

# The Franke Program in Science and the Humanities Yale University

Made possible by the generosity of Richard ('53) and Barbara Franke

Richard O. Prum

Director, The Franke Program in Science and the Humanities William Robertson Coe Professor of Ornithology, Ecology and Evolutionary Biology Curator, Peabody Museum of Natural History

Justin Eichenlaub
Assistant Director

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**Gary Tomlinson** 

Director, Whitney Humanities Center

John Hay Whitney Professor of Music and Humanities



# **Letter from the Program Director**

The Franke Program in Science and the Humanities is the realization of the creative vision and generosity of Richard ('53) and Barbara Franke. When I first met Rich during the initial process of planning the program, I was impressed by his energy and passion for bringing academic disciplines closer together and bridging the gaps in the undergraduate educational experience. The Franke Program in Science and the Humanities was the result of the Frankes' generous gift, and it has been a pleasure to work with them and others at Yale to bring the program to life.

Specialization within academic disciplines has contributed to increasing intellectual isolation among fields within the university. Such isolation leads to misunderstanding between disciplines and missed opportunities for interdisciplinary connections that can lead to novel insights and new paths for research and thinking.

The mission of the Franke Program in Science and the Humanities is to foster communication, mutual understanding, and collaborative research and teaching among diverse scientific and humanistic disciplines. Initiated in 2012, the Franke Program has sponsored lectures, symposia, discussions, seminar classes, workshops, screenings, artistic performances, post-graduate scholars, and undergraduate research fellowships. It is a pleasure to report on our first three years.

Activities have included many memorable experiences for me and, I hope, for others in the Yale community. Among them:

• the first performance in over 150 years, by the Yale Symphony Orchestra, of a virtually "extinct" symphony written in the 1850s by the Bohemian-American composer Anthony Philip Heinrich about the passenger pigeon.

- · a breakfast with Michael Pollan and Yale undergraduate writers discussing the craft and profession of non-fiction writing about food and science.
- · a spellbinding lecture by Princeton physics professor Paul Steinhardt about his search in Islamic mosaics and Siberian minerals for quasicrystals brought to Earth by ancient asteroids that predate our solar system.
- · a presentation by Franke Undergraduate Research Fellow Lillian Xie '15, on the development with her advisor, biochemistry professor Andrew Miranker, of a new technique using fluorescent antibodies to distinguish authentic blue glazes in ancient Chinese pottery from modern forgeries.
- · a co-sponsored colloquium by Emily Coates (Theater Studies) and Sarah Demers (Physics) about their intellectually inspiring and energetic collaboration on physics and dance.
- · and many more!

One of the simplest and most powerful impacts of the Franke Program has been to bring diverse audiences together to explore ideas that span academic disciplines. These interactions lead to conversations and friendships that grow into new intellectual networks that bring different corners of the university into closer connection.

The Franke Program is particularly eager to influence undergraduate intellectual experience at Yale. Therefore, we have been proud to sponsor the ongoing Shulman Lecture series, which supports interdisciplinary undergraduate seminar courses and brings outside scholars to campus to participate in these classes. Each year we support ten Franke Undergraduate Research Fellows to conduct interdisciplinary research for their Senior Essay or Senior Research projects. Through these activities, we hope to model the new, emerging interdisciplinary world that Yale undergraduates will help create when they leave the university.



All of our activities depend upon the intellectual inspiration and participation of the Yale community of academics, students, and curators. More than anything, I hope this report will inspire new ideas for events and programs from the Yale community. I look forward to partnering with any department, museum, library, institute, or program on campus to build new interdisciplinary connections across campus.

Since the inception of the Franke Program, the Whitney Humanities Center has provided us with extraordinary facilities, logistic and administrative support, and a strong tradition of broad intellectual outreach. Most importantly, the Whitney has been a vital partner in our mission to affect intellectual life at Yale. We are thankful to Director Gary Tomlinson and to all the Whitney Humanities Center staff for their support. During these first few years, the Franke Program has been aided immeasurably by the work of Assistant Directors Virginia Jewiss and Justin Eichenlaub. Justin has recently left to return to teaching, and I am grateful for his work in the program. To all these people I extend my sincere thanks.

The goals of the Franke Program are ambitious indeed. We aspire to support the flourishing of interdisciplinary intellectual experiences at Yale. It is clear that no university in the United States, or anywhere elsewhere in the world, has yet emerged as the premier example of intellectual progress and leadership at the interface of science and the humanities. In the coming years, the Franke Program hopes to continue to develop and grow our interdisciplinary activities at Yale and to provide a national and global example of thoughtful interdisciplinary engagement and progress.

### Richard O. Prum

Director, Franke Program in Science and the Humanities William Robertson Coe Professor of Ornithology, Ecology and Evolutionary Biology Curator, Peabody Museum of Natural History

### **Letter from the Dean**

The Franke Program in Science and the Humanities, which is made possible by the generous support of Richard ('53) and Barbara Franke, has demonstrated the fruitful connections that can be made when students and professors work together across diverse disciplines. In the three years since the program's launch, its achievements have clearly demonstrated the rewards of cross-disciplinary partnership. The program has provided essential support to the innovative and collaborative research at which Yale students and scholars excel.

The significant accomplishments of the Franke Program over the last two years would not have been possible without the dedicated and visionary leadership of its director, Rick Prum, William Robertson Coe Professor of Ornithology in the Department of Ecology and Evolutionary Biology, and Curator of Ornithology in the Peabody Museum of Natural History. Professor Prum has been able to forge new connections among humanists, scientists, and artists across campus. The deeply interdisciplinary nature of his own research and writing make Professor Prum a particularly able leader for the Franke Program, as he understands how to find and make fertile the common ground between scientific and humanistic disciplines.

I look forward to the many productive avenues into cross-disciplinary dialogue that will be opened by the Franke Program in the years to come. I encourage you to take advantage of the extraordinary opportunities to engage in innovative thought and intellectual discovery that the program offers. Your contributions to these conversations will help to continue the tradition of collaborative discovery that is so crucial to intellectual life at Yale.

#### Tamar Szabó Gendler

Dean, Faculty of Arts and Sciences Vincent J. Scully Professor of Philosophy Professor of Psychology and Cognitive Science



### **Letter from the WHC Director**

The inaugural year of the Franke Program in Science and the Humanities, three years ago, coincided with my stepping into the directorship of the Whitney Humanities Center. It has been a singular pleasure to watch the progress of the program, so generously funded and envisaged by Rich and Barbara Franke and so creatively led by Rick Prum. I am delighted to support the program and to offer the Whitney as the venue for most of its events.

The Franke Program could not have come at a better time. The bridges it builds between scientific and humanistic thinking, at all levels of the educational mission, are important new avenues for thought. Now more than ever, the large questions that face us reach out toward the humanities and the sciences. The nature of consciousness, the evolutionary history of our species and related ones, the roles of technology in our lives, the impact of humanity on the global environment and climate, the interactions of humans with other animals, food studies and sustainability studies – all these and many more are arenas that are witnessing vibrant contributions from both humanists and scientists.

I am tempted to say that no humanities center today should stand aloof from these questions, traditionally thought of in scientific terms; but perhaps this is too prescriptive of others' needs and agendas. At the very least, I am delighted that Yale's humanities center has, through the Franke Program, engaged with these issues and built these bridges. And to Rick, Rich and Barbara, and the many others who have made this program a reality I offer my hearty thanks and congratulations.

### **Gary Tomlinson**

Director, Whitney Humanities Center John Hay Whitney Professor of Music and Humanities



### **LECTURES AND EVENTS**

# Spring and Fall 2012

January 18

Galileo, Mathematics, and the Arts

Mark Peterson, Professor of Physics and Mathematics, Mt. Holyoke College

November 1

The Better Angels of Our Nature: Why Violence Has Declined

Steven Pinker, Johnstone Family Professor in the Department of Psychology, Harvard University

November 2

How Should We Think about Violence?

A panel discussion with Steven Pinker and Yale professors Stephen Darwall (Philosophy), Inderpal Grewal (Women's, Gender, and Sexuality Studies), Stathis Kalyvas (Political Science), and Laurie Santos (Psychology), moderated by Richard O. Prum

December 12

**Religion and Human Evolution** 

A discussion with Robert Bellah, Elliott Professor of Sociology, University of California, Berkeley, and Yale professors Dale Martin (Religious Studies) and David Watts (Anthropology), moderated by Richard O. Prum

December 14

Phylogenetics and Linguistics Workshop

Co-sponsored with the Department of Linguistics

# Spring 2013

March 1-2

Theory of Flight: A Fantasia of Avian Obsession

A play written and performed by Anna Lindemann '09 and Lucy Fitz Gibbon '09

March 29

**Botany of Desire** 

A screening of the PBS documentary followed by discussion with Michael Pollan, author; Michael Schwarz, director; and Martin Bresnick, composer March 30

Michael Pollan Raw

Michael Pollan and New Haven writer Jack Hitt

April 22

Once Upon a Time in Kamchatka: The Extraordinary Search for the First Natural Quasicrystal

Paul Steinhardt, Albert Einstein Professor of Science and Theoretical Physics, Princeton University Co-sponsored with the Department of Physics

The Spring 2013 Shulman Lectures in Science and the Humanities

Freud and Science in the Twenty-First Century: The Nature of Human Nature

Professors William H. Sledge, Moira I. Fradinger, and Linda Mayes

January 30

Wisdom Won from Illness: Psychoanalysis, Self-Consciousness, and the Peculiarity of Human Entanglement Jonathan Lear, University of Chicago

February 19

The Psychobiology of Parenting and Attachment

Linda Mayes and Helena Rutherford, Yale University

March 5

How the Mind Models the World: New Ideas from fMRI Findings

Andrew Gerber, Columbia University

April 9

Perfectionism's Ironic Transport (Reading Now, Voyager after Cavell) David Rodowick, Harvard University

April 16

Holding Your Horses: Ancient and Modern Strategies for Regulating Internal Strife

Tamar Szabó Gendler, Yale University

### May 1

# Bug Music: A Celebration of the Return of the Seventeen-Year Cicadas

A lecture by John Cooley, University of Connecticut, and musical performance by David Rothenberg, Professor of Philosophy and Music, New Jersey Institute of Technology

### Fall 2013

#### October 2

### The History of Mind

Biology, Individuality, and the Humanities Maxwell Bennett, Professor of Neuroscience, University of Sydney

#### October 3

# The History of Consciousness

Biology, Individuality, and the Humanities Maxwell Bennett, Professor of Neuroscience, University of Syndney

#### October 8

# What Makes Us Who We Are? The Promise (and Perils) of Behavioral Genetics

David A. Dobbs, journalist Co-sponsored with the Poynter Fellowship in Journalism

#### October 29

# **Information in Living Systems**

Biology, Individuality, and the Humanities Paul Griffiths, Professor of Philosophy of Science, University of Sydney

#### October 31

### **Order in Living Systems**

Biology, Individuality, and the Humanities A conversation between Paul Griffiths, Professor of Philosophy of Science, University of Sydney, and Günter Wagner, Professor of Ecology and Evolutionary Biology, Yale University

#### November 4

### A New Paradigm for Brain Imaging

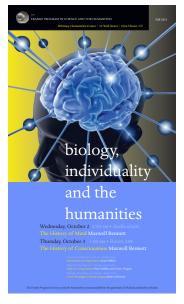
Biology, Individuality, and the Humanities Robert Shulman, Professor Emeritus of Molecular Biophysics and Biochemistry, Yale University

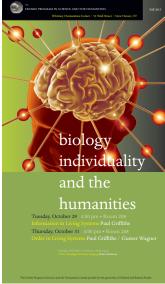
# Spring 2014

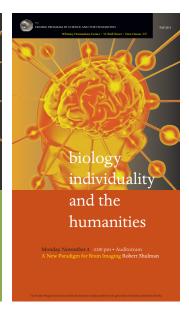
#### January 28

# The Forest Unseen: Biology, Literature, and Contemplative Practice

David Haskell, Professor of Biology, Sewanee: The University of the South Co-sponsored with the School of Forestry and Environmental Studies







### February 5

# Insights from Individual Crises for Understanding National Crises

Jared Diamond, Professor of Geography, University of California, Los Angeles

# February 24

# **Integrating Generic and Genetic Explanations of Development**

Biology, Individuality, and the Humanities Alan Love, Professor of Philosophy of Science, University of Minnesota

# February 26

# Historical and Conceptual Perspectives on the Status of Evo-Devo

Biology, Individuality, and the Humanities A seminar with Alan Love, Professor of Philosophy of Science, University of Minnesota

### March 3

# Physics Club: Physics, Dance, and the Higgs at Yale

Emily Coates, Lecturer in Theater Studies, and Sarah Demers, Horace Taft Associate Professor of Physics, Yale University Co-sponsored with the Department of Physics, Dance Studies, and Theater Studies

# April 1

# The Metaphysics of Homology: The Molecular Basis of Character Identity

Biology, Individuality, and the Humanities Günter Wagner, Professor of Ecology and Evolutionary Biology, Yale University

# The Spring 2014 Shulman Lectures in Science and the Humanities

### The Question of Evidence

Professor Rüdiger Campe

#### February 11

Darwin's Sleepwalkers: Taxonomic Evidence in the Presentation of Darwin's Species Theory

Peter Dear, Cornell University

#### February 25

**The Experience of Evidence (Freud)** Ben Kafka, New York University

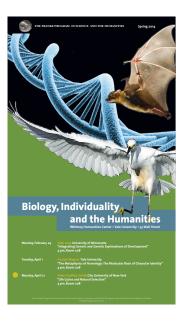
### April 8

# All That Matters Is Invisible: How Latency Dominates Our Present

Hans-Ulrich Gumbrecht, Stanford University









### April 21

#### **Life Cycles and Natural Selection**

Biology, Individuality, and the Humanities Peter Godfrey-Smith, Professor of Philosophy, City University of New York Graduate Program

#### May 1

The Postgenomic Condition: Ethics, Justice, Knowledge after the Genome Jenny Reardon, Professor of Sociology and Director of the Center for Science and Justice, University of California, Santa Cruz

### Fall 2014

#### October 11

# Extinction: Biology, Culture, and Our Futures

A daylong symposium on extinction featuring seven scholars from the sciences, humanities, and arts: Resit Akçakaya, Professor of Ecology and Evolution, Stony Brook University; Neely Bruce, Professor of Music, Wesleyan University; David Harrison, Professor of Linguistics, Swarthmore College; Ursula Heise, Professor of English, University of California, Los Angeles; Ben Novak, lead researcher of "The Great Passenger Pigeon Comeback," The Long Now Foundation; David Sepkoski, research scholar, Max Planck Institute for the History of Science; and Kristoffer Whitney, Postdoctoral Fellow, University of Wisconsin, Madison

#### October 11

# The Columbiad; or Migration of American Wild Passenger Pigeons

A symphony performed by the Yale Symphony Orchestra, in conjunction with the Extinction symposium

#### November 3

# **Reorganizing Ourselves**

A conversation with Deborah Hay, dancer and choreographer; Alva Noë, Professor of Philosophy, University of California, Berkeley; and Michèle Steinwald, performing arts manager *Co-sponsored with the School of Art* 

#### November 5

#### Ebola Breakout from the Hot Zone

Richard Preston, contributing writer for *The New Yorker* 

Co-sponsored with the Poynter Fellowship in Journalism

#### November 11

# The Sixth Extinction: An Unnatural History following The Sixth Extinction

Elizabeth Kolbert, staff writer for *The New Yorker* 

Co-sponsored with the Poynter Fellowship in Journalism



# Spring 2015

### February 11

# Episodic Memory, Time, and Agency: Some Constraints from Neuropsychology

Carl Craver, Professor of Philosophy-Neuroscience-Psychology, Washington University in St. Louis Co-sponsored with the Magnetic Resonance Research Center

### February 12

# Graphing the Brain's Dark Energy: Network Models and Neural Mechanisms

Carl Craver, Professor of Philosophy-Neuroscience-Psychology, Washington University in St. Louis Co-sponsored with the Magnetic Resonance Research Center

#### February 25

# Extinctions: Vanishing Fauna and the Caribbean's Environmental Imagination

Lizabeth Paravisini-Gebert, Randolph Distinguished Professor of Hispanic Studies, Vassar College Co-sponsored with the Council on Latin American and Iberian Studies, Environmental Studies, and the School of Forestry and Environmental Studies' Student Interest Group in Latin America

#### April 18

# **Playing God**

A bioethics rock opera by Corky Laing and the Perfect Child Co-sponsored with the Yale Interdisciplinary Center for Bioethics

#### April 21

# Mechanical Explanations and the Direction of Time

A conversation with David Albert, Frederick E. Woodbridge Professor of Philosophy, Columbia University, and Tim Maudlin, Professor of Philosophy, New York University Co-sponsored with the Department of Philosophy

#### June 8

# Before the Beginning and Beyond Eternity

Sir Roger Penrose, Emeritus Rouse Ball Professor of Mathematics, Mathematical Institute of the University of Oxford Co-sponsored with the Department of Physics, Site Projects, and Pelli Clarke Pelli Architects

# The Spring 2015 Shulman Lectures in Science and the Humanities

#### **Habits of Mind**

Professors Paul Bloom and Tamar Szabó Gendler

### February 9

# Understanding the Moral Mind

David Pizarro, Cornell University

#### March 2

# **Gesture as a Mechanism of Change** Susan Goldin-Meadow, University of Chicago

### March 30

# Matter Over Mind: Situational Strategies for Self-Control

Angela Duckworth, University of Pennsylvania, and James Gross, Stanford University

# April 30

### Far from the Tree

Andrew Solomon, writer

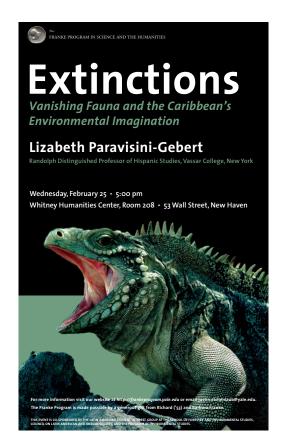
### FRANKE PROGRAM VISITING FELLOW

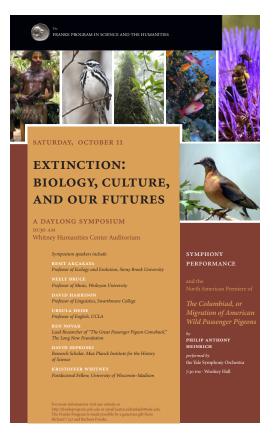


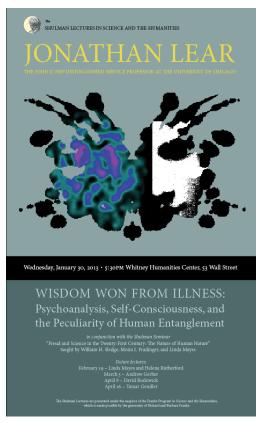
Soumya James is the first Visiting
Fellow at The Franke Program in
Science and the Humanities. She has
an office in the Whitney Humanities
Center, where she is engaged in her
work on Southeast Asian and South
Asian art history. She will give a lecture
to members of our program and
partake in weekly lunch seminars with
Yale faculty while furthering her own
research at the University.

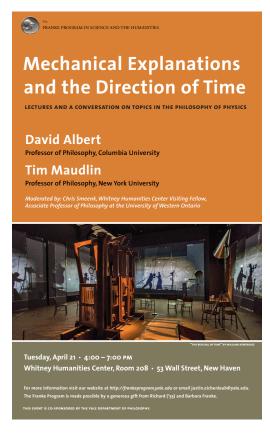
Soumya's interests span the history, religion, and art of South and Southeast Asia, connections between built forms and landscape, gender and sexuality, and trade networks between South and Southeast Asia. Through the Franke Program, she will continue work on current projects, which include the representation of plant forms on Cambodian temples and their connections to local beliefs surrounding the sanctity of forests, and the links between imagery and ritual practice.

The Franke Program in Science and the Humanities Visiting Fellows are engaged in research that makes connections between the humanities and the sciences. As an interdisciplinary collaborative project spanning cultural studies and biomechanics, Soumya plans to explore how cultural factors as well as neural and biomechanical factors influence dexterity and variety of hand gestures in Cambodian dance. Individuation of our digits, for assuming hand postures, is partly a function of biomechanical and neural coupling. She plans to study how the culturally evolved hand gestures in dancers are influenced by the biologically evolved neural and biomechanical constraints that affect all humans. This work, which combines art history and performance studies with human motor control, will be carried out in collaboration with roboticists and biomechanical engineers at Yale.









### UNDERGRADUATE RESEARCH AWARDS

2014-2015 Awardees



BRAVERMAN



















2015-2016 Awardees









DUMOUCHEL





ROTHCHILD





In 2014 The Franke Program in Science and the Humanities announced the winners of its inaugural Undergraduate Research Awards. The undergraduate fellowships offered by the program support the work of seniors at Yale College whose research is at the intersection of humanistic, artistic, and scientific fields.

From an impressive field of applicants, the following nine students were chosen in 2014 to receive awards of between \$1000 and \$2000: Derek Braverman (Molecular, Cellular, and Developmental Biology), Patrick Cage (Environmental Studies), Deena Gottlieb (Cognitive Science, Religious Studies), Lamtharn (Hanoi) Hantrakul (Applied Physics, Music), Theresa Oei (Molecular Biophysics and

Biochemistry), Maureen O'Hanlon (Architecture), Yeon Woo Park (Molecular Biophysics and Biochemistry), Maria Ratskevich (Cognitive Science), and Lillian Xie (Economics).

In 2015, eight students were awarded fellowships: Hans Bilger (Ecology and Evolutionary Biology), Alexander Borsa (undeclared), Catherine Colford (Architecture), Cecilia Dumouchel (History of Science, Medicine, and Public Health), Caitlin Miller (Classics), Julia Rothchild (English), Caroline Sydney (Humanities), and Duncan Tomlin (Humanities).

Awardees attend dinners with Franke Program faculty in the Fall term and present the results of their projects in the Spring term.

### 2014-2015 Awardees

#### Derek Braverman

"Experimental Philosophy Research Investigating Health Care"

# **Patrick Cage**

"To Till It and Keep It:' Religious
Environmentalism in Place on LandBased Christian Intentional Communities"

#### Deena Gottlieb

"The Psychological, Cognitive, and Evolutionary Bases of Supernatural and Religious Ideas"

#### Lamtharn (Hanoi) Hantrakul

"Surrogate Soundboards for Novel Real-Time Transmission of Instrumental Audio"

#### Theresa Oei

"Navigating the Reductionist Model Across Disciplines"

#### Maureen O'Hanlon

"Apprenticeship in Material Craft for New Perspectives on Sculpture and Esthetics, with Brent Howard"

#### Yeon Woo Park

"Science and Religion: The Historical Origin of Scientific Realism"

#### Maria Ratskevich

"Early Childhood Literacy Program Research and Implementation with 'Cerebrum: Neuroscience, Education, and Human Development'"

#### Lillian Xie

"Identifying Ming Dynasty Blue-and-White Porcelain through Chemical Characterization of Manganese Oxide Contaminants in Cobalt Pigment"

# 2015-2016 Awardees

### Hans Bilger

"Ecologies of Sound"

#### Alexander Borsa

"Truvada Who? PrEP, Biopolitics, and the Construction of Sexual Subjectivity"

#### **Catherine Colford**

"Wooden Sculpture Building: Generative Design with Analog Tools"

#### Cecilia Dumouchel

"The Rise of Medical Specialization and the Death of Holistic Medicine in America"

#### Caitlin Miller

"Natural History and Narrative in Greek Literature"

#### **Julia Rothchild**

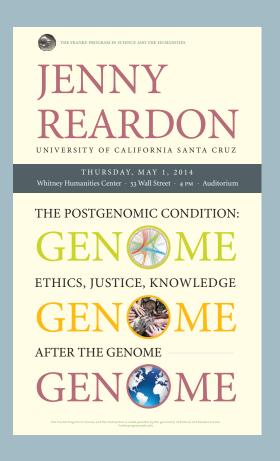
"'The Mother Tongue of Our Imagination:'
The Natural World in George Eliot's
Novels"

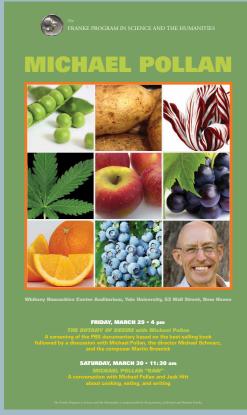
### **Caroline Sydney**

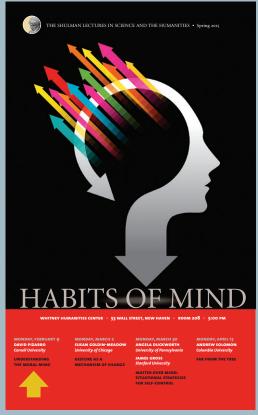
"The Complex Geometry of William Morris and the Kelmscott Press"

#### **Duncan Tomlin**

"Painting World Order: Network Analysis of Religious Art and State Theology in Buddhist East Asia and Early Christian Europe"







The Franke Program in Science and the Humanities
Yale University
http://frankeprogram.yale.edu/

