the University of Wisconsin described the development of the Max Planck Society following the collapse of the Kaiser Wilhelm Society as “astonishing”: when the MPS was founded in 1948, “no one would have believed it possible.” The event was chaired by ZDF journalist Petra Gerster. To mark the occasion, the new website now offers

The Max Planck Society website at www.mpg.de has been completely redesigned to offer a new, user-friendly experience. The site went live on January 11, 2011 with a lead article to accompany the official celebration of the 100th anniversary of the establishment of the Kaiser Wilhelm Society at the Berlin Academy of Arts. Former German Feder-

fers for the first time a detailed portrayal in words and pictures of the history of the two research organizations. The range of information available has been considerably expanded over the previous website. The primary objective is to provide users with fast and intuitive access – it shouldn’t take more than three clicks to find the desired information.

Continuity and Disruption

The book *LOOKING BACK TOWARDS THE FUTURE* presents a whole host of buildings in use now or in the past where science was or still is being done, and looks at the people involved. Published to mark the 100th anniversary of the establishment of the Kaiser Wilhelm Society, the book describes the history of the two institutions through more than 300 pages of photographs, essays and interviews. The work showcases the legacy and the fading traces of the Kaiser Wilhelm Society in the modern-day Max Planck Society, grouped into the three categories continuity, disruption and change: institutes of the Max Planck Society that grew out of a Kaiser Wilhelm institute in the same location; Kaiser Wilhelm institutes that were closed or integrated into other institutions; and Max Planck institutes

that distanced themselves geographically from their founding KWI, but that still retain a recognizable link in terms of structure and research topics. In a nutshell, the book takes readers through a number of milestones in the recent history of science and illustrates their importance for science today – from the nuclear physics of Otto Hahn and Lise Meitner to the Bibliotheca Hertziana, the Max Planck Institute for Art History by the Spanish Steps in Rome. Yet it also exemplifies the darker side of the history of the Kaiser Wilhelm Society, some of whose scientists were only too compliant in allowing themselves to be used by a criminal regime. The list of authors also includes historians who, in the 1990s, sat on the Presidential Committee on the History of the KWS under National Socialism.



Max Planck Society (editor): *LOOKING BACK TOWARDS THE FUTURE*. Max Planck Society and Kaiser Wilhelm Society, Sandstein Verlag, 38 euros

First Exploratory Round Table Conference

A series of conferences held jointly by the Max Planck Society and the Chinese Academy of Sciences has been launched in Shanghai

The first Exploratory Round Table Conference entitled “Synthetic Biology” took place on October 19-21, 2010 at the *Shanghai Institute of Advanced Studies*. The goal of this series of conferences, which will be held once a year, is to discuss the development status of new and emerging areas of research, as well as to outline the current situation in written summaries and subject the work to critical analysis.

Scientists from the Max Planck Society and the Chinese Academy of Sciences met with leading international experts in Shanghai to share current ideas and concepts, and discuss the future prospects for synthetic biology. The goal of this discipline is to analyze and describe complex biological systems from an engineering perspective and translate these systems into synthetic control loops or functional

units. The ultimate aim is to create “minimal life forms” that are able to support quasi-natural, optimized and artificial processes such as photosynthesis. The Exploratory Round Table Conference offers an additional means of establishing priorities in the ongoing development of both organizations’ research portfolios. The subject on this year’s agenda will be quantum physics.

Postcolonial Megacities Double As Research Laboratories

How do megacity dwellers envisage the lifestyle they aspire to?

Under the leadership of Peter van der Veer, scientists from the Max Planck Institute for the Study of Religious and Ethnic Diversity, together with colleagues from New York University and India’s Tata Institute of Social Sciences (TISS) and Partners for Urban Knowledge (PUKAR), intend to investigate how the urban environment in rapidly growing megacities impacts the development of ethnic and religious ambitions. The memorandum of understanding signed on the TISS campus in Mumbai on December 13, 2010 marked the official launch of the “Urban Aspirations in Global Cities” project. Over the next five years, the researchers will apply various scientific approaches to a study of the world’s megacities and their inhabitants. The chosen cities include Mumbai, Shanghai, Singapore and New York. These are not just important financial centers; they also each possess a unique ethnicity, from New York’s diversity to the exciting youth culture of Mumbai. Parts of the project will examine how the social aspirations of migrants make their mark and help shape a city, whether content-



Nearly 14 million people live in Mumbai, the financial hub of India.

ment or a propensity to violence predominate, and how texting is becoming the preferred medium of expression and communication in a new youth

culture. The team also intends to investigate the paradox of why megacity modernization does not automatically promote secularization.

“Good relations with the Ministry of Environmental Affairs”



Jochen Schöngart

Whitewater swamp forests – várzeas – are regularly flooded with nutrient-rich water from rivers such as the Amazon, and stretch up to 30 kilometers inland on either bank. Jochen Schöngart of the Max Planck Institute for Chemistry, and his colleagues Florian Wittmann and Maria Teresa Fernandez Piedade of Brazil's National Institute of Amazonian Research (INPA) in Manaus – with which the MPS has been cooperating since the 1950s – have put knowledge of these forests on a scientific footing. This, in turn, provided the basis for new legal controls over the logging industry in the várzea forests of the Amazon.

Mr. Schöngart, how will the logging industry in the swamp forests be regulated in the future?

Jochen Schöngart: The frequency with which trees can be cut down after reaching a given size will soon be dependent on their growth rates. We call this a GOL concept – growth-oriented logging. Fast-growing softwoods can be felled every 12 years, whereas slow-growing hardwoods can only be logged every 24 years. The current logging cycle is 25 years, irrespective of species and location, and the minimum diameter at which trees can be felled is 50 centimeters.

Which specific research findings have influenced the legislation?

In the 1980s, my Ph.D. supervisor Martin Worbes discovered, as part of his standard basic research, that trees in the tropical swamp forests form annual rings as they adapt their growth to the annual cycles of inundation. In the past, biologists had assumed that annual growth rings occur only where trees are exposed to the changing seasons. We then developed a method by which to reliably determine the growth rates of trees on the basis of these annual rings. With this information, we were then able to create models that show how rapidly the individual economically useful timber species grow in different locations. The resulting cycles of exploitation for the various tree species in the várzea vary between 3 and 30 years.

Are two defined cycles of exploitation sufficient for sustainable logging?

To put in place cycles for each individual species, the environmental authorities in the state of Amazonas, together with the beneficial owners in the várzea, would have to make an inventory of tree populations that extend over vast areas. They don't have the capacities for such an endeavor. That is why we worked with the State Ministry of Sustainable Development and the Environment to establish logging cycles of 12 and 24 years.

Will the new regulations be obeyed?

As far as the bulk of the area is concerned, I am optimistic. Other than in some isolated corners, the state environmental authorities exercise very effective controls. What's more, the people who live along the rivers accept the new rules because, from now on, they can actually fell a number of softwood species more frequently than in the past.

So, in the future, the amount of timber extracted from the swamp areas will not exceed what the tree populations can stand?

To answer the question with absolute certainty, we would have to know more about the population dynamics of the individual

species: How do they rejuvenate themselves? At what age do they begin to reproduce, and at what rate? And so on. My colleague Florian Wittmann is studying these correlations. We will probably have some reliable results in a few years' time.

So regulations based on growth rates don't achieve that much ...

Growth rates provide a fairly good criterion for sustainable logging.

Will the state authorities go along if new research shows that sustainable logging requires other regulations?

I think so. Following our initial success, we have very good relations with the Environment Ministry. That's also something we are relying on when it comes to location-specific regulations. In blackwater swamp forests that are flooded with water that is low in nutrients, the trees, for example, grow much more slowly than in the várzea. We are studying the growth rates now, and we will have precise results in about four years. Of course we hope that there will then be new rules for these locations.

Does your work have an impact on the logging industry outside of the swamp forests?

Our growth models are at least transferable to economically exploited tree species in other tropical forest ecosystems, given that it has since been proven that many tropical trees form annual rings. For example, we have developed growth models for four tree species in the forests of central Amazonia that are not subject to flooding, and we have also established species-specific management criteria such as logging cycles and minimum felling diameters. We have already achieved a lot through our research. The várzea forests alone cover around 200,000 square kilometers, and they are highly ecologically sensitive. The blackwater forests account for another 100,000 square kilometers, making a total area the size of Germany. Interview: Peter Hergersberg

Max Planck Innovation Licenses New Analytical Technology

TagFinder permits the identification of several hundred metabolic products in a biological sample



The quality of biological products such as fruit and vegetables is highly dependent on internal metabolic processes. Metabolites, such as sugars, amino acids, hormones, etc., are responsible for such properties as taste and nutritional value. For this reason, they are the subject of great interest to researchers in the food and agricultural industries. After all, optimizing quality requires an understanding of the material composition of various plant products. Metabolites also play a major role in industrial biotechnology. They are an important starting point for fine chemicals, enzymes, vaccines and recombinant proteins that are manufactured with the aid of micro-organisms

and cell cultures in bioreactors. Optimizing these production processes by analyzing the metabolic processes and identifying bottlenecks allows the desired substances to be manufactured with greater speed and efficiency. Biochemical research service provider Metabolomic Discoveries GmbH has acquired an exclusive license from Max Planck Innovation to the TagFinder analytical software. This software, developed at the Max Planck Institute for Molecular Plant Physiology in Golm, is part of an innovative testing procedure that, unlike conventional methods, allows not just a few but several hundred metabolic products to be identified in a biological sample.

Research Matters for the Future

The Max Planck Society publishes RESEARCH PERSPECTIVES 2010+

With more than 120 Max Planck Directors as co-authors, RESEARCH PERSPECTIVES 2010+ is a science-based collaboration. The Perspective Commissions of the individual sections of the Max Planck Society have identified a total of 36 topics on which the scientists have written extensive articles. The RESEARCH PERSPECTIVES indicate which fields the Max Planck Society perceives as being of particular importance for the future: "Our task is to conduct research at the frontiers of knowledge, so we keep a keen eye on areas of research that are developing dynamically and raising new scientific

challenges," explained President Peter Gruss. The objective is to identify areas that are particularly promising, where dynamic breakthroughs and paradigm shifts are to be expected – and ultimately where the greatest scientific yields are likely to be achieved. The extended articles have been condensed by journalists for inclusion in a handy brochure that can be ordered in German or English from the Press Office at presse@gv.mpg.de. The full English texts and the informative summaries are available as PDF documents at www.mpg.de/perspektiven.



New Director for Florida



David Fitzpatrick (left) and President Peter Gruss signing contracts at the Berlin offices of the Max Planck Society in November 2010.

With the start of 2011, the Max Planck Florida Institute has a new Director, neuroscientist Dr. David Fitzpatrick. Dr. Fitzpatrick comes from Duke University, Durham, NC, where he held the James B. Duke chair of neurobiology at the School of Medicine. The main emphasis of his research work is on the functional organization and development of neuronal circuits in the cerebral cortex. This is the largest and most complex part of the human brain and is tasked with sensory perception, motor control and cognition.

“This is one of the most exciting steps in my career as a scientist,” declared Dr. Fitzpatrick on signing his contract with the Max Planck Society in November in Berlin. Pointing to the wealth of new techniques now emerging, he continued: “It is no exaggeration to say that we are at the dawn of a new era in our understanding of brain functions and diseases.” His wife, Dr. McLean Bolton, who was previously Research Assistant Professor in the neurology section of Duke’s Department of Pediatrics, is also moving to the Max Planck Florida Institute, where she will head a Junior Research Group focusing on functional disorders in neuronal circuits.

On the Net



Finding women who can lead

The Robert Bosch Foundation and publishing company Spektrum der Wissenschaft are seeking to support the advancement of top female scientists by exposing their profiles to both science and industry via the career portal “AcademiaNet.” Journalists and conference organizers, too, will find it easier to find female experts by searching the lists of disciplines. Of course, exposure on the Internet also facilitates successful networking.
www.academia-net.de

Noblesse oblige: New series of podcasts

The new series of podcasts devoted to the Max Planck Society’s Nobel Prize winners kicks off with the awards presented to Karl Ziegler, Manfred Eigen and Paul Crutzen. Each month through the end of the year, a new episode will be published online on the new website, introducing all 14 Nobel laureates. Tune in at:
www.mpg.de/278082/Karl_Ziegler

Welcome to Galaxy Zoo

The human brain is very good at recognizing patterns – a fact that “Galaxy Zoo” exploits for the benefit of science. Volunteers study images of galaxies on the project website and answer questions on their shape and form. The professional astronomers running the project are then able to use this information in their work. The latest version of the web portal entitled “Galaxy Zoo: Hubble” is evaluating images of hundreds of thousands of remote galaxies recorded by the space telescope.
www.galaxyzoo.org

Max Planck tweets

The Max Planck Society recently began publishing up-to-date news items on social networking site Twitter. The tweets issued by the Press Office are currently available only in English, but the number of followers is growing steadily. Due to this initial positive experience, a German Twitter feed will soon be available, too.
<http://twitter.com/maxplanckpress>