

# Workshop

## “Judgment: Restoring Harmony in Law and Art”

University of California at Berkeley, CA  
January 10, 2003

On January 10, 2003, the Gruter Institute sponsored a workshop delving into the subject of ‘Neuro Jurisprudence’. The workshop was titled “Judgment: Restoring Harmony in Law and Art” and was held at the University of California, Berkeley. Participants included noted legal scholars, economists, including recent Nobel Laureate Vernon Smith, and neuroscientists. The workshop was designed to provide an opportunity for discussions linking the sensory systems and judgment in law with neuroesthetics. The format allowed for short to medium length presentations and an opportunity for general discussion.

### PARTICIPANTS

Professor Richard Buxbaum - Boalt School of Law, UC Berkeley

Monika Gruter Cheney – Secretary of the Board of Directors of the Gruter Institute and Associate at the Law firm of Wilson, Sonsini in Palo Alto

Mr. Gordon Getty

Professor Oliver Goodenough - Vermont Law School and Program Committee Chairman of the Gruter Institute

Dr. Margaret Gruter - Executive Director of the Gruter Institute

Professor Dr. Fritjof Haft - Law School, University Tübingen, Germany

Dr. Lawrence M. Parsons - Director of National Science Foundation program in cognitive neuroscience.

Dr. Bernd Schottdorf- Physician, artist from Augsburg, Germany

*Professor and Mrs. Vernon L. Smith* (Candace) – He is 2002 Nobel prize winner in Economics  
<http://www.gmu.edu/departments/economics/facultybios/smith.html>

Dr. Michael Stryker - UCSF, Department of Physiology

Professor Mikihiro Wada – Professor of Law at Hosei University

Professor James Weinstein – Law, Arizona State University

Dr. Kathleen Wermke, Medical Faculty, Homboldt University Charité, Berlin

Professor Douglas Yarn, Georgia State University College of Law, Atlanta

Professor Paul Zak, Economics, Claremont Graduate University

Professor Semir Zeki, Institute for Neuroesthetics, University College, London

Welcome, Introduction, and Framing the Question

[Margaret Gruter](#)

Judgment and Harmony in Art, Architecture and Music: Proportion?  
Semir Zeki  
Discussants –Bernd Schottdorf, Oliver Goodenough

Judgment and Harmony: Cognitive Processes; Cognitive Links?  
Michael Stryker

Harmonic Cries and Complex Melodies of Human Infants  
Kathleen Wermke  
Discussants - Lawrence Parsons, Paul Zak

Judgment and Harmony in Economics: Equilibria?  
Vernon Smith  
Discussants - Paul Zak, Oliver Goodenough

Judgment and Harmony in Law: Justice?  
Fritjof Haft  
Mikihiko Wada  
Discussants – Doug Yarn, Richard Buxbaum

#### Recap and Discussion

James Weinstein, Monika Gruter Cheney, Semir Zeki

The Gruter Institute workshop was held in conjunction with the second annual conference of the Institute of Neuroesthetics scheduled for the next day (<http://brain.berkeley.edu/~plaisir/>).

That evening, Gordon Getty hosted a dinner in honor of Vernon Smith, 2002 Nobel Laureate in economics. Professor Smith and Mr. Getty are active members of the Gruter Institute's Advisory Board along with prominent legal scholars, neuroscientists, economists and others. Both participate in the research and seminars sponsored by the Gruter Institute including the annual conference at Squaw Valley. In remarks that evening, Margaret Gruter, Executive director of the Gruter Institute, acknowledged the contributions of both Professor Smith and Mr. Getty to the field of economics and particularly for their support of multidisciplinary research and teaching designed to integrate law, economics and the social sciences with biology and neuroscience.

### **JUDGEMENT: RESTORING HARMONY IN LAW AND ART**

January 10, 2003

Opening remarks by Margaret Gruter

Welcome. Before we start I would like to share with you some ideas that inspired today's program.

We are in the middle of a scientific revolution - this time aimed not externally, into the cosmos, but internally, into the workings of the human brain. The last decade has produced breathtaking advances in our understanding of the basis of human thought. We are joined today by some of the established and emerging stars of that research. Semir

Zeki and Michael Stryker have each made fundamental contributions to the understanding of vision. The groundbreaking work of Lawrence Parsons on the neural basis of cognition has helped us understand reasoning, music and imagery. Kathleen Wermke is unraveling the auditory and vocal capacities of infants.

These advances are not only hugely important in their own right; they are also catalyzing leaps forward in a number of disciplines outside of neuroscience. This interdisciplinary work cannot help but be very, very fruitful. The evidence for this prediction is all around us in this room today. We are gathered here in Berkeley in anticipation of a meeting on Neuroesthetics - the application of the new neuroscience to questions of artistic expression. The founding intelligence of this field, Semir Zeki, is with us, joined by Gordon Getty, Lawrence Parsons and Bernd Schotttdorf, all presenters in tomorrow's conference.

Our gathering is also honored by the participation of Vernon Smith. Vernon's work has brought economics back from the realm of grand speculation to an empirically rooted, experimental science. As he predicts, the combination of this approach with the insights and tools of neuroscience will drive the next great advances in our understanding of Homo economicus. In his acceptance speech in December at the Nobel Ceremony in Stockholm, Vernon expressed his confidence that the work of his colleague Kevin McCabe will bring a Nobel Prize to him some time down the road for his work in the new field of Neuroeconomics. Paul Zak, here today as well, is collaborating with Vernon and Kevin on neuroeconomics. Symbolizing the new convergence of disciplines, he has academic appointments in both economics and neuroscience, and may well earn his own place in Stockholm some day.

Neuroeconomics and Neuroesthetics are joined at today's session by another emerging field. Let me add Neurojurisprudence to the list. Since it was founded, the Gruter Institute has explored the fundamental importance of the brain for the understanding of law. This work has been carried on by its Research Fellows, represented here today by Oliver Goodenough, Fritjof Haft, Kathleen Wermke, Douglas Yarn, and Paul Zak, by its board members, including Richard Buxbaum and Monika Gruter Cheney and by such long-time friends as Miki Wada and James Weinstein. I would like to highlight in particular Oliver Goodenough's work using neurological tools in understanding legal problem solving. He will continue this work in Berlin this year. I hope you will forgive me for mentioning my own efforts, but I think that my 1992 book *Law and the Mind* may justly be called one of the founding texts in Neurojurisprudence.

The growing popular interest in the interdisciplinary use of neuroscience is also well attested to today in the presence of Marilia Duffles of the *Financial Times* and the *Economist*, Carl Hall of the *San Francisco Examiner*, and Prof. Jo Ann Caplin of the Ithaca College Media Program.

But we have not all come together today simply to congratulate ourselves, although congratulations are certainly due to many here. We are still only part way along the path to understanding, and have our work cut out for us today. Our topic is JUDGEMENT:

RESTORING HARMONY IN LAW AND ART. The implication is that the esthetic concept of harmony, about which we will hear so much at tomorrow's meeting, may be deeply linked with how we form our legal judgments as well, and that the linkage is best explored through the lens of neurology and working processes of the brain. The neurologists who will lead off our discussions will help us explore the brain processes that are studied in turn in the three borrowing disciplines – economics – aesthetics - and law. In my view, the neurological systems that deal with the experiences of all senses must sort out and balance the input, then reconcile the “feelings” evoked, and eventually shape behavior. These processes are often “unknown” to the individual, working out their conclusions on the other side of the veil of consciousness. Esthetically, the individual feels happy or sad; he feels if something is beautiful or ugly or something in between. In an economic context, he feels whether he can trust, take a risk or wait before committing to some economic venture. In the realm of justice, the individual when faced by various situations feels what is right or wrong. The brain processes involved may be very similar, perhaps almost identical for the three categories. Does the idea of harmony, with competing and clashing input somehow brought into balance, play a key role? If there is such a connection, the people in this room are certainly the ones to make it, and I will sit down soon so that we can begin to tackle the problem.

But as much as I look forward to today's presentations and discussions, in my role as Executive Director of The Gruter Institute I am reminded that this is still only a piece of the work to be done in pushing out the boundaries of Neurojurisprudence. The Institute has been very fortunate to attract leading scientists and scholars interested in exploring together the brain processes influencing the interaction between behavior and the law. It is my desire to continue and bring closer together yet the teamwork we started. Together we will explore the new frontier, to the benefit of aesthetics, of economics and of the law. I envision a program of research and scholarship in Neuroesthetics, Neurojurisprudence and Neuroeconomics. Among the goals of this program are:

- Establishing the scientific basis of property
- Mapping the pathways in the brain from the sensory systems to judgement, providing equilibrium and balancing conflicting demands.
- Exploring the need to satisfy individual desires and the necessity of reciprocity within society
- Investigating how the brain copes with reconciling conflicting tasks and conclusions
- Examining the interplay of neurological structures and of neurochemistry in these processes; for instance, the possible production of endorphins may make a person feel good when he follows rules

We have already begun to pursue some of these goals. Our team working in the Windows for Justice project can supply data on early development in childhood and puberty. These are years when the sense of justice is formed to decide between right and wrong in the society where the individual lives. I believe that this process is very much involved in developing rules concerning property – owning, possessing, sharing, etc., particularly at an early age. This data can help us to understand what kind of rules have been established in the brain by the time a person reaches puberty about right or wrong,

in property and in other contexts. Our property project has been running for a few years now, and we are aiming for a significant conference at George Mason later this year.

There is so much to do, so much to pursue. I am just a little envious of those of you here who are younger than I am - and I think that is everyone. - because you have the time and energy to do and pursue. But seniority does have some prerogatives, and one of them is to tell this room full of my colleagues, my friends, and family, to keep working together, keep contributing to each other, keep bringing out the best in each other, for it is only together that we can find answers in the brain to these great questions of art, economics and law.

Thank you.