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## The Many Questions of Neuroethics: 10 Years Hence and Growing Exponentially

K. Graham, Executive Director, International Neuroethics Society

J. Illes, Co-Founder and Governing Board Member, International Neuroethics Society

Rapid progress in neuroscience research is prompting new understandings of how people think and feel, are motivated to act, and make decisions. These advances are increasingly moving neuroscience into non-medical societal uses and bringing consideration of the benefits and risk, and impact and consequences of this movement. In classrooms, courtrooms, offices and homes around the world, new neurotechnologies are resulting in the need to understand the ethical implications of developments such as the pharmacological manipulation of normal brain function, the use of personal information from brain images in the workplace, the explanation of behavior using brain-based concepts in the courtroom, attention enhancement on a request basis, neuroscience applications used in corporate and advertising campaigns, and new techniques in war and defense capabilities. The framework in which neuroethics resides – both societal and medical – may well be as all-encompassing as the contributions neuroscience has made to the care of people with neurological disorders.

### Who Are We?

The International Neuroethics Society (INS) is an interdisciplinary group of scholars, scientists, clinicians and other professionals who share an interest in the social, legal, ethical and policy implications of advances in neuroscience. The mission of the Society is to promote the development and responsible application of neuroscience through interdisciplinary and international research, education, outreach and public engagement for the benefit of people of all nations, ethnicities, and cultures. Established in 2006 at a small meeting in Asilomar, California, only a few years after the landmark 2002 meeting in San Francisco, a few neuroethics pioneers decided that an organization was needed to promote sustained interaction, learning, and critical discussion surrounding the ethical issues emerging from neuroscience research around the world. From the initial interest of

these few, the Society enjoys a membership of over 300 today.

### What Do We Do?

The Society held its inaugural meeting in November 2008 at the American Association for the Advancement of Science (AAAS) in Washington, D.C. in conjunction with the Society for Neuroscience (SfN) annual meeting. Interest was high among the students and faculty attendees representing the US, Canada, Japan, the UK, Mexico, Italy, and Australia. The range of topics at the sessions was also significant and wide: pediatric bipolar disorder, cognitive enhancers, neuroscience methods in forensics, the commercialization of neuroscience, and deep brain stimulation. An article in the Chronicle of Higher Education captured why there was such interest in the meeting exquisitely: "With society growing increasingly nervous about some of the

applications of brain science, 200 academic researchers, students, lawyers, and others gathered here on Thursday to chew on some of the knottier questions that neuroscience is raising, like whether to use drugs to enhance IQ or whether advances in brain studies have shattered the notion of free will.”

In November 2010, the Society held its second meeting in San Diego, as a satellite of the SfN. With attendees from even a greater number of countries than before, especially from Europe, presentations and posters spanned topics ranging from the biological basis of moral behavior, the neuroethics of addiction, responsibility for criminal acts, forced pharmacotherapy for people with addictions, conflicts of interest in psychiatry, to the impact that neuroethics is having across the globe, including under-resourced countries. The Society also devoted much attention to its youngest members, with special sessions devoted to career development and advancement, and neuroethics education through multidisciplinary lens of its more senior constituents.

Just passed – our third annual meeting was held at the Carnegie Institution for Science in Washington, D.C. – again as a satellite of SfN. Some topics were investigated more closely in this 2011 meeting – national security, predictive testing, imaging for lie detection – suggesting their salience to the field. Discussions included brain stimulation to enhance cognitive abilities and attorneys discussing real cases using fMRI evidence in court. Newly introduced subjects included the perspectives on life from a deaf man getting cochlear implants. International attendees were from Italy, Spain, Japan, Sweden, Brazil, Australia, Belgium, Canada, Costa Rica,

Germany, Israel, Switzerland, Netherlands, UK. We also heard, loud and clear, the call to expand, reach out and grow.

## **Where Do We Go From Here?**

As the power of neuroscience emerges in dynamic ways and with ever greater acuity, so do related questions and controversy about the impact neurotechnology will have. Members of the Society tackle these issues head-on through unfailing dedication and efforts. The hope is strong, the dialogue is significant, and the hype is real. Our commitment is to bring to attention the broad impact and intellectual merits arising from neuroethical discussions, to inform society with concrete results, and to make change. We invite you to join us on this journey. Sign up for our Facebook page. Contribute to our blog: <http://blog.practicaethics.ox.ac.uk/neuroethics/>

Become a member of this fast-growing movement.

For more information about the INS, including its leadership and membership, please visit our website. [www.neuroethicssociety.org](http://www.neuroethicssociety.org).

## Biographies

### Karen Graham

Karen Graham is the Executive Director of the International Neuroethics Society. Prior to joining the Society, she spent more than a decade on Capitol Hill as a lobbyist and in public relations. She also organized and managed public programs and events, designed educational materials, and promoted ongoing relationships with national health organizations for the Dana Foundation. Karen strives to actively engage and energize the Society in its mission to promote the responsible application of neuroscience.

### Contact Information:

Dr. Illes can be reached at  
jilles@mail.ubc.ca  
Tel: 604.822.0746  
Fax: 604.827.5229

Karen Graham can be reached at:  
kgraham@neuroethicssociety.org  
Tel: 301.229.1660

### Judy Illes, Ph.D.

Dr. Illes is a Co-founder and Governing Board Member of the International Neuroethics Society. She resides in Vancouver, Canada, where she is Professor of Neurology, Canada Research Chair in Neuroethics, and Director of the National Core for Neuroethics at University of British Columbia. Her research focuses on the ethical, legal, and policy challenges at the intersection of neuroscience and biomedical ethics.



## Editor's Column

We have had the 2011 Society for Neuroscience meetings, and now are looking forward to the advent of spring across the world. Here

in the US, we have had an unusually mild winter for the most part, and wonder if it is the end of harsh winters. However, how soon we forget the past two winters that set records for cold and snowfall. In Europe this year, winter was harsh. My wife and I attended a symposium in February on an island in Lake Chiemsee south of Munich. We have been going there for the symposium since 2000 and this was the second coldest and snowiest visit we have experienced. Coming from Florida to that kind of cold was a wake-up call. Without a doubt, the global warming phenomenon is having unintended consequences around the globe that we do not at all understand. We are part of it and it will change our lives. Lets all do what we can to attenuate the effects of human intervention on the planet.

In January, my wife and I and her sister and family took a trip to Ecuador to revisit where my wife and her siblings grew up. Her parents were missionaries to the Jivero Indians (now called the Shuar) in the high jungles. We saw her old homestead, still in use, and many of the beautiful sights of that country. The grandeur of Chimborazo, an extinct volcano was breathtaking. That peak is actually higher from the earth's center than is Everest, since the earth bulges at the equator. We had our faces painted by a Shuar chief and shaman. We climbed a wet jungle trail to three waterfalls revered as spiritual powers by the natives. It was a wonderful trip, but an arduous one for an old man.

This issue of the *Carrier* was written by Judy Illes, Ph.D. and Karen Graham. Dr. Illes presented the 2008 David Kopf Lecture on Neuroethics at the Society for Neuroscience meetings. Also at that meeting, as noted in the *Carrier*, she co-founded the International Neuroethics Society. Karen Graham is Executive Director of the Society.

As we continue to probe the mysteries of the brain and nervous system, we find more and more ways to control or alter its function. As the several lecturers who have presented the David Kopf Lecture on Neuroethics over the past years have begun to make clear, we must take seriously the issues surrounding the use of the knowledge we produce. By finding out what genetic mutations set the human apart from our closest primate relatives in term of speech and memory, we could be able to make such mutations in non-human species. What are the implications of such possibilities? How much meddling in the brain's function should we do? What are the unintended consequences of trying brain-altering treatments on patients?

The International Neuroethics Society is a rapidly growing cadre of Neuroscientists and other professional who recognize the vital importance of addressing and becoming prepared to deal with these issues. As the old wisdom goes, if we do not address these issues, someone else will do it for us (and we may not like the outcomes). It would behoove all of us to take a serious look at what this organization is doing and consider joining, or at least joining the discussion. Become informed; be proactive. Don't let unintended consequences take over.

**Michael M. Patterson, Ph.D.**

Science Editor  
David Kopf Instruments  
954-288-5518  
954-452-6812 (FAX)  
drmikep1@me.com