



# FOUNDATION FOR THE FUTURE NEWS

Volume 2, Number 1  
Summer 1999

Published by the  
Foundation For the Future  
Bellevue, Washington, USA

## Second Center for Human Evolution Workshop Addresses the Future of Human Intelligence



Sesh Velamoor, Foundation Program Director, facilitating the second Evolution of Human Intelligence Workshop.

*How will human intelligence evolve into the future?*

*Will the "Bell Curve" for humanity change, and if it does, in what direction?*

*How will technology augment human intelligence?*

*What in the human make-up will be the key drivers of humanity's long-term future?*

*If there is such a thing as collective intelligence, is it an optimization or a compromise?*

In February the Center for Human Evolution (CHE) provided a second opportunity for scholars to come together to share the perspectives of their disciplines and research on these and related questions that profoundly affect the prognosis for humanity on earth.

Held in Bellevue, Washington, the two-day workshop brought together William Calvin, University of Washington; David Comings, City of Hope National Medical Center; Terry Deacon, Boston University; Dean Hamer, National Cancer Institute; Seymour Itzkoff, Smith College; and Peter Ward, University of Washington, along with Foundation For the Future staff.

These leaders of science, academia, and medicine focused on questions in four

major subject areas. The first was the future evolution of intelligence and addressed questions such as: How will human intelligence evolve into the future? Will the "Bell Curve" for humanity change,

*Continued on page 2.*

### INSIDE THIS ISSUE

- 1 Second Evolution Workshop
- 2 Scholarly Review Panel Evaluates Grant Applications
- 3 Synopses of Second Workshop Presentations
- 4 Upcoming Events
- 4 Foundation Board of Advisors
- 4 What Is the Foundation For the Future?

*Second Evolution Workshop, Continued from page 1.*

and if it does, in what direction? How will technology augment human intelligence? The second topic aimed at a preview of the long-term future: How will humanity's long-term future unfold? Will it evolve or will it be consciously determined? What in the human make-up will be the key drivers of this future—intelligence, culture, or other factors?

Collective intelligence was the third subject. Is there such a thing as collective intelligence? How does it relate to individual intelligence? Is collective intelligence



Terry Deacon argues a point.

an “optimization” or a “compromise”? Will collective intelligence/individual intelligence remain compartmentalized in terms of race/nation/culture or will it emerge in a global context? Finally, the fourth area of discussion provided an opportunity for the scholars to suggest other questions related to intelligence and long-term human evolution.

### Colloquy

CHE coordinators determined that the most effective format for addressing these complex subjects, aimed at illuminating the future, was a structure established for scholarly debate centuries ago: the colloquy. Each participant was given one hour to present research and answer questions from the group. At the end of the presentations, a round-table discussion provided a means of synthesizing the wide-ranging material and identifying further issues critical to human evolution.

Summaries of individual presentations appear in this issue on page 3.

A concern shared by the participants is the Earth's capacity to continue to support the world's population. The consensus was that presently identified resources are insufficient to support the continuation of

*Continued on page 3.*

## Scholarly Review Panel Evaluates First Round of Grant Applications

The Foundation For the Future has completed its grant applicant evaluation process for the applications received by October 31, 1998. This process required considerable time due to the number of applicants. Nineteen formal applications were reviewed for funding. An independent team of scholars evaluated the final applications and made recommendations to the Board of Trustees regarding the proposed research.

The reviewers were charged by the Board of Trustees with ensuring that every applicant adhered strictly to the mission of the Foundation and purpose of the research grant program. That is, the Foundation was established to promote inquiry about factors that may affect the very long-term future of humanity, out as far as one thousand years. The scholars on this review panel completed their task with respect for the extensive efforts required in completing the application process and with attention to the expectations of the Foundation's Board of Trustees.

### Findings of the Review Panel

No applications were recommended to the Board of Trustees for funding. While some grant applications had topics of interest on local or regional levels, they did not fit with the requirement that all research have a global perspective. Another issue was the short-term focus of most applicants. The grant applications lacked the longer-term focus that is a unique aspect of the mission of the Foundation. Applications where research focused on one population of people, rather than a global perspective, and on the shorter-term future were deemed to be inconsistent with the objectives of the Foundation.

Some of the grant applications proposed to revise, expand, and augment previous research and writing. These applications were rejected by the reviewers. The focus of the grants program is to be on new research. Grant applications for publications, for scholarly gatherings, and

for conferencing via the internet were also disallowed. At some point in the future, the Foundation may consider a publications program for the works of scholars but that will be a different program, established solely for that purpose. Funding for grant applications is only for new research.

### Actions of the Board of Trustees

The Board of Trustees accepted the recommendation of the review panel and reaffirmed the mission of the grants program: This program was created specifically for research on factors related to the long-term future of humanity. It was also decided by the Board of Trustees that further outreach will be undertaken to expand the base of knowledge about the grants program. Ads soliciting grant applications will be placed in appropriate publications in order to encourage applications. Information on the focus of the grants program will be provided to those attending the Humanity 3000 seminar in September. It is anticipated that these individuals, who represent various universities, think tanks, and other institutions, will encourage qualified individuals to apply for grants. An outcome of the first Humanity 3000 seminar in April 1999 will be the determination of three to five factors regarded by the participants to be the most critical to the long-term future of humanity. Research on these factors will be encouraged through the grants program.

### Follow-up with Applicants

Applicants who submitted grants in October were encouraged to reapply to the Foundation, if they are interested in revising their applications or in proposing new research that is consistent with the mission of the Foundation.

Grant applications can be obtained from the Foundation website at [www.futurefoundation.org](http://www.futurefoundation.org) or by contacting the Foundation at (425) 451-1333 or by email, [info@futurefoundation.org](mailto:info@futurefoundation.org). ■

*Second Evolution Workshop, Continued from page 2.*

the lifestyle now common among Europeans and North Americans. A second matter of agreement was that genetic research will profoundly affect the life choices of individuals, with ramifications in such key areas as health and the gender of children. Current research on behavioral genetics and consequences to future generations sparked considerable interest and discussion.

Participants unanimously found great value in CHE's interdisciplinary approach, bringing together scholars to explore specific questions from the varying perspectives of their individual academic work.

### CHE Profile and Purpose

The Center for Human Evolution was established by the Foundation For the Future in 1998 in recognition of the significant impact that recent advances in genetics and medical technologies will have on the evolution of humanity. The purpose of the Center is to organize and conduct seminars and workshops featuring prominent scholars and to publish seminar proceedings and other works on topics related to the impact of these technologies on human evolution.

CHE programs implement the Foundation's goals focused on the long-term survivability of humanity and the convening of the best minds on Earth to contemplate the next thousand years of human evolution.

The first workshop on the evolution of human intelligence was held in November 1998 at the Foundation's headquarters in Bellevue, Washington. Participants in the two-day November colloquy included Paul Werbos, National Science Foundation; Michael Levin, City College of New York; William Calvin, University of Washington; Glayde Whitney, Florida State University; Jill Tarter, SETI Institute; and John Campbell, University of California, Los Angeles.

One additional workshop on the evolution of human intelligence is planned for November of this year. Details on participants and topics will be posted at [www.futurefoundation.org](http://www.futurefoundation.org), the Foundation's website, or may be obtained by contacting the Foundation. ■

## Synopses of Second Workshop Presentations



**Peter Ward's** presentation, "Mass Extinctions and the Future of Biotic Evolution," described a series of global crises in diversity known as mass

extinctions. Five of these over the last 500 million years have resulted in species level diversity drops of 50% or more. There is speculation that the biosphere has entered a sixth major mass extinction episode that appears to be different in terms of the rapidity of onset, the likelihood that the total number of species going extinct will be much higher than before, and the large number of plant species that will go extinct. Biodiversity is decreasing due to free interchange and gene flow among terrestrial species. Human racial differences are expected to decline, and human evolution will mirror that of animals and plants. The long-term repercussions of the current mass extinction were summarized as: 1) depletion of evolutionary powerhouses in the tropics; 2) decline of biodiversity: a reduction in body plans; 3) decline of mega-vertebrates; 4) an end to speciation of large vertebrates; and 5) constraints on innovation, origination, and adaptive radiation.



**William Calvin** discussed the nature of intelligence and presented findings of his research on the role of abrupt climatic changes in the evolution of

human intelligence. He defined intelligence as the ability to find solutions to a problem or the logic of an argument, to discern an appropriate analogy, to create a pleasing harmony, or to guess what is likely to occur next. Language, foresight, musical skills, cleverness, and versatility are some of the characteristics of intelligence. The ability to plan, another outstanding feature of human intelligence, may stem from our talent for building narratives. "Humans borrow the mental structures for syntax to judge combinations of possible actions," Calvin said. The brain's planning of ballistic movements, such as the process of throwing, appears to be related to the development of language, music, and intelligence. As humans faced a stronger need to throw when hunting for meat in cold climates, they were able to evolve higher intelligence functions.



**Terry Deacon** addressed why human minds and brains work so differently from those of other mammals. Brain size is an outdated, 19th century ex-

planation. There are five sources of evidence with significant implications for human brain evolution and explanation of how acquired cognitive demands could have influenced human mental evolution: 1) a highly conserved control of embryonic segmental growth in mammals underlying the allometry of adult brain/body sizes; 2) reduced postcranial (as opposed to enhanced cranial) growth in early primate embryogenesis; 3) identification of genetic loci controlling cranial vs. postcranial division of the embryo, specifically corresponding to expanded regions in the human brain; 4) cross-species neural transplantation evidence for phylogenetic conservation of axon guidance cues and neural connectivity; and 5) developmental and comparative evidence for Darwinian-like shaping of neural connectivity in response to cell population sizes and extrinsic sensorimotor signalling.



**Dean Hamer** spoke on the role of genetics in human behavior. Though this subject has been studied since the 1800s, only within the past decade has it

become possible to identify specific genes that contribute to individual differences in personality, cognition, emotionality, and motivation. "Genes influence behavior through complex, often overlapping pathways of brain development and function," said Hamer. One example is the evidence that the gene for the serotonin transporter is associated with a broad range of traits including anxiety, depression, hostility, aggression, sex drive, and even smoking. Increasing knowledge about behavioral genes is likely to have a profound impact on human evolution through the use of new drugs to treat diseases such as psychiatric illnesses. However, the same information may prompt discrimination against certain populations or the use of "quick fixes" for social problems through eugenics. Ethical, legal, and social policies will be developed as genetic research proceeds.

*Continued on page 4.*

**Presentations, Continued from page 3.**



**David Comings** described the findings of his research on genetics and learning disorders as well as addictive and disruptive behaviors. Studies are reporting increased frequency of depression in adults and children and in diagnosed instances of learning disorders. Some researchers attribute these to socioeconomic and/or environmental factors. The disorders have a strong genetic component and share genes in common, leading to Comings' explanation that genetic changes are the most likely explanation for these trends. Data indicate that individuals who are less successful in school drop out and initiate childbearing at an earlier age than those who attend college. Those who drop out also evidence a higher frequency of learning disorders, low IQ scores, and disruptive behaviors. There is more gene replication in those who drop out of school than in those who complete college. These factors form the basis of Comings' hypothesis concerning a trend in strong genetic selection for genes associated with learning and behavioral issues.



**Seymour Itzkoff's** presentation explicated the belief that the domination of the Earth by humans is not accidental. In contrast to positions held by other scientists, he argued that the development of intelligent life on Earth ought not to be surprising but instead is a probable consequence of events flowing from this planet's basic biochemistry. "A 'time-deep adaptive zone' afforded humans the opportunity to evolve and, in fact, human evolution could have been predicted," he stated. In addressing the issue of ethnicity, Itzkoff said that human variability within and between ethnicities in matters of brain size/structure and behavior is the most serious semantic barrier to policy-making in the world today. ■

#### Foundation For the Future Board of Advisors

**Dr. George Bugliarello**  
New York Polytechnic University  
Email: gbugliar@poly.edu

**Dr. William Calvin**  
University of Washington  
Email: wcalvin@ricochet.net

**Dr. Eric Chaisson**  
Tufts University  
Email: echaisso@emerald.tufts.edu

**Joseph Coates**  
Coates and Jarratt, Inc.  
Email: future@coatesandjarratt.com

**Dr. Christian de Duve**  
Institute of Cellular Pathology  
Email: administration@icp.ucl.ac.be

**Dr. Ricardo Diez-Hochleitner**  
Club of Rome  
Email: rojasos@santillana.es

**Dr. Brian Fagan**  
University of California, Santa Barbara  
Email: bfagan@west.net

**Barbara Marx Hubbard**  
Foundation for Conscious Evolution  
Email: fce@cocreation.org

**Dr. Donald Johanson**  
Institute of Human Origins  
Email: johanson.iho@asu.edu

**Dr. Michio Kaku**  
City University of New York  
Email: mkaku@aol.com

**Graham Molitor**  
Public Policy Forecasting, Inc.  
Tel: 301-762-5174

**Dr. Robert Muller**  
University for Peace  
Email: barbara@rain.org

**Dr. Edward O. Wilson**  
Harvard University  
Tel: 617-495-2315

## UPCOMING EVENTS

### Wright Center for Science Education Workshop

▶ June 22–25, 1999

### Bioastronomy Conference, Kohala Coast, Hawaii

▶ July 1999

### H3000 Knowledge Base Workshops

▶ GENETICS – October 1999

▶ NANOTECHNOLOGY – February 2000

▶ SPACE EXPLORATION – May 2000

### H3000 Seminar #2

▶ September 25–29, 1999

### Evolution of Human Intelligence Workshop #3

▶ November 1999

### H3000 International Symposium

▶ August 12–16, 2000

## What is the Foundation For the Future?

The Foundation For the Future was established to promote scholarly research to better understand the factors that may have a major impact on the future of humanity.

The Foundation is engaging in a broad range of activities that are focused on this purpose, including the sponsorship of basic research into social, genetic, biological, medical, psychological, physiological, cultural, and environmental factors that will have an impact on the quality of human life during coming millennia.

To fulfill its mandate, the Foundation For the Future funds research grant programs that provide financial support to scholars; publishes scholarly works that address issues concerning the factors that will affect the future quality of human life; convenes seminars, symposia, and conferences that focus on issues associated with the long-term future of humanity; undertakes its own research projects; promotes public awareness of futures issues; and awards a bi-annual Kistler Prize (cash and award).



For more information on the Foundation For the Future, please contact:



**Foundation  
For the  
Future**

123-105th Avenue SE  
Bellevue, Washington, USA 98004

**Phone** (425) 451-1333  
**Email** info@futurefoundation.org  
**Website** www.futurefoundation.org

If you prefer to access our material online and would like to be removed from our postal mailing list, please contact us at the address above.