



# EUROPÄISCHE AKADEMIE

zur Erforschung von Folgen wissenschaftlich-technischer Entwicklungen  
Bad Neuenahr-Ahrweiler GmbH

Direktor: Professor Dr. Dr.h.c. Carl Friedrich Gethmann

## NEWSLETTER

AKADEMIE-BRIEF • NO 92

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### EDITORIAL

■ At the instigation of the partners of the Europäische Akademie GmbH – the Federal State Rhineland Palatinate and the German Aerospace Center – the second evaluation of the Europäische Akademie after 2000/2001 took place in the first six months of 2009. This evaluation was carried out by an evaluation office (Zentrum für Qualitätssicherung und -entwicklung, Universität Mainz) which in agreement with the members of the academy's Scientific Advisory Board appointed nine expert consultants for an evaluation commission.

The task of the evaluation commission was to audit the scientific work as well as the administrative structure and proceedings of the Europäische Akademie comprehensively. In this connection an audit report by the Rhineland-Palatinate Audit Office had to be taken into account. The external evaluation followed an internal report by the academy and included interviews with the partners, the members of the Scientific Advisory Board, the academy's director and members of staff, and a selected group of the Council. On the basis of the reports and interviews recommendations for the future work of the Europäische Akademie were worked out by the experts. In the meantime the evaluation commission's expertise was assessed positively by the Partners' Assembly and Managing Committee of the academy.

The various decisions taken by the partners will be published in a future edition of the Newsletter.

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### FOCUS

#### Human exploration of space, Moon and beyond Aiming for the stars or a matter of culture?

Stephan Lingner

Forty years ago, for the first time humans set their footprint on a celestial body other than Earth. Landing and operation of the Apollo 11 crew on the Moon raised broad public attention and enthusiasm in those days. In the meantime, this verve has vanished considerably and turned even into some scepticism about manned space exploration as a whole. Since then, opponents have been arguing with proponents about the need and usefulness of humans in spaceflight, especially with regard to the return of investments. This article aims at demonstrating that the still ongoing debate is often discussed within misleading categories, thus, resulting in "utilitarian" fallacies. One should recall that there are sound (non-utilitarian) reasons for societies to invest even in those efforts or institutions whose economic payback is uncertain, or irrelevant, because *culture does matter* in the end. Examples of monetarily "useless" but nonetheless legitimate enterprises, institutions and efforts are for example arts or systems of public law – and even human space exploration. Peaceful cooperation and sharing the emerging options could indeed motivate international consortia towards human space exploration as well. However, monetary aspects might become the factor that could tip the scales for or against specific spaceflight plans when weighing *all* cultural options of society.

Human space activities are – more than any other fields of human action and research – subject of critical debate and justifications in public as well as in the scientific community due to the great amount of money spent in strong competition with other public funded research and development. Moreover, the exceptional media presence in spaceflight operations draws the attention to questions of legitimacy and creates public pressure unlike other huge investments in large facilities and enterprises (e.g. large ion-colliders and electron-synchrotrons) which are developed and operated more away from public perception.

This situation puts particular pressure on sound reasoning when aiming at budgetary decisions for manned spaceflight – especially with regard to related long-term commitments. This paper will therefore discuss the general arguments often put

forward against human spaceflight while reflecting its cultural dimension and its specific impacts.

#### Utility of manned spaceflight?

After more than fifty years of development, spaceflight is still a continuously emerging field of technology. The dimension of its supporting infrastructures and respective (financial) efforts are enormous and therefore subject to societal debates upon binding commitments towards respective contributions and upon the expected paybacks of space activities. Nevertheless, acceptance of unmanned spaceflight for peaceful purposes of earth observation or telecommunication can be stated worldwide. This broad acceptance is obviously driven by concrete benefits of corresponding remote sensing services for human life, comfort and environment.

Moreover, these benefits are accompanied by relatively “moderate” costs of respective efforts. Cost-benefit ratios became profitable relatively early even in cases of space-based telecommunication, thus, giving reason for successful commercialization and privatization in this sector of spaceflight.

Since then, hopes and expectations towards commercial benefits were also put forward with respect to other and even manned space activities. Consequently, in the late 1980s the proponents of manned space activities offered industrial scenarios in low-Earth orbits, e.g. by promising large-scale production of valuable, space-born materials, grown under the unique conditions of microgravity. However, these ambitions were partly based on rather optimistic expectations on the development of respective markets and abilities which unavoidably led to failures and disappointments. As a consequence, “space business” enthusiasm turned into profound pessimism of the public and many actors upon the significance of (manned) spaceflight which resulted in the formulation of restrictive space policies, especially in Germany. Manned spaceflight has not fully recovered from this backlash since.

The reason for this lasting disappointment while assessing upcoming spaceflight options lies in the implicit but still unchanged utilitarian perspective of many actors which suffers from *economical-driven myopia*. It is therefore plausible that any argument from this restricted view – even in favour of manned spaceflight, e.g. by stressing the interactive role of humans in “intelligent” space utilization and exploration – is easily disputable from the same utilitarian perspective by such counter-arguments that humans in space rather interfere with their sensible space environment while working in it, thus, affecting their own investigations. Honestly, adverse interference cannot be excluded for robotic missions, either, but the relatively “moderate” costs of unmanned missions are still accepted by most sceptics of manned spaceflight. Nevertheless, even assumptions of moderate expenditures cannot really legitimize *any* spaceflight option with poor results. This holds true unless non-utilitarian justifications of spaceflight can be given. Summing up, the unintended unity of restricted utilitarian perspectives of both proponents and opponents of manned spaceflight prohibits a comprehensive assessment of spaceflight options.

#### Perspectives beyond the utilitarian horizon

Spaceflight as well as other grand challenges and long-term commitments on Earth cannot be weighed in monetary terms alone. Having built the Eiffel-Tower or operating theatres might be considered as irrational at first glance – but only with respect to financial matters.

Instead, societies made also great efforts along non-utilitarian criteria for good reasons and in compliance with their specific needs. Even if welfare and creation of value were legitimate goals, they would not exclude other aims as legitimate, irrespective of their substitution potential for money or other goods and services. In this sense, manned spaceflight might be seen more generally as a *cultural option* of humankind. The relevant trans-utilitarian objectives are manifold and based on anthropological and ethical considerations; details have been laid down by C. F. Gethmann since 1993:

Basically, space travel enables the *extension of the human cultural sphere* via space exploration and presence in space as well as through corresponding scientific/technological progress and finally by enhancement of human cognition. The latter notion has become popular as “over-view effect”. From this perspective, spaceflight can be seen in the tradition and extension of the fascinating major discoveries of *terra incognita* and deep-sea regions made in the last centuries. Accordingly, Alexander von Humboldt travelled around South-America explicitly for reasons of research *and* (public) enlightenment. Another argumentation type is directed towards the maxim of a peaceful civilization on Earth: Spaceflight could also contribute to a *multi-lateral* organization of the world’s society by *international cooperation* and participation in ambitious collaborative projects towards space. However, leadership of certain countries may reflect some asymmetry of power which might be blamed as particularistic in this respect if corresponding motives aimed at overwhelming and dominating other countries (recall the “space race” between the USA and the former Soviet Union). Nevertheless, in this connection cooperative leadership motives which are solely based upon initiative and ability should be weighted as legitimate.

#### Should we be modest?

Some residual justification questions of spaceflight remain to be answered irrespective of clinging to any (trans-)utilitarian perspective: The sceptical thesis that humans ought to be modest instead of aiming for the stars is an unconstrained sufficiency claim which neither can be strictly generalized nor defined in its extent. Ironically, this claim would even question *terrestrial* technology use and civilization as a whole. The thesis relates also to beliefs stating that human’s destiny would be restricted to the terrestrial environment, either for afore-mentioned modesty reasons or for reasons of “sacrosance” of space. This argument can be classified as a *natural fallacy* because the perception of system borders alone – like that of the Earth’s surface – cannot prescribe tolerable limits of human acting. Bear in mind that the European shoreline put no “normative power” against Columbus or Magellan

when they prepared for their overseas discoveries. A final sceptical argument stresses the hostility of space for human life. Hence, humans ought to refrain from spaceflight. This argument is not convincing with respect to the availability and potential of appropriate life support systems. Instead, humans already proved their ability for technical adaptation to harsh environments as demonstrated by settlements in Siberia, manned expeditions to polar regions, deserts, deep-sea regions as well as by modern air travel.

#### Conclusion and prospects

This paper states that manned spaceflight is principally reasonable and legitimate. Nevertheless, this neither means that it has to be carried out with any priority nor that case-sensitive and in-depth analyses of mission-specific ethical questions would be needless. Actually, public and private actors have to decide upon the *amount* of their participation in international space exploration as *one* option among others, weighing all utilitarian *and* trans-utilitarian criteria, quite similar to reasoned choices for or against any other cultural engagements on Earth. It is clear that spaceflight is – among others – one means for human cultural development. Future plans and decisions thereupon should make corresponding criteria and reasoning *more transparent and explicit*. Respective honesty would be also prudent – at least in the long run – in favour of stable acceptance of the public and a clear mandate on decisions in how far space exploration should be an objective of humankind.

After all, the prospect for public interest in space exploration seems to be not so bad: The current revival of the debate whether the Apollo missions to the Moon were simply fakes (or not) unravel the exceptional meaning and hidden fascination of human presence in space – even for the sceptics! The American Constellation Programme to the Moon and beyond which has been currently put on the test due to budgetary reasons might gain from *open-minded* debates on humans in space and cultural development.

Some of the preceding considerations were already published as contribution to the Studies in Space Policy volume “Humans in Outer Space. Interdisciplinary Odysseys” edited by L. Codignola and K.-U. Schrogl (Vienna/New York 2009). The book reflects the results of a correspondent ESF/ESPI/ESA-Conference on 11/12 October 2007 in Vienna.

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*Dr. rer. nat. Stephan Lingner is geologist by training; he analysed lunar rock samples at the Universität Münster where he received the doctoral degree in planetary chemistry with a thesis on the primordial composition of the lunar highlands crust at the Apollo 14 landing site. Thereafter he became research fellow at the German Aerospace Center (DLR) where he was engaged in the design of new systems and strategies for*

planetary and space exploration. At present Stephan Lingner is senior scientist and deputy director of the Europäische Akademie GmbH. He is responsible for the academy's research programme on environmental and technology assessment and managing editor of "Poiesis & Praxis. International Journal of Ethics of Science and Technology Assessment" (Springer).

## PROJECT GROUPS

■ Project group "Energy Storages and Virtual Power Plants for the Integration of Renewable Energies into the Power Supply. Potentials, Innovation Barriers and Implementation Strategies": 3/9/2009, Aachen

■ Project group "Radioactive Waste. Technical and Normative Aspects of its Disposal": 14/9/2009, Hanover

### Presentation: "Potentials and risks of psychopharmaceutical enhancement"

■ On 12 October 2009 the Europäische Akademie GmbH will present the research results of its project "Potentials and Risks of Psychopharmaceutical Enhancement" in Berlin. As currently this topic is subject of widespread debate in science and society, the members of the working group decided to publish their memorandum in the well-known journal "Gehirn&Geist", Spektrum der Wissenschaft Verlagsgesellschaft (No 11/2009).

The authors of this memorandum are: Christoph Bublitz, LL.B., Hamburg; Dr. phil. Thorsten Galert, M.A., Bad Neuenahr-Ahrweiler; Professor Dr. med. Isabella Heuser, Berlin; Professor Dr. jur. Reinhard Merkel, Hamburg; Dimitris Repantis, M.D., Berlin; Professor Dr. med. Bettina Schöne-Seifert, Münster, and Davinia Talbot, M.A., Münster.

For registration and more information please contact:

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## CONFERENCES

### Autumn conference on animal welfare

■ Animal welfare is a topic that plays an increasingly important role in public perceptions, politics, and science. The autumn conference 2009 brings together scientists representing animal welfare science, animal ethics, law, and philosophy of science in order to discuss how philosophical analysis and explication of the scientific terminology, concepts and theory may support the further development of animal welfare research in the light of animal welfare concept's broad use in animal ethics, society

and legislation. There will be three different sessions followed by a panel discussion at the end of the conference: "A broad perspective on animal welfare", "Animal welfare and normativity" and "Methodological foundations for animal welfare science".

The conference is funded by the German Research Foundation (Deutsche Forschungsgemeinschaft/DFG).

Date: 8-9 October, 2009

Venue: SETA-Hotel, Bad Neuenahr-Ahrweiler

Deadline for registration: 28 September 2009

Further information: [www.ea-au.de/en/events](http://www.ea-au.de/en/events)

## NEWS

### Lecture of Kreissparkasse and academy

■ In cooperation with the Kreissparkasse Ahrweiler the Europäische Akademie will present this year's Kreissparkassenvortrag at the Arp Museum, Bahnhof Rolandseck, Remagen-Rolandseck, on 5 November 2009. Professor Dr. rer. nat. Lutz Jäncke of the Institut für Psychologie, Universität Zürich, will give a talk on the possibilities of the human brain and its behavioural control. The topic will be "Sind wir vernünftig? Eine neuropsychologische Betrachtung".

Date: 5 November, 2009, 19.30hrs

Venue: Arp Museum, Bahnhof Rolandseck, Remagen

### Kristin Hagen member of Board of EurSafe

■ This summer the European Society for Agricultural and Food Ethics (EurSafe), of which the Europäische Akademie is an institutional member, celebrated its 10<sup>th</sup> anniversary with an international congress in Nottingham. Kristin Hagen was elected at the congress as a member of the society's Board. EurSafe is an independent organisation that aims at encouraging academic education and research and international debate on the ethical issues involved in agriculture and food supply.

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### South African lawyer for human rights visited academy

■ On 20 July Professor Doris Schröder, Ph.D., and Roger Chennells, LL.M., gave a lecture at the Europäische Akademie GmbH on "Equity in Governance – Challenges for Indigenous Peoples' Trusts".

Benefit sharing is a technical term which was popularised by the Convention on Biological Diversity (CBD) adopted at the 1992 Earth Summit in Rio de Janeiro. The CBD was the first international treaty to recognise that the

conservation of biodiversity is a "common concern of humankind". The custodians of biodiversity are often indigenous communities in developing countries whose rights were strengthened by CBD Parties when it was decided that access to traditional knowledge should be subject to prior informed consent and benefit sharing. Traditional knowledge is an important resource in the health care sector which has led to significant research leads for pharmaceutical and food supplement industries. Following the adoption of the CBD, indigenous communities can expect a share in the benefits of such research, often in the form of royalties paid into trust funds. Two such examples are the trust funds of the San and the Kani people. Despite laudable intentions to increase equity for all through benefit sharing, such trusts often face considerable difficulties. The lecture introduced the two cases and gave an assessment of the challenges faced.

Schröder is Professor of Moral Philosophy and Director of the Centre for Professional Ethics at the University of Central Lancashire (England) and Professorial Fellow at the Centre for Applied Philosophy and Public Ethics at the University of Melbourne (Australia). From July to September 2009 Schröder visited the Europäische Akademie GmbH for a sabbatical as a research fellow. Her fields of interest are: international justice, mainly with respect to benefit sharing with developing countries and access to essential medicines, and human rights to health as well as applied ethics, in particular global and food ethics. Chennells is founding partner of Chennells Albertyn, a firm practising human rights law in Stellenbosch and Cape Town. For over 15 years, Chennells has been assisting indigenous communities around the world (e.g. South Africa, Namibia, Botswana, Australia, Jamaica) with their rights to land, heritage and intellectual property. He has been legal advisor to the San peoples since 2002. Chennells holds human rights awards from the British and the US American government and has represented indigenous communities at the United Nations.

### Medical Ethics Working Group Lecture

■ On 31 August 2009, the Europäische Akademie's Medical Ethics Working Group discussed whether and to what extent the health care industry owes something to vulnerable populations in developing countries if they contribute to medical progress. Specific examples from Indonesia, Kenya and South Africa were used to explain the obligations of researchers in developing countries.

If competent adults in Germany assent to participate in medical research, e.g. by donating blood or DNA samples, this is not a matter of

contention. These donors expose themselves to a minimal medical risk and give reliable informed consent. Should this research lead to new medical products or services, they would have access to those innovations through national health care systems.

Professor Doris Schröder, director of the Centre for Professional Ethics at the University of Central Lancashire in England, and presently research fellow at the Europäische Akademie, explained that for developing countries neither reliable informed consent nor the availability of the new products is guaranteed. Often there is a so-called "therapeutic misconception". This means that the donor assumes to receive a definite therapeutic benefit from participation in a medical research. However, this is not the case. Also, donors of blood or DNA samples for fundamental research cannot expect any personal benefits. Likewise, even if a new medication has been developed successfully, the participants themselves often cannot afford it. This problem is particularly serious when people in developing countries are in need of a particular medication which has been developed with their help and is now only generally available in affluent countries.

#### Opening of an art exhibition

■ The Sponsors' Club of the Europäische Akademie invites to the private viewing of the paintings by Christiane Stahl from Birresborn/Eifel region on 1 October 2009. Christiane Hamann, art historian and art educator in Weißenseifen, a village of artists and craftspeople in the Eifel region, will introduce Stahl's work.

The paintings will be presented for several months from autumn 2009 onwards; the exhibition can be visited during the opening hours of the academy between 09.00hrs and 15.00hrs.

Venue: Europäische Akademie GmbH, 19.30hrs

Wilhelmstraße 56, Bad Neuenahr-Ahrweiler

#### PUBLICATIONS

##### Carl Friedrich Gethmann

■ "Professionelle Ethik und Bürgermoral. Zur Debatte um die 'Bio-Politik'", in: Jan-Christoph Heilinger, Colin G. King, Héctor Wittwer (eds.), *Individualität und Selbstbestimmung* (Festschrift für Volker Gerhardt), Akademie-Verlag, Berlin 2009, 225–241

■ Interview "Philosophieren in der Krise", in: *Spektrum der Wissenschaft* (August 2009), 72–76

##### Ruth Klüser

■ "Current changes for efficient electricity grids", in: *Poiesis & Praxis*, Volume 6(3), Springer 2009, 265–271

##### Stephan Lingner

■ Together with Wolfgang Rathgeber (eds): *Globale Fernerkundungssysteme und Sicherheit. Beiträge durch neue Sicherheitsdienstleistungen?*, Graue Reihe, Europäische Akademie Bad Neuenahr-Ahrweiler, 49/2009

■ Book Review: "Ortwin Renn, Pia-Johanna Schweizer, Marion Dreyer, Andreas Klinke: *Risiko. Über den gesellschaftlichen Umgang mit Unsicherheit*", in: *Poiesis & Praxis*, Volume 6(3/4), Springer 2009, 273–276

#### LECTURES

##### Carl Friedrich Gethmann

3/9/2009

■ "Qualitätssicherung in der transdisziplinären Forschung"

Meeting of the "Transdiss-Projekt Netzwerk Technikfolgenabschätzung", Bad Neuenahr-Ahrweiler

#### PERSONALITIES



■ Klaus-Jürgen Röhlig, born in Leipzig in 1958, received his doctoral degree in mathematics at the Technische Universität Bergakademie Freiberg in 1989.

From 1989 to 1991, he was employed at the Institut für Energetik Leipzig where he developed and applied computer codes for the simulation of fluid flow and contaminant migration. In 1991, he joined the Gesellschaft für Anlagen- und Reaktorsicherheit (GRS) mbH. His work included research and technical advice to the German Federal Ministry for Environment, Nature Conservation and Nuclear Safety (BMU) in fields such as safety assessment and safety criteria for radioactive waste repositories. From 2003 to 2007, he was deputy head of the GRS' final disposal department.

Since August 2007, Röhlig has been Professor for Repository Systems at the Technische Universität Clausthal. His research work deals with safety case methodology and analytical assessment of repository systems and he holds lectures in the recently established Master Course "Radioactive and Hazardous Waste Management".

Röhlig is deputy chair of the Radioactive Waste Management Commission (an advisory body of the BMU) and chairs its Committee on Final Disposal. He is a member of the Scientific Advisory Board of the French Institut de Radioprotection et de Sûreté Nucléaire (IRSN) and of the Core Group of the Integration Group for the Safety Case (IGSC) at the Nuclear Energy Agency (NEA) within the OECD and participated in several international peer reviews of safety reports produced in France and in Sweden.

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*Professor Dr. rer. nat. Klaus-Jürgen Röhlig is Professor for Repository Systems at the Technische Universität Clausthal and member of the project group "Radioactive Waste. Technical and Normative Aspects of its Disposal".*  
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