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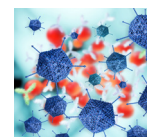
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Editorial

Dear members
and friends of the Leopoldina,



In late January, 26 international scientists from a variety of disciplines met in Berlin at the invitation of UN Secretary-General Ban

Ki-moon to discuss sustainability issues such as food security, demographic developments and climate change. This was the inaugural meeting of the Scientific Advisory Board, of which I have the honour of being a member. The fact that the board has been established is testament to the importance of scientific expertise for policy, including at UN level. The interview beside the editorial gives insight into the functions of the board.

Furthermore, the establishment of the UN Scientific Advisory Board underlines the need for global, interdisciplinary cooperation to overcome global challenges. This global approach to science also characterises the work of the Leopoldina. Our standing committees, for example the committee Climate, Energy and the Environment and the committee Demographic Change are working on issues of particular significance for the future of sustainable development. Through its many committees, the Academy brings this expertise to bear at international level. The intensive exchange of ideas between members helps to drive progress in areas of great importance today, such as the development of personalised medicine, the nanosciences, and research on the consequences of climate change. To read articles on these issues, turn to pages five and six of our new-look newsletter. We have updated the newsletter's design in order to present our topics in a more modern and appealing way. We wish you a thought-provoking read!

Jörg Hacker



The members of the UN Secretary-General's new Scientific Advisory Board were presented in Berlin at the end of January.

Photo: Phototek/German UNESCO Commission

Providing a scientific basis for political decision-making

Inaugural meeting of the new UN Scientific Advisory Board

On 30 January, the new United Nations Secretary-General's Scientific Advisory Board was ceremonially inaugurated in Berlin, in the presence of German Federal Foreign Minister Frank-Walter Steinmeier and UN Secretary-General Ban Ki-moon. From now on, these 26 scientists from all over the world are to advise the UN on issues of crucial importance for the future. The only German member on the scientific board is Prof. Jörg Hacker ML, President of the Leopoldina, who was appointed ad personam. Caroline Wichmann asked him about the functions the Scientific Advisory Board will serve in the years to come.

Prof. Hacker, why has this new UN board been created?

Hacker: The committee is intended to strengthen ties between science and policymaking. The board reports directly to the Secretary-General of the United Nations. As well as advising him, it will provide advice to the heads of other UN institutions. The aim is to contribute the most up-to-date knowledge from the scientific community to discussions on the increasingly complex issues facing policymakers, while also pointing up the limitations and uncertainties of research findings. Although policymakers have the last word, it is important that their deci-

sions are made on the basis of the best knowledge available.

Who are the members of the board?

Hacker: The members are scientists from various corners of the world, representing a great variety of disciplines. Another member of the Leopoldina, the Israeli chemist and Nobel Prize winner Ada Yonath, has also been appointed to the Scientific Advisory Board.

How do the members of the advisory board manage to work together, coming from such diverse disciplines?

Hacker: The board's strength lies precisely in its heterogeneous composition of researchers from varied disciplines of basic and applied research. This is because the issues currently facing international policy-makers, such as health, poverty, climate change, energy, biodiversity and demographic change, need to be looked at from a variety of expert perspectives. It's a question of crossing the boundaries between different fields and discussing various approaches to solving a problem. This is a challenge, but I believe it is also what makes the board members' work particularly appealing.

Can you give an example of this approach?

Hacker: This approach means taking into account perspectives from all relevant fields when addressing, for example, the issue of energy supply in the future. Which energy sources should we use and how can we minimise carbon dioxide emissions? These are technical questions, but the subject of energy supply also has an economic dimension – in the end it all has to be affordable. Crucially, however, this is also a topic for the social sciences as it relates to questions of lifestyle.

What do you personally contribute to the board's work?

Hacker: I am very pleased to have been appointed, and I am looking forward to taking part in discussions, exchanging my ideas and working with the other members of the board. In terms of specialist knowledge, I can contribute my expertise in the area of infection research. This subject represents one of the biggest challenges that the future has in store for us, particularly with regard to our changing climate. Rising temperatures are causing infections to spread further north – we are now seeing viruses in southern Europe that were previously unheard of there. This is related to climate change and our lifestyles. In terms of organisation, I can bring to the committee my experience in moderating discussions where a range of different opinions are expressed. I believe I am well practised in this from my work on other boards and at the Leopoldina.

How will the board work?

Hacker: We are going to meet twice a



Jörg Hacker at the Board's meeting in Berlin.

Photo: Photothek/German UNESCO Commission

year – in a kind of general assembly. The next of these meetings is planned for the summer. In addition to this, the four working groups will have meetings of their own, either in person or using video conferencing. The Chair of the Board is Irina Bokova, Director-General of UNESCO, and we have selected the board member Professor Abdul Hamid Zakri, scientific advisor to the Malaysian Prime Minister, as co-chair.

What else was achieved at the first mee-

ting in Berlin?

Hacker: Our first meeting in Berlin centred mainly on the expectations that have been placed on the board and on what we are aiming to achieve. We also discussed the scientific standards that we will represent and the findings that we will use as a basis for our recommendations to UN institutions. On the organisational level, we formed four working groups.

What topics will the working groups tackle?

Hacker: The first working group will discuss science and sustainability, with the central question being how science can contribute to sustainable development. The second group will address science and policymaking, looking into the possibilities and limitations of science-based advice for policymakers and the public. The third working group will identify research needs, asking where there are gaps in current knowledge and which gaps need to be filled most urgently. The fourth working group, to which I belong, is looking into formulating sustainability targets for the post-2015 period. This does not just relate to environmental issues and the sustainable management of resources, but also to social sustainability and sustainable health systems.

THE UNITED NATIONS SCIENTIFIC ADVISORY BOARD (SAB)

The 26 scientists of the SAB will formulate recommendations addressed at UN Secretary-General Ban Ki-moon and at the executive heads of the specialized agencies of the UN. The main thrust will be to better integrate scientific results into global political debates and decision-making. „The SAB will serve as a global reference point to improve links between science and public policies“, said UNESCO Director-General Irina Bokova. One of the SAB's tasks is to examine whether new

global assessment studies are needed. New sustainability targets and the post-2015 development agenda currently being devised will also be discussed. Scientists from a wide variety of fields are represented on the SAB, including the natural sciences, engineering and social sciences as well as interdisciplinary ocean, climate and biodiversity research. The members of the SAB have been appointed by UN Secretary-General Ban Ki-moon in September 2013. (mik)

■ MORE INFORMATION: www.sab-2014-berlin.de

Colloquium in honour of Volker ter Meulen

Nobel laureate Harald zur Hausen delivers keynote speech

In January, the Leopoldina held a special colloquium to honour former Leopoldina President Prof. Volker ter Meulen ML – a researcher and science manager of outstanding merit. Volker ter Meulen celebrated his 80th birthday on 17 December 2013, and the anniversary event was held exactly one month later as an occasion to look back on his life's work.

In his keynote speech, Nobel laureate Prof. Harald zur Hausen ML presented the highlights of virological research in the past 50 years. Volker ter Meulen – who studied medicine in Münster, Innsbruck, Kiel and Göttingen, completing his PhD in Göttingen in 1960 – began conducting research into clinical infectiology and virology in the 1960s, identifying the measles virus as a causal pathogen of neurological

„His life's work is diverse and impressive.“

Dr. Reiner Haseloff
Minister-President of Saxony-Anhalt

disease in childhood. In 1975, ter Meulen was appointed Professor of Clinical Virology at the University of Würzburg. Here, he not only continued his research into the measles virus, but widened the focus of his work to include the simian immunodeficiency virus (SIV), which is related to the HI virus, and the coronavirus, the pathogen that causes the disease SARS, among others.

However, as reflected in the colloquium's programme, it is not only



A special colloquium was held in honour of Volker ter Meulen on the occasion of his 80th birthday. The former Leopoldina President has made outstanding achievements in research and science management.

in the field of virology that ter Meulen has made his mark. Leopoldina President Prof. Jörg Hacker ML emphasised ter Meulen's contribution to the Leopoldina being appointed German National Academy of Sciences in 2008.

Volker ter Meulen also laid down much of the groundwork for the Leopoldina's international relations and international policy advice, and he is still active in this area. His work as co-chair of IAP, the global network of science academies, was praised by fellow co-chair Prof. Mohamed Hassan in his talk on global challenges and opportunities for international cooperation in sustainability research. Prof. Robbert Dijkgraaf (USA), co-chair of the

InterAcademy Council (IAC) and Director of the Institute for Advanced Studies in Princeton, paid tribute to ter Meulen's services to the IAC. Volker ter Meulen also served as President of the European Academies Science Advisory Council (EASAC) from 2007 to 2010, and current EASAC President Prof. Jos van der Meer reflected on his work during that period.

Last but not least, political representatives Dr Georg Schütte (State Secretary at the Federal Ministry of Education and Research) and Dr Reiner Haseloff (Minister-President of Saxony-Anhalt) offered their congratulations to the virologist. "His life's work is diverse and impressive," said Haseloff in his welcoming address. (jk)



Volker ter Meulen with Minister-President of Saxony-Anhalt Reiner Haseloff and Leopoldina President Jörg Hacker.



Nobel laureate Harald zur Hausen recounted the highlights of virological research in his speech in honour of ter Meulen.



The reception after the colloquium gave guests plenty of opportunities to meet and talk.

Photos: Markus Scholz

Christmas lecture with Klaus Töpfer



On 10 December, Prof. Klaus Töpfer (on the right, with Leopoldina President Prof. Jörg Hacker ML), founding Director of the Institute for Advanced Sustainability Studies (IASS) in Potsdam, delivered the traditional Leopoldina Christmas Lecture in Halle. In his lecture entitled “Hans Carl von Carlowitz’s *Sylvicultura oeconomica* – 300 years of sustainability”, the former federal environment minister spoke of the first considerations given to sustainable economics in the early 18th century. Töpfer went on to discuss the importance of sustainability in the present and the future.

(jk)/Photo: Markus Scholz

Round table on antibiotic research

Academies welcome field experts in Berlin

According to the World Health Organisation (WHO), the global occurrence of antibiotic resistance poses one of the greatest threats to human health. The development of new antibiotics is one of the challenges in the battle against resistant bacteria. In order to develop solution strategies, the Academy of Sciences in Hamburg and Leopoldina invited representatives from science, industry and politics to a round table. The experts met for the first time on 13 November 2013 in Berlin. The statement “Antibiotic Research: Problems and Perspectives”, published jointly by the two academies in early 2013, led to the establishment of the round table. This group supplements other forums that focus on the issue of antibiotic resistance, as well as the German Antibiotic Resistance Strategy (DART).

(kh)

Are our hopes on personalised medicine justified?

A discussion evening at Schloss Herrenhausen to mark the start of a new collaboration between the Leopoldina and the Volkswagen Foundation

The first Leopoldina Lecture at Schloss Herrenhausen in Hanover addressed a topic of great current relevance to modern medicine. On 22 January, a discussion entitled “Personalisierte Medizin – Zwischen begründeten Hoffnungen und gewagten Versprechen” (“Personalised medicine – well-founded hopes or bold

New dimensions for understanding and treating illnesses

promises?”) kicked off a collaboration between the German National Academy of Sciences Leopoldina and the Volkswagen Foundation. The Leopoldina Lectures in Herrenhausen series offers a programme of regular discussion events, with each one addressing a topic on which the Leopoldina is currently offering science-based policy advice.

Dr Wilhelm Krull, Secretary General of the Volkswagen Foundation, and Leopoldina President Prof. Jörg Hacker ML opened the series of events at Schloss Her-

renhausen. Hacker noted that the Academy has already had several successful collaborations with the Volkswagen Foundation, the Global Young Academy being the most recent.

Prof. Bärbel Friedrich ML, Vice President of the Leopoldina, introduced the evening’s controversial topic: “The term ‘personalised medicine’ itself, which has a number of synonyms such as tailored, stratified or precision medicine, is vague and in some ways problematic.” Personalised medicine, Friedrich explained, will not replace patient histories and the measurement of conventional biomarkers such as blood pressure, weight and blood levels. Instead, she said, it opens up new dimensions for understanding and treating illnesses by correlating phenotypically visible symptoms with individual parameters on the molecular biological level.

Prof. Heyo Kroemer, Dean of the Faculty of Medicine, Chairman of Research and Teaching, and Speaker of the Mana-

ging Board at the University Medical Center Göttingen, delivered a keynote speech in which he presented personalised medicine as a way forward for healthcare: treatments tailored to individual patients

Personalised medicine could improve efficiency of treatments

could improve the efficiency of treatments at a reduced cost.

Prof. Jürgen Schölmerich ML, Chairman of the Board and Medical Director at University Hospital Frankfurt, presented a more sceptical view of personalised medicine in his short speech. Symptoms often have a variety of causes, he said, so one-dimensional, uncausal classifications are out of the question. Furthermore, said Schölmerich, within the context of personalised medicine, there are issues relating to ethics, economics, patient information and the allocation of treatment – as well as aspects of scientific and medical theory – that require clarification.

(jk)



Participants of the Leopoldina-INSA Symposium on Nanoscience in the Academy's banquet room.

Photo: Markus Scholz

Future developments in nanosciences

Scientists of the Indian and German national academies hold a symposium

From 25 to 26 November 2013, scientists of the Leopoldina and the Indian National Science Academy (INSA) met in Halle (Saale) for the Leopoldina-INSA Symposium on Nanoscience. Headed by Prof. Harald Fuchs ML (Münster) and INSA member Prof. Indranil Manna (Kanpur), leading scientists discussed the status quo in nanosciences and possible developments in their field of research. In four sessions and two keynote speeches, Prof. Herbert Gleiter ML and Prof. Arup K. Raychaudhuri presented the findings of basic and applied research, covering

a broad spectrum of topics. Leopoldina Vice President Prof. Gunnar Berg ML acknowledged this in his closing address: "You spoke about amorphous and organic structures, spintronic and tunable structures, single nanowire and synthetic DNA devices, thus covering a very wide range in the field of nanosciences."

INSA President Lal expresses commitment to the Leopoldina

Thanks to funding from the Federal Foreign Office, young scientists from Germany and India were also able to present

their current projects. Visits to the Max Planck Institute of Microstructure Physics and the Fraunhofer Institute for Mechanics of Materials (IWM) also created opportunities for intensive discussions.

INSA President Prof. Krishan Lal saw the symposium as an opportunity to visit Germany once again at the end of his term of office and to express his commitment to the Leopoldina. In 2007, INSA was the first international academy to sign a cooperation agreement with the Leopoldina, laying the foundation for a strategic network of partner academies. (rn)

EASAC publishes report on extreme weather conditions

European academies propose adaptation strategy in Europe / New presidium begins first term

In collaboration with the national academies of other EU member states, the Leopoldina published a report on extreme weather in Europe in late 2013. The EASAC paper addresses the relationship between climate change and the incidence of floods, droughts and storms in Europe, and is expected to form the basis for the EU's adaptation strategy.

The report is based on a study conducted by EASAC in collaboration with

the Norwegian Academy of Science and Letters and the Norwegian Meteorological Institute.

The EASAC also has a new presidium, which began its term at the General Assembly in Rome on 5 and 6 December. The Vice Presidents for the years up to 2016 are Prof. Jozséf Pálincás (President of the Hungarian Academy), Prof. Martyn Poliakoff (Foreign Secretary of the Royal Society), Prof. Loucas Christophorou (Academy

of Athens), and Prof. Thierry Courvoisier (President of the Swiss Academy). They will form the presidium together with EASAC President Prof. Jos van der Meer (Royal Netherlands Academy of Sciences), who was elected in 2012. (csd)

■ THE FULL REPORT IS AVAILABLE HERE:
<http://www.easac.eu/home/reports-and-statements/detail-view/article/extreme-weat.html>

People

Deceased members

■ Ellen Fanning ML

10 April 1946 – 1 Sept. 2013 |
Nashville, USA

Human Genetics and Molecular Medicine

Human geneticist Ellen Fanning's main area of work involved DNA replication and the regulation of the cell cycle in mammals, during which a mother cell divides into two daughter cells. External and internal influences play a significant role in this division and can lead to dysregulation, a fundamental causal factor of various diseases. Fanning was elected as a member of the Leopoldina in 2007.

■ Kurt Kochsiek ML

3 March 1930 – 3 Dec. 2013 |
Würzburg, Germany

Internal Medicine and Dermatology

Cardiologist Kurt Kochsiek was elected as a member of the Leopoldina in 1989. He focused primarily on cardiovascular research, including cardiac insufficiency, which occurs when the heart is unable to pump the necessary amount of blood through the body without an increase in pressure. Kochsiek's work produced methodological findings on the problems of the contractility of the cardiac muscle under physiological, pathological and pharmacological conditions. He always endeavoured to see people as a whole and not just from the perspective of the particular sub-discipline involved in their condition.

■ Reinhard Kurth ML

30 Nov. 1942 – 2 Feb. 2014 |
Berlin, Germany

Microbiology and Immunology

Retroviruses, particularly HIV, and the epidemiology of viral infections were the main topics of virologist Reinhardt Kurth's research. He developed a test for antibodies against the AIDS pathogen that can halt the immunodeficiency virus in people infected with HIV. Kurth was responsible for the introduction of regular experimental inspections and comprehensive batch controls of blood products. The Leopoldina elected him as

a member in 2008 in recognition of his achievements.

■ Roland Otto Adolf Mayer ML

26 Jan. 1927 – 12. Nov. 2013 |
Dresden, Germany

Chemistry

Otto Mayer's research focused on sulphur chemistry. He developed synthesis processes in order to produce new types of sulphur compounds, which he then characterised. As a result, he classified many basic types of S-heterocyclic compounds, thiocarbonyls and thiocarboxylic acid derivatives. Mayer was elected as a member of the Leopoldina in 1973 in recognition of his numerous works.

■ Peter Ludwig Pauson ML

30 July 1925 – 10 Dec. 2013 |
Glasgow, UK

Chemistry

The Leopoldina elected Peter Ludwig Pauson as a member in 1976 in recognition of his work in the field of organometallic chemistry. He focused on metal π -complexes, molecular compounds in which π electron pairs enter into coordinated bonding and backbonding between π and σ orbital systems or between σ orbital systems. Pauson successfully integrated the field of π -organometallic chemistry of transition metals in his work.

■ Martin Zeitz ML

4 Jan. 1950 – 26 Nov. 2013 |
Hamburg, Germany

Internal Medicine and Dermatology

Martin Zeitz focused on the treatment of patients suffering from liver and gastrointestinal diseases. In 2012, he was appointed director of the University Medical Center Hamburg-Eppendorf, where he founded the university's centres for rare diseases, transition medicine, perinatal medicine and transplant medicine. These achievements earned him membership of the Leopoldina in 2013.

Newly elected members

■ **Greet Van den Berghe ML**, Leuven, KU Leuven – University of Leuven, University Hospital Leuven (Surgery,

Orthopaedics and Anaesthesiology Section)

■ **Jürgen Peter Debus ML**, Heidelberg, University Hospital Heidelberg, Radiology Clinic, Department of Radio-oncology and Radiation Therapy (Radio-logy Section)

■ **Gian-Paolo Dotto ML**, Lausanne, University of Lausanne, Department of Biochemistry, Quartier UNIL-Epalinges (Internal Medicine and Dermatology Section)

■ **Michael Frese ML**, Singapore, National University of Singapore, NUS Business School (Psychology and Cognitive Sciences Section)

■ **Gesine Hansen ML**, Hanover, Hanover Medical School, Centre for Paediatrics and Adolescent Medicine, Clinic for Paediatric Pneumology, Allergology and Neonatology (Gynaecology and Paediatrics Section)

■ **Hans-Ulrich Häring ML**, Tübingen, University Hospital Tübingen, Department of Internal Medicine IV – Endocrinology and Diabetology, Angiology, Nephrology and Clinical Chemistry (Internal Medicine and Dermatology Section)

■ **Irmela Hijiya-Kirschner ML**, Berlin, Freie Universität Berlin, Seminar of East Asian Studies (Cultural Sciences Section)

■ **Ralph H. Hruban ML**, Baltimore, The Johns Hopkins Hospital Baltimore, Department of Pathology (Pathology and Forensic Medicine Section)

■ **Andreas Hüttemann ML**, Cologne, University of Cologne, Department of Philosophy (Philosophy of Science Section)

■ **Karl-Walter Jauch ML**, Munich, Ludwig Maximilian University of Munich, Medical Director at the University Hospital (Surgery, Orthopaedics and

Anaesthesiology Section)

■ **Clemens Kirschbaum ML**, Dresden, Technische Universität Dresden (Psychology and Cognitive Sciences Section)

■ **Kai A. Konrad ML**, Munich, Max Planck Institute for Tax Law and Public Finance (Economics and Empirical Social Sciences Section)

■ **Michael Lackner ML**, Erlangen, Friedrich-Alexander-Universität Erlangen-Nürnberg, Professor of Sinology (Cultural Sciences Section)

■ **Thomas Lenarz ML**, Hanover, Hanover Medical School, Department of Otolaryngology / Head and Neck Surgery (Ophthalmology, Otorhinolaryngology and Stomatology Section)

■ **Wolf Mutschler ML**, Munich, University Hospital of the Ludwig

Maximilian University of Munich, Department for General, Trauma, Hand and Plastic Surgery (Surgery, Orthopaedics and Anaesthesiology Section)

■ **Peter Neuhaus ML**, Berlin, Charité Campus Virchow-Klinikum, Department of General, Visceral, and Transplant Surgery (Surgery, Orthopaedics and Anaesthesiology Section)

■ **Klaus Püschel ML**, Hamburg, University Medical Center Hamburg-Eppendorf, Department of Forensic Medicine (Pathology and Forensic Medicine Section)

■ **Bettina Rockenbach ML**, Cologne, University of Cologne (Economics and Empirical Social Sciences Section)

■ **Hans-Werner Sinn ML**, Munich, Ludwig Maximilian University of Munich, Center for Economic Studies (Economics and Empirical Social Sciences Section)

■ **Jürgen Schüttler ML**, Erlangen, Friedrich-Alexander-Universität Erlangen-Nürnberg, Department of Anaesthesiology (Surgery, Orthopaedics and Anaesthesiology Section)

■ **Paul A. Sieving ML**, Bethesda (Maryland), National Eye Institute (Ophthalmology, Otorhinolaryngology and Stomatology Section)

■ **Brigitte Tag ML**, Zurich, University of Zurich, Institute of Law (Pathology and Forensic Medicine Section)

■ **Alexei Verkhatsky ML**, Manchester, The University of Manchester, Faculty of Life Sciences (Neurosciences Section)

■ **Ludger Wössmann ML**, Munich, Ludwig Maximilian University of Munich, Center for Economic Studies (Economics and Empirical Social Sciences Section)

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Abbreviations:

ML = Member of the Leopoldina



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