Toward an Objective Discourse on Animal Experimentation

Since spurious video footage was broadcast on *stern TV* in September 2014, the Max Planck Institute for Biological Cybernetics in Tübingen has been exposed to a constant stream of abusive criticism. Max Planck President Martin Stratmann had his say in December in a byline article in the Schwäbisches Tagblatt newspaper. In the following, he calls for an objective discourse on research involving animal experimentation.

Martin Stratmann, President of the Max Planck Society

Brain research is one of science's most successful endeavors. Extensive anatomical studies have been carried out for centuries. They have provided scholars with great detail about the brain's structure, but little insight into how it works. This required experimentation on animals – and still does.

The first valuable insights into functional areas of the brain emerged during the 18th century through the investigation of function losses in patients with localized brain injuries. However, their observation didn't enable systematic assessment of these parts of the brain. That wasn't achieved until toward the end of the 19th century – namely as a result of experiments on apes.

When we push a patient into the tube of an MRI scanner today, we are drawing on this knowledge that has been continually expanded upon over the past 100 years – thanks, in part, to the results of research conducted in Nikos Logothetis' department at the Max Planck Institute for Biological Cybernetics.

The renowned neurobiologist has succeeded in building an invaluable bridge between animal experimentation and knowledge acquired from humans through his work. He and his team successfully combined electrical discharge from individual nerve cells with functional magnetic resonance imaging. Opponents of animal experimentation are mistaken when they claim: "Today's technologies enable researchers to examine the brain in the tiniest detail – without drilling holes into the skull. Modern imaging technologies such as MRI enable the processing of nerve stimuli in the brains of volunteers to be investigated."

That is simply not true. Functional magnetic resonance imaging makes active brain areas visible because they require more oxygen and blood. It measures oxygen saturation and blood flow, but not the actual electrical activity of the nerve cells. The conclusions drawn often ignore the method's actual limitations.

The strength of the fMRI signal can't be quantified in such a way that it accurately reflects differences between the brain areas or between tasks within the same region. The combined investigative approach developed by Logothetis enables a significant improvement in the interpretation of fMRI data. This is of great importance, for instance, in the field of neurosurgery.

The debate over the pros and cons of research involving animal experimentation is nothing new. British animal rights activists first pushed through legislation on scientific testing on animals in 1876. It is nevertheless worth bearing in mind that the first successful operation to remove a brain tumor was carried out in 1879 on the basis of knowledge acquired from apes.

I firmly believe that we must constantly provide well-founded justification for carrying out animal experimentation in research. This, however, presents us with an ethical dilemma. Animal suffering must be weighed up against human suffering. Animal experimentation should aim to contribute to the avoidance or at least the alleviation of human suffering. Deliberate renunciation of experimentation on animals would be tantamount to intentional abandonment of the desire to develop treatments for the many still-uncontrollable diseases, especially neurodegenerative and psychiatric ones.

However, the current campaign against the Max Planck Institute for Biological Cybernetics doesn't permit any objective discourse at all. None of the secretly recorded footage by the animal rights activist who infiltrated the institute as an animal care worker shows the normal animal management conditions there. Various indications have since emerged to suggest that the images were incited by manipulation of the animals or their environment, or interpreted incorrectly simply to discredit animal experimentation and to encourage putative animal lovers to make donations.

Photo: Axel Griesch

Such individuals are campaigning for organized animal protection with great zeal, and sometimes with intolerant aggression. They voice their opinions via e-mail or in social media without revealing their identity, and exhibit a mentality that disturbingly reminds me of the darkest chapter in German history. These are e-mails containing statements like: "It's a shame there's no experimentation on humans, as you would be the ideal candidates ...."

This plainly indicates that those who supposedly want to protect animals from suffering have no scruples about threatening humans with suffering, and protect themselves against prosecution by means of anonymity. I am therefore extremely grateful that leading politicians have supported the institute and have publically condemned this vilification.

The accusations leveled at the Max Planck Institute for Biological Cybernetics have been thoroughly investigated by the competent authorities over recent months. The interim findings confirm the legitimacy of the experimentation. This is subject to rigorous authorization procedures as part of the German Animal Welfare Act. The experiments are meticulously evaluated according to scientific and ethical criteria, and are governed by strict legal requirements, adherence to which is monitored by the authorities. Experiments – particularly on apes – may be carried out only if there is no alternative, and provided the scientific question holds out the promise of significant knowledge gain.

Furthermore, we can meet high scientific standards only if the animals are treated properly. In the case of the experimentation to investigate cognitive processes at the Max Planck Institute for Biological Cybernetics, this means that the animals must be kept in a stable and healthy condition, and must not be allowed to indiscriminately endure hunger or thirst, and certainly not to suffer any anxiety or pain. Knowledge acquired under such circumstances would be unusable in generally valid statements. No credible scientist would stoop to such practices!

New Lab Opened in Argentina

Cooperation project seeks active substances to combat Alzheimer's and Parkinson's

The Max Planck Society has increased its presence in Argentina. After the opening of the Partner Institute for Biomedicine in Buenos Aires in 2011, the Max Planck Laboratory for Structural Biology, Chemistry and Molecular Biophysics was officially inaugurated in Rosario in November 2014. The laboratory is a cooperation project between the Max Planck Institute for Biophysical Chemistry in Göttingen and the Universidad Nacional de Rosario. It is located on the university campus of Rosario, Argentina's third-largest city, 300 kilometers northwest of Buenos Aires. Using state-of-the-art magnetic resonance scanners, the researchers there can investigate the structure of biomolecules directly inside cells.

The scientists are endeavoring to identify potential active substances to combat neurodegenerative diseases such as Alzheimer's and Parkinson's. In total, around 30 million pesos (approx. 2.8 million euros) have been invested in the building and its laboratory and equipment. Argentine scientist Claudio Fernández is head of the laboratory. He also recently led a research group as part of the Max Planck Society's partner program.

Official inauguration: Darío Maiorana, rector of the Universidad Nacional de Rosario, Jorge Capitanich, Head of Cabinet of the Argentine Government, Juan Manzur, Minister of Health, Lino Barañao, Minister for Science, Research and Technology and Claudio Fernández, head of the new laboratory (from left).

Photo: Ministry for Science, Research and Technology, Argentina

Lifelong Friendship

Alumni set up Max Planck friendship groups in four countries

The initiators: Albert Presas i Puig (seated), Javier Ordóñez, Jürgen Renn and José M. Pacheco (from left) at the Max Planck Institute for the History of Science.

Alumni support, for example in the form of associations for former staff or invitations to institute celebrations, has existed at the Max Planck institutes for many years. The close ties with the Max Planck Society are nevertheless often lost when researchers pursue a career elsewhere, whether in science or industry. "In a friendship group, we can achieve more, such as raising the profile of the Max Planck Society and its values in our home countries," explained Albert Presas i Puig, the initiator of "Amics de la Sociedad Max Planck."

The former staff member of the Max Planck Institute for the History of Science, together with other alumni and one of the Directors, Jürgen Renn, founded the friendship group in Spain in September 2014. Presas i Puig has a clear vision of how the association can achieve its goals: "We can, for instance, organize symposia with universities and local research institutions, or help people relocating here to settle in." Three further friendship groups in Argentina, South Korea and California have now also adopted the model of the Spanish alumni.

Animal Tracker Wins Prize for Citizen Involvement

The award-winning app involves the public in the work of Max Planck ornithologists

Director Martin Wikelski of the Max Planck Institute for Ornithology in Radolfzell and his team impressed the jury of the "Citizen Science" competition in Science Year 2014. The bird-watcher app enables anyone to follow animal migratory movements and even contribute to the research.

Scientists equip birds and other wild animals with transmitters, enabling their whereabouts to be tracked via GPS. An online database documents the distances covered.

Downloading the animal tracker onto a smartphone allows users to see the routes taken by the animals in the database. Moreover, if someone is in the vicinity of one of the animals, they can provide the researchers with valuable additional information: Is the animal eating, and if so, what? Is it alone or accompanied by conspecifics? Observations and photographs can also be directly uploaded via the app, allowing all members of the public to actively support the scientific work – which is the idea behind "Citizen Science."

The competition, which is organized annually by the *Wissenschaft im Dialog* (Science in Dialog) initiative, the Museum für Naturkunde in Berlin, and the Federal Ministry of Education and Research, encourages scientists to use digital media to involve the general public in their research. The winners receive a professionally produced video to raise the profile of their project.

Made possible by the app: The public can contribute valuable information to research, such as how many storks are resting together here.

Photos: MPI for the History of Science (top), MaxCine (bottom)

Technology Transfer Networks

Munich Innovation Days bring science and business together

In addition to presentations and discussions, the Innovation Days provided plenty of opportunity for making new contacts.

The two-day event held in downtown Munich in early December 2014 was opened by Max Planck President Martin Stratmann. In his address, he emphasized the importance of "not just bringing technologies and companies together in an abstract sense, but actually connecting the people who ultimately realize them." The Innovation Days provided a forum for precisely that. The program included best-practice examples for successful cooperation, a startup financing event and a panel discussion on open innovation, in which Max Planck Director Dietmar Harhoff also took part. At the core of the conference was the presentation of 40 selected research projects with application potential. Also 13 Max Planck representatives presented their work.

The annual Innovation Days event promotes the transfer of research results to application, and aims to establish strong links between science and business. This time, the lead was taken by Max Planck Innovation, the service provider for technology transfer in the Max Planck Society.

On the Net

Tuning for Fuel Cells
Fuel cells can produce eco-friendly electricity, especially when operated with hydrogen from biomass, such as wood waste or straw. However, biologically obtained hydrogen is contaminated with traces of carbon monoxide. To overcome this obstacle, fuel cells require sophisticated tuning. Our new film explains simply and clearly how this process can work and what our scientists can contribute to it.
youtube.com/maxplancksociety

Tracking down chimpanzees
Christophe Boesch and his team from the Leipzig-based Max Planck Institute for Evolutionary Anthropology have been studying chimpanzees living in the wild for over 35 years. What does their research in the jungle consist of? What have they already learned about the remarkable apes and what are they doing to protect these endangered animals? Searching for traces in Taï National Park in Côte D' Ivoire.
www.schimpansen.mpg.de/2342/en

Languages of the World
The De Gruyter publishing house is making all of the bibliographic data from its linguistic program available to the Glottolog database. This database, which is supported by the Max Planck Society, provides free access to scientific information on the languages of the world. The first data transfer, involving around 4,000 books and 5,000 journals, is almost complete. All future titles will also be incorporated into the database.
glottolog.org

Photo: Dieter Treichel - Max Planck Innovation