Bettering Humanity: Historic Secular Movements

The Conference

Lui Lam

San Jose State University, USA; Chinese Academy of Sciences, and China Association for Science and Technology, China

1978 Jan

Beijing, China

Science 5 June 2015:
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WORKING LIFE

From physics to revolution and back

Lui Lam

As a boy, I was not interested in science; I was interested in girls. Upon graduating from high school in Hong Kong, I did not particularly want to work in science; I just wanted a job, because I rarely left the dinner table with my stomach full. For graduate school, I went to Columbia University with a scholarship. There, I was surrounded by Nobel laureates—Isidor Isaac Rabi, Polykarp Kusch, Tsung-Dao Lee—and laureates-in-waiting: James Rainwater, Jack Steinberger, Leon Lederman. The most important moment in my physics education was when I noticed Lee standing next to me in the men's room, peeing. Nobel laureates are ordinary people, I learned, just like you and me. At Columbia, I was influenced by the student antiwar movement and the Cultural Revolution that was raging in China. I and several others (including Peter Kwong, now at Hunter College, and Jean Quan, who would become the mayor of Oakland, California) started the Chinatown Food Co-op; our aim was to "serve the people." I wasn't interested in solving small problems; I wanted to save the world, to return to China and join the revolution.

I finally made it in 1978, at the beginning of the country's "reform and opening up" movement. I was assigned to do physics at the Chinese Academy of Sciences' Institute of Physics. In China, the spring of 1978 is called "Science Spring" because for 10 years science had come to a virtual halt. Basic science was banned. My colleagues and I resumed the work with great enthusiasm; if China was in ruins, we figured, the best option was to fix it. I helped open the door to the West, discovering bowlics—a type of liquid crystal—and publishing the first paper by mainland-only authors ever to appear in *Physical Review Letters*.

"I wanted to save the world, to return to China and join the revolution."

ILLUSTRATION: ROBERT NEUBECKER

2002

Lui Lam published first paper on Histophysics, combining a humanities discipline with physics

Modern Physics Letters B, Vol. 16, No. 30 (2002) 1163–1176

HISTOPHYSICS: A NEW DISCIPLINE*

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Received 17 June 2002

History is the most important discipline of study. The system investigated in history is a many-body system consisting of biological material bodies, *Homo sapiens*, and hence can be studied scientifically. The unique role physicists can play in advancing the science of human history is presented. We will discuss the methods of study in history; worldviews; modeling history as a complex, dynamical system; predicting the future and retrodicting the past; and artificial history. In particular, active walk is shown to provide the foundation for a new worldview, and found to be widely applicable in modeling history, as illustrated by three examples from economic, evolutionary and social histories, respectively.

Keywords: Histophysics; history; physics; complex systems; artificial history; active walk.

1. Introduction

New disciplines of study are born from time to time, like in the case of human babies, but less frequently. Or, for that matter, like new stars emerging in the sky, being suddenly noticed after a long period in the making.

Historically, when physics is combined with other natural sciences, new disciplines are created and we have astrophysics, biophysics, geophysics, and so on. More recently, econophysics was born when physicists ventured into economics, a branch of the social sciences.[1] (Similarly in the field of biology, in 1975, sociobiology was created when biology was merged with sociology by Edward Wilson.[2]) In this article, physics is linked to history, giving birth to a new discipline — histophysics.

Since the nineteenth century, history has been treated as a science intermittently through the efforts of Condorcet, Comte, Buckle, Taine, Adams, and others.[3,4] The progress has been uneven, and there are even doubts as to whether this endeavor is at all possible, given the complexity and the irreproducible nature of historical processes. As argued in this article, the system under study in history is actually

*Contribution to the International Symposium on Frontiers of Science: In Celebration of the 80th Birthday of Chen Ning Yang (June 2002, Beijing).

2005 July

Beijing, China

22nd International Congress of History of Science

Lui met Maria

Maria Burguete

July 29, 2005

Friendship Hotel, Beijing

2006 March

Portugal

Lui visited Maria

Foz da Arelho

Vila Galé

2006 Summer

Seoul, Korea

The Two Cultures and The Real World

L. Lam

C. P. Snow
(1905-1980)

The Pantaneto Forum, Issue **24** (2006)

2007 May

Ericeira, Portugal

No. 1

- First scimat conference
- Scimat Program begins
- “Everything in Nature is part of science”
- In particular, human-related matters (humanities and social science) should be and could be studied scientifically--based on Lam’s analysis of the two culture problem in 2006, i.e.,

  Humanities are science matters !

Science Matters

Scimat (Science Matters, 人科) is a new multidiscipline that deals with the science of humans. It aims to raise the scientific level of the humanities by encouraging collaboration between humanists and natural scientists.

Science = Natural science

= science of nonhuman systems + science of humans

Science Matters

humanities + social science + medical science

Scimat Website: www.sjsu.edu/people/lui.lam/scimat

International Science Matters Committee

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Ex-President, European Academy of Sciences Arts & Letters

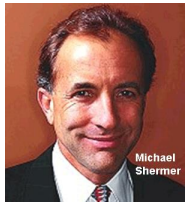
Author, *Cognitive Science, Literature and the Arts*

President, International Union of History and Philosophy of Science (2009-2013)

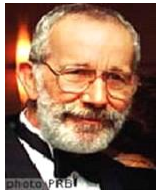
Father of Neuroarthistory

President, British Society for Philosophy of Science (1993-1995)

Publisher of World Scientfic



Columnist, *Scientific American*; Editor, *Skeptic* Magazine

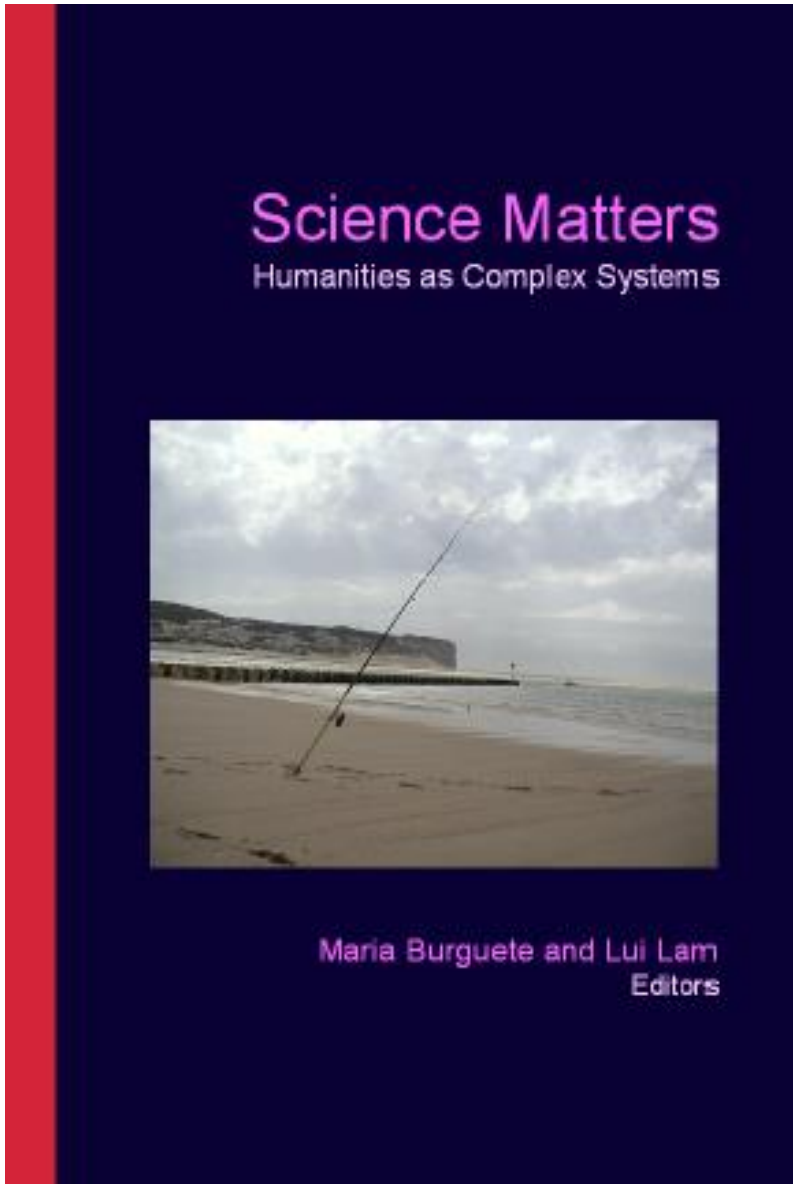


Nobel Laureate (2005)

Aim

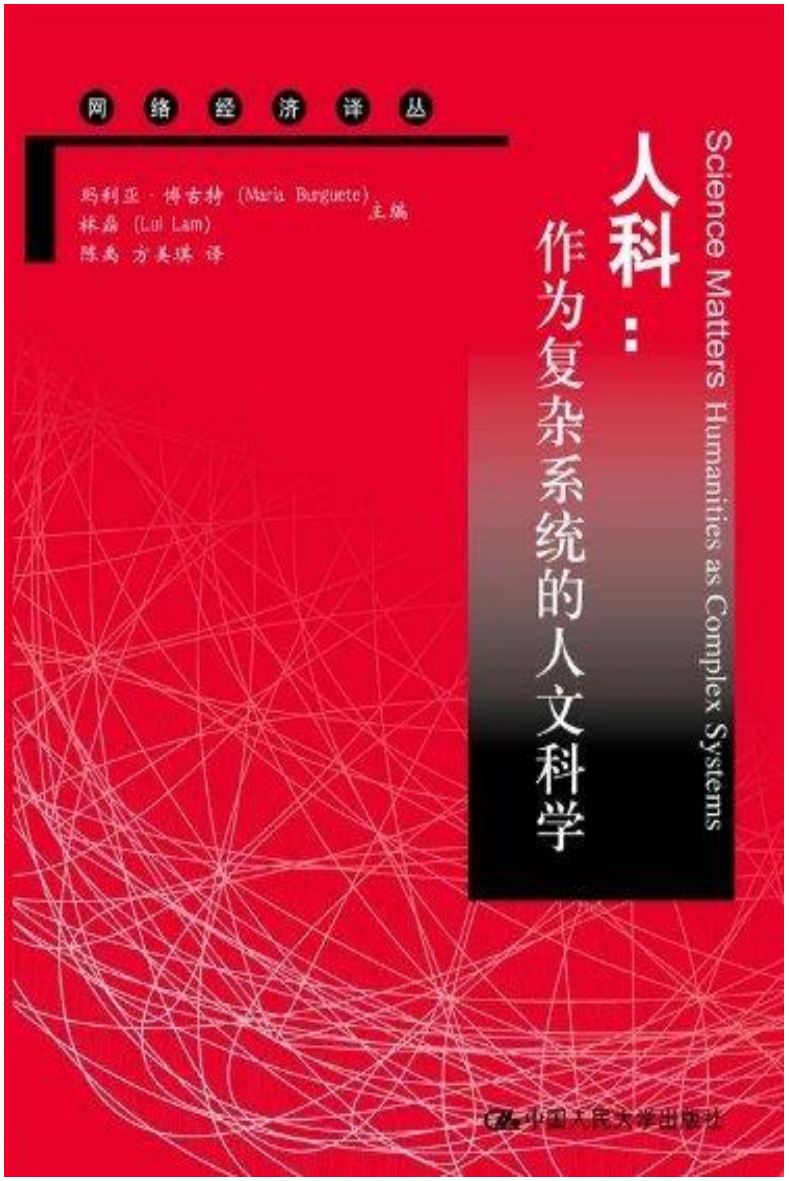
To promote the scimat idea and push the International Scimat Program

World Scientific: Science Matter Series, book 1



2008

Remin University of China Press



2013

Bento da Rocha Cabral

Todas as questões humanas do conhecimento colocadas de forma honesta e sincera, constituem esforços para compreender a Natureza, nela se incluindo todos os seus objectos de estudo formados por sistemas humanos e sistemas não humanos. Assim, de um modo geral, todas estas questões pertencem ao domínio da ciência. Os métodos e as ferramentas utilizadas podem ser diferentes, consoante se trate de um especialista da área das ciências humanas e sociais ou um especialista da área das ciências naturais. No entanto, todas estas actividades, visualizadas numa perspectiva unificada, são actividades cujos desenvolvimentos científicos se encontram em estádios de maturidade diferentes e que por conseguinte, têm imenso a aprender umas com as outras.

A Ciência Humana (Science Matters ou Scimat) é sobre todo o conhecimento dependente do ser humano, no qual os seres humanos (o sistema material do Homo Sapiens), são estudados cientificamente, na perspectiva de sistemas complexos.

A Scimat inclui todos os tópicos abrangidos pelas humanidades e ciências sociais com particular realce para a arte, a literatura, o cinema, a cultura, a história, a filosofia, as ciências da comunicação e os estudos de ciência.

Maria Burguete realizou o seu Doutoramento em História das Ciências (Química Contemporânea) na Universidade Ludwig Maximiliano em Munique, Alemanha em 2000. Foi a primeira Bioquímica a licenciar-se na Faculdade de Ciências de Lisboa em 1982, após a conclusão do Bacharelato em Engenharia Química em 1979 no Instituto Superior Engenharia de Lisboa (ISEL). Cientista com vasta experiência docente e de investigação numa grande variedade de áreas científicas. Esta diversidade contribuiu para o desenvolvimento da sua interdisciplinaridade e transdisciplinaridade. Actualmente, é investigadora no Instituto Investigação Científica Bento da Rocha Cabral em Portugal. Publicou dez livros científicos e cinco livros de poesia para além de mais de 30 artigos científicos, na sua maioria na área da História e Filosofia das Ciências. Desde 2010 é membro correspondente da Academia Europeia das Ciências, Artes e Letras, fundada em Paris em 1990. Email: mariamarina434@gmail.com

Lui Lam, cientista e humanista, obteve o seu Bacharelato em Ciências, com distinção da Universidade de Hong-Kong, o Master em Ciências da Universidade de British Columbia e o Doutoramento na Universidade de Columbia. É professor catedrático de Física na Universidade de San Jose, Califórnia e Professor Adjunto em ambas as instituições: Academia das Ciências da China e da Associação Chinesa para a Ciência e Tecnologia. Em 1982, o Professor Lam inventou "Bonfire" (um dos três tipos de cristais líquidos existentes no mundo); em 1992 criou um novo paradigma para sistemas complexos, "Active Walk", e criou duas novas disciplinas: Histophysics (2002) and Scimat (Science Matters, 2007/2008). Lam publicou 14 livros e mais de 150 artigos científicos. É o fundador da International Liquid Crystal Society (1990) e co-fundador da Chinese Liquid Crystal Society (1980); fundador e editor principal de duas séries de livros: Science Matters (World Scientific) e Partially Ordered Systems (Springer). As suas áreas de investigação são actualmente sobre histofísica, sistemas complexos e Science Matters. Email: lui2000lam@yahoo.com

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Maria Burguete
Lui Lam

Ciência Humana

Uma Perspectiva Unificada em Humanidades e Ciências

Maria Burguete e Lui Lam
Editores

Instituto de Investigação Científica
Bento da Rocha Cabral

2015

2015

2009 Oct

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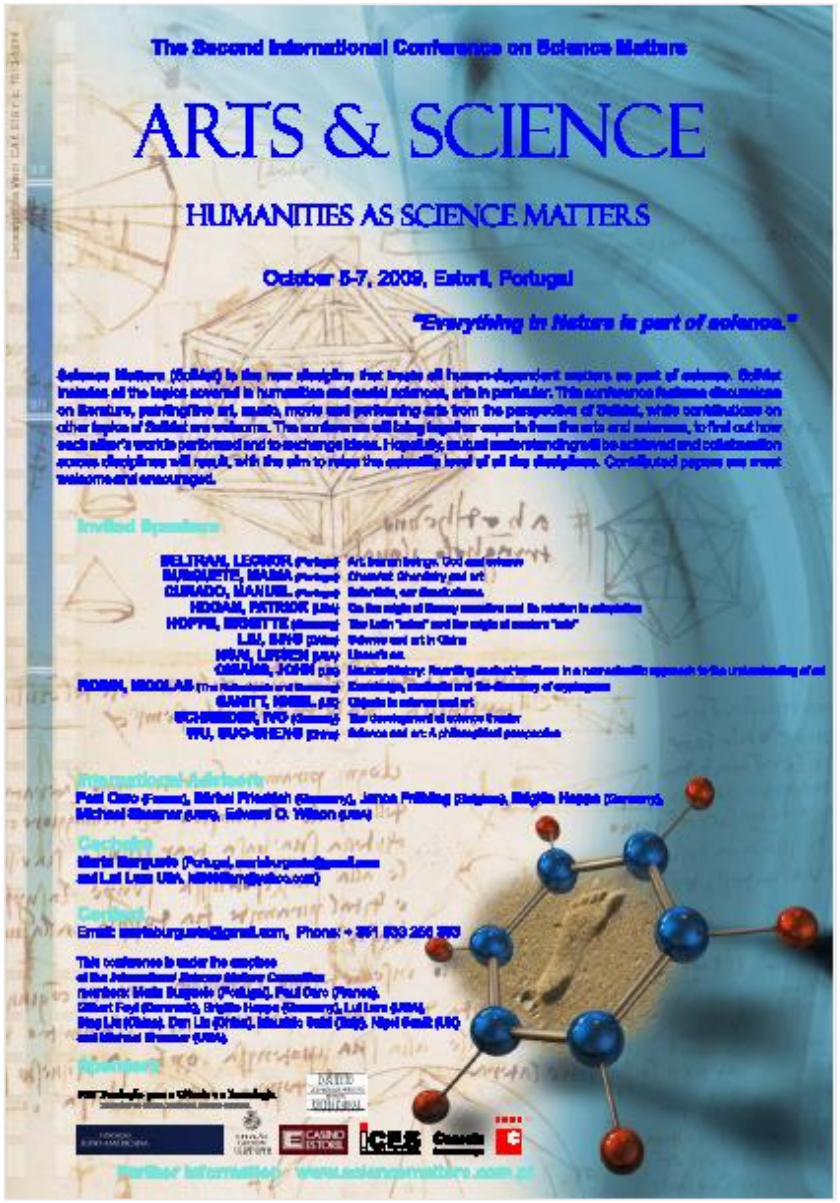
No. 2



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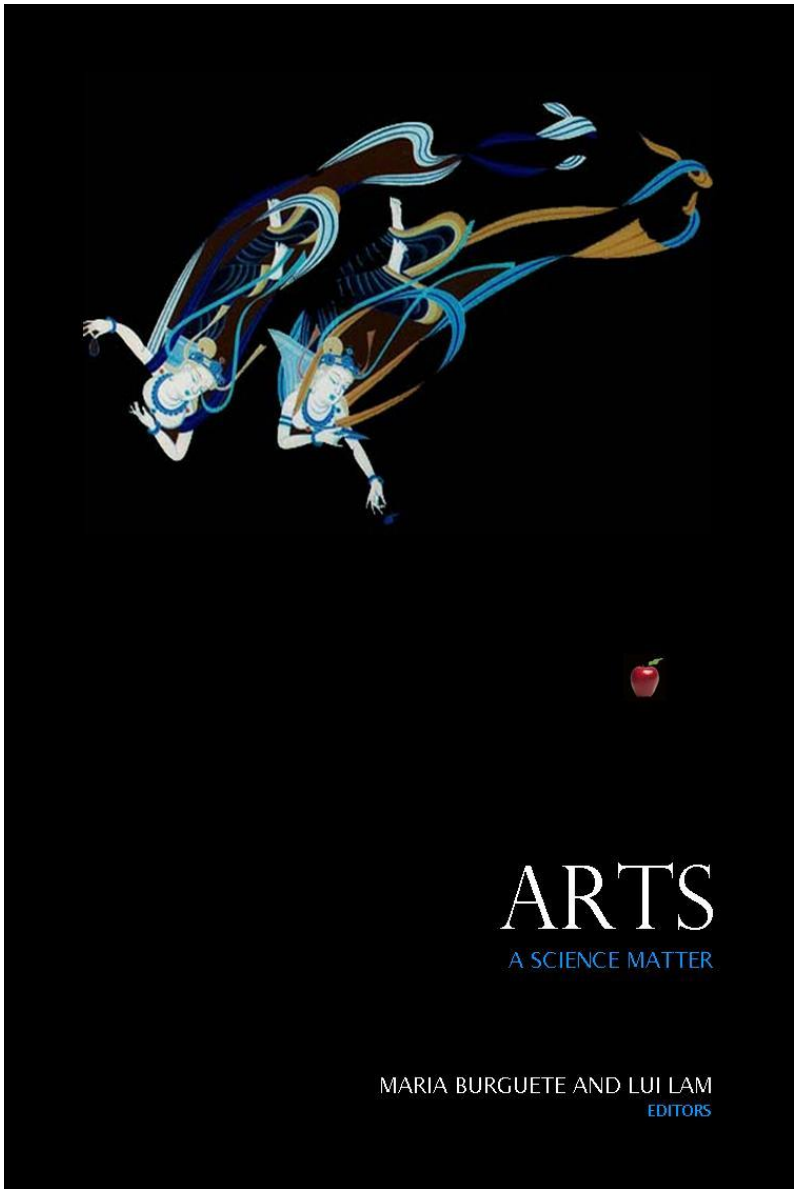

2011

2011 Nov

Lisbon, Portugal

No. 3

World Scientific: Science Matter Series, book 3

Third International Science Matters Conference

ALL ABOUT SCIENCE

PHILOSOPHY, HISTORY, SOCIOLOGY & COMMUNICATION

Calouste Gulbenkian Foundation, Lisbon, Portugal
November 21-23, 2011

"Everything in Nature is part of science."

Science Matters (SciMat) is the new discipline that treats all human-dependent matters as part of science, wherein, humans (the material system of *Homo sapiens*) are studied scientifically from the perspective of complex systems. Science is a subset of human activities aiming to understand how Nature (consisting of human and nonhuman systems) works. The Science process is a human-dependent matter and hence part of SciMat. This third international conference in the biannual series features discussions on *human-dependent parts of science*, emphasizing the philosophy, history, sociology and communication of science from the perspective of SciMat, while contributions from other topics of SciMat are welcome and encouraged. The conference is made up of review talks on all aspects of science by top experts around the world, and contributed papers. SciMat website: www.sjsu.edu/people/lui.lam/scimat

Invited Speakers

United Kingdom	DAVID PAPINEAU	*Skeptical Philosophy of Science*
United Kingdom	NIGEL SANITT	*What Do Scientists Know!*
Germany	JURGEN RENN	*The Globalization of Knowledge in History*
Australia	ROBIN WARREN	*Discovering Helicobacter (Nobel Prize 2005)*
USA/China	LUI LAM	*All About Science and Science Matters*
Portugal	MARIA BURGUETE	*Medical Studies in Coimbra 1911*
United Kingdom	PETER BROKS	*Science Communication: A History and Review*
Israel	SORIN SOLOMON	*A Unified Framework for Art and Science*
Portugal/UK	ISABEL PESSOA-LOPES	*Homo Cosmicus, Nature Fractals*
Portugal	FRANCISCO SANTOS	*Evolutionary Dynamics of Collective Action*
China	LI-MENG QIU	*Motivation Degrees of the Traditional and the Simplified Chinese Characters*
Spain	MARTA RUEDA	*Synchronicity: Approaching the Mind-Matter Dialog*
United Kingdom	KAJSA BERG	*Understanding Art through Science: From Socrates to the "Contextual Brain"*
Portugal	LEONOR BELTRAN	*Creative Dance*
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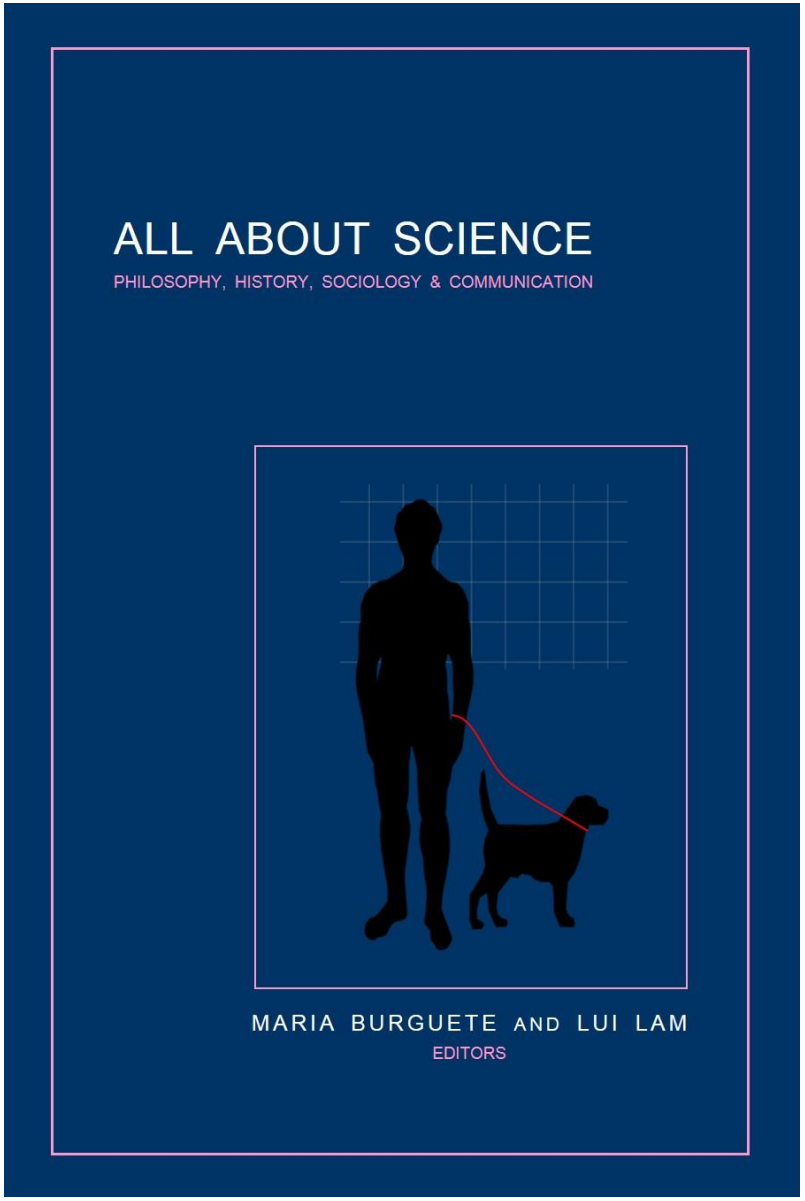
This conference is under the auspices of the International Science Matters Committee; members: Maria Burguete (Portugal), Paul Caro (France), Patrick Hogan (USA), Brigitte Hoppe (Germany), Lui Lam (USA), Bing Liu (China), Dun Liu (China), John Onians (UK), Nigel Sanitt (UK), Ivo Schneider (Germany) and Michael Shermer (USA).

Further Information: www.sciencemattersconferences.com



2014

World Scientific: Science Matters Seris, 3 books

Connecting Great Minds

SCIENCE MATTERS SERIES

Founder and Editor: Lui Lam

Scimat (Science Matters) is the new discipline that treats all human-dependent matters as part of science, wherein, humans (the material system of Homo sapiens) are studied scientifically from the perspective of complex systems. That "Everything in Nature is Part of Science" was well recognized by Aristotle and da Vinci and many others. Yet, it is only recently, with the advent of modern science and experiences gathered in the study of evolutionary and cognitive sciences, neuroscience, statistical physics, complex systems and other disciplines, that we know how the human-related disciplines can be studied scientifically. **Science Matters Series** covers new developments in all the topics in humanities and social sciences from the Scimat perspective, with emphasis on the humanities.

Science Matters Series - No. 3

All About Science

Philosophy, History, Sociology & Communication

edited by **Maria Burguete** *(Benito da Rocha Cabral Institute for Scientific Research)* & **Lui Lam** *(San Jose State University)*

There is a lot of confusion and misconception concerning science. The nature and contents of science is an unsettled problem. For example, Thales of 2,600 years ago is recognized as the father of science but the word science was introduced only in the 14th century; the definition of science is often avoided in books about philosophy of science. This book aims to clear up all these confusions and present new developments in the philosophy, history, sociology and communication of science. It also aims to showcase the achievement of China's top scholars in these areas. The 18 chapters, divided into five parts, are written by prominent scholars including the Nobel laureate Robin Warren, sociologist Harry Collins, and physicist-turned-historian Dietrich Stauffer.

Contents: About Science 1: Basics — Knowledge, Nature, Science and Scimat *(Lui Lam)*; About Science 2: Philosophy, History, Sociology and Communication *(Lui Lam)*; ***Philosophy of Science:*** Towards a Phenomenological Philosophy of Science *(Gao-Sheng Wu)*; The Predicament of Scientific Culture in Ancient China *(Hong-Sheng Wang)*; What Do Scientists Know! *(Nigel Sanitt)*; How to Deal with the Whole: Two Kinds of Holism in Methodology *(Bi-Yang Liu)*; ***History of Science:*** *Helicobacter*: The Ease and Difficulty of a New Discovery *(Robin Warren)*; Science in Victorian Era: New Observations on Two Old Theses *(Dun Liu)*; Medical Studies in Portugal Around 1911 *(Maria Burguete)*; The Founding of the International Liquid Crystal Society *(Lui Lam)*; ***Sociology of Science:*** Three Waves in Science Studies *(Harry Collins)*; Solitons and Revolution in China: 1978–1983 *(Lui Lam)*; Scientific Culture in Contemporary China *(Bing Liu and Mei-Fang Zhang)*; ***Communication of Science:*** Science Communication: A History and Review *(Peter Broks)*; Popular-Science Writings in Early Modern China *(Lin Yin)*; ***Other Science Matters:*** Understanding Art Through Science: From Socrates to the Contextual Brain *(Kajsa Berg)*; Spy Video Games After 9/11: Narrative and Pleasure *(Ting-Ting Wang)*; Statistical Physics for Humanities: A Tutorial *(Dietrich Stauffer)*;

Readership: Humanists, social and "natural" scientists, and laypeople interested in science.

456pp	Oct 2014	
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SCIENCE MATTERS SERIES

Science Matters Series - No. 2

ARTS: A SCIENCE MATTER

edited by **Maria Burguete** *(Scientific Research Institute Benio da Rocha Cabral, Portugal)* & **Lui Lam** *(San Jose State University, USA)*

This book treats arts as part of science, from the unified perspective of Science Matters. It contains 17 chapters, with 18 contributors who are prominent humanists, professional artists, or scientists. It consists of three parts: Part I: Philosophy and History of Arts; Part II: Arts in Action; Part III: Understanding Arts. The book is aimed at both research scholars and laypeople, and is unique in two important aspects.

It is probably the first and only book that academic professionals and practicing artists contribute to the same book, as equals, on the common theme of creating and understanding arts. (Artists here include Crisina Leirta whose huge Kun Iam (Goddess of Mercy) sculpture is an important landmark in Macau, and the famous movie director, Hark Tsui, who is publishing his first ever article on movie-making). Perhaps more importantly, a new understanding of the origin and nature of arts is offered for the first time, which is more convincing than all the other hypotheses put forth in the last two thousand years.

Readership: Scientists, artists, humanists and laypeople.

396pp	Apr 2011	
978-981-4324-93-9	US$78	£48
978-981-283-594-9(ebook)	US$95	£62

Science Matters Series - No. 1

SCIENCE MATTERS

Humanities as Complex Systems

edited by **Maria Burguete** *(Scientific Research Institute Benio da Rocha Cabral, Portugal)* & **Lui Lam** *(San Jose State University, USA)*

Thus "everything in Nature is part of science" was well recognized by Aristotle, da Vinci and many others. Yet, it is only recently, with the advent of modern science and experiences gathered in the study of statistical physics, complex systems and other disciplines, that we know how the human-related disciplines can be studied scientifically.

Science Matters is about all human-dependent knowledge, wherein humans (the material system of Homo sapiens) are studied scientifically from the perspective of complex systems. It includes all the topics covered in the humanities and social sciences. Containing contributions from knowledgeable humanists, social scientists and physicists, the book is intended for those — from artists to scientists — who are curious about the world and are interested in understanding it with a unified perspective.

Readership: Physicists and other scientists, social scientists, humanists and laypeople.

271pp	Nov 2008	
978-981-283-593-2	US$73	£48
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2013 Oct

Porto, Portugal

No. 4

Pantaneto Press: Scimat Series, book 1

SCIMAT SERIES

Scimat (Science Matters) is the new multidiscipline that deals with the science of humans. It aims to raise the scientific level of the humanities by encouraging interaction between humanists and natural scientists.

This book *Humanities As Science Matters* derives from the fourth international scimat conference of the same title, held in O'Porto, Portugal, in October 2013. It presents new developments in four humanities disciplines—history, philosophy, arts and sociology—as they are related to science. The interdisciplinarity is well portrayed in this volume which contains 11 chapters written by 12 expert humanists and scientists. We believe a new era of scientific knowledge is emerging with a new and unified perspective of the humanities (history, philosophy and arts in particular) in a unique multidiscipline called Scimat.

Maria Burguete is a scientist at Bento da Rocha Cabral Institute in Portugal. She has published 9 scientific books, 7 poetry books and over 30 scientific papers mostly in history and philosophy of science. She and Lui Lam started The Scimat Program in 2007. Since 2010 she is a corresponding member of the European Academy of Sciences, Arts & Letters founded in Paris in 1980.

Hauke Riesch is a lecturer in sociology at Brunel University London, where he researches on the public understanding of science, philosophy of science, environmental and energy policy. As a member of the newly created Brunel Centre for Comedy Studies Research, he has decided to do something fun for a change and look at the links between humour and science.

Pantaneto Press

9 780992 941123

Burguete & Riesch

Humanities As Science

HUMANITIES
As Science Matters
History, Philosophy & Arts

Editors
Maria Burguete & Hauke Riesch

2016

2015 Feb

San Jose, USA

AAAS 2015 Annual Meeting, San Jose, California, Feb. 12-16, 2015

The Scimat Program: Towards a Better Humanity

Maria Burguete[1] and Lui Lam[2]

[1] *Rocha Cabral Scientific Research Institute, Lisbon, Portugal*
[2] *Department of Physics and Astronomy, San Jose State University, San Jose, CA 95192-0106, USA*

Scimat (Science Matters), the new discipline initiated by Lui Lam in 2007/2008 [1, 2], treats all human-dependent matters as part of science. It thus includes all the topics in the humanities and social science. Scimat results from two recognitions: (1) Humans are a material system (made up of atoms); (2) Science is the study of Nature which includes all material systems (without appealing to God or any supernatural) [3]. The tradition of treating everything in the universe, human and non-human systems, from a unified perspective—starting with Aristotle and continued until the Renaissance—was broken with the rise of modern science in the last 400 years. Concerted efforts to revive this tradition happened from time to time and failed with one exception: the *Enlightenment* (1688-1789) with the aim to create a "science of man" succeeds in ushering in social science (Economics) but fails in turning the humanities into a science. It is an effort interrupted, partly due to insufficient understanding of the human system. **The Scimat Program**, started by Maria Burguete and Lui Lam in 2007, is the latest international effort to revive the Aristotle tradition of a unified knowledge…

2015 Oct

Cascais, Portugal

No. 5

5th International Conference on Science Matters

Interdisciplinary Education & Teaching

in the 21st Century

"Everything in Nature is part of science."

Scimat (Science Matters) is the new multidiscipline that treats all human-dependent matters as part of science, wherein, humans are studied scientifically from the perspective of complex systems. It encourages collaboration between the humanists and natural scientists. As our world (and job market) is ever changing, rapidly and unpredictably, and problem solving in the real world knows no disciplinary boundaries, interdisciplinary education and teaching have become important in universities worldwide. Accordingly, this fifth international conference in the biennial series covers Interdisciplinary Education, General Education, and Interdisciplinary Teaching. It features reviews by top experts from around the world, plus contributed papers

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San Jose State University, Professor (USA) LUI LAM	Humanities, Science, Scimat: A New GE Course
Group Analytic Psychotherapist (Portugal) ANA PAULA MOITA	A Successful Therapy for Personality Disorders
Evora University, Biology Professor (Portugal) MANUEL MOTA	An Interesting History of Biology
Engineering Education Society, President (Portugal) JOSÉ QUADRADO	Interdisciplinarity in Education
Pantaneto Forum, Director and Astrophysics (UK) NIGEL SANITT	University Textbooks in the Digital World
INIV/ IST (Portugal) António SARAIVA & Ricardo MIRANDA	The Earth Chart: Challenges & Controversies
Max-Planck Institute Berlin, Researcher (Germany) ANNETTE VOGT	Science in Education
Renmin University of China (China) Donghui ZHANG & Tianying XUAN	General Education in China

Cochairs:
Maria Burguete (Portugal) and Jean-Patrick Connerade (France/UK)

International Advisors:
Manuel Bicho (Portugal); João Caraça (Portugal) ; Jean-Patrick Connerade (France) ; Patrick Hogan (USA); Brigitte Hoppe (Germany); Lui Lam (USA) ; John Onians (UK); David Papineau (UK) ; Michael Shermer (USA); Edward O. Wilson (USA) and Robin Warren (Australia).

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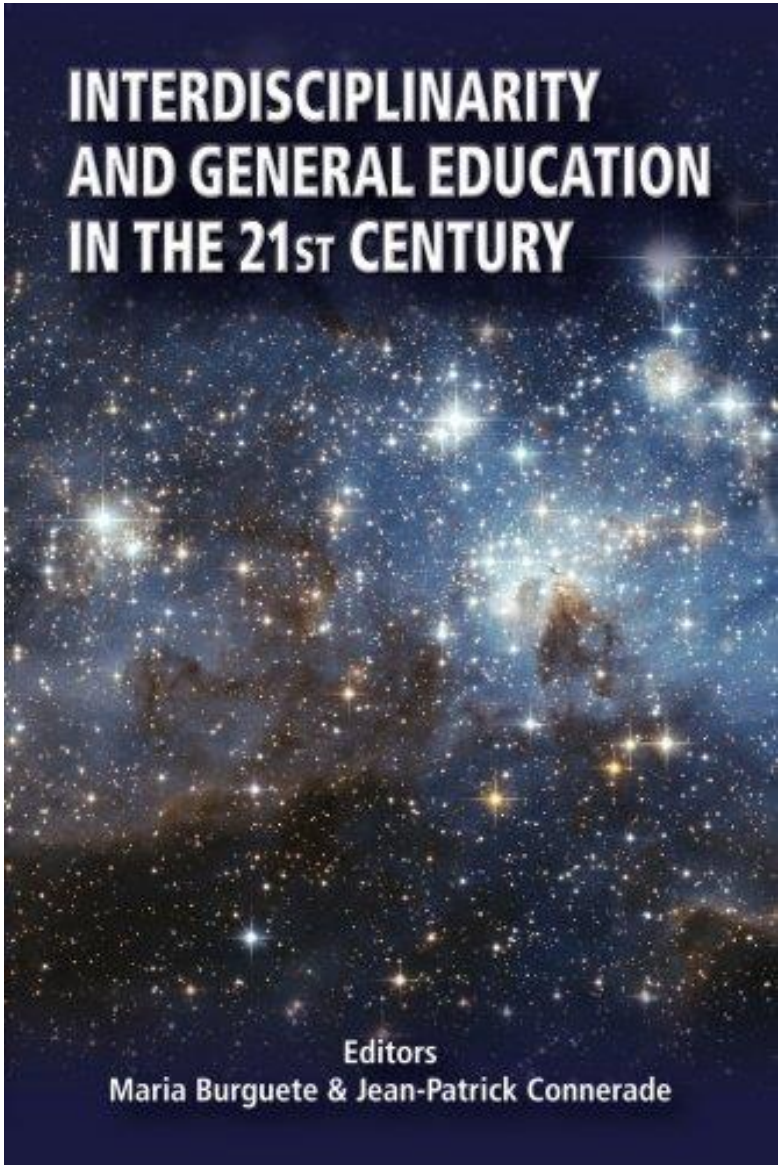

2017

2017 Oct

Cascais, Portugal

No. 6

A brief history of secular knowledge

Nonhuman systems

Human system

Thales (c. 624 BC-c. 546 BC)

Aristotle (384 BC-322 BC)

Arabs

Dark Age

Renaissance

Galileo (1610)

Newton (1687)

Einstein
(1905/1915)

1723-1790

1743-1794

Enlightenment

Adam Smith (Economics, 1776; *The Wealth of Nations*)

Condorset (*Progress of the Human Mind* ,1795)

Auguste Comte (Sociology, 1844)

Charles Darwin (*On the Origin of Species* ,1859)

Vienna Circle

Humanism movement

Scimat (2007/2008)

1809-1882

1798-1857

Wednesday	Enlightenment, Vienna Circle, The Humanism Movement	
9:40-10:40	John **Christie**	Science, Secularism and Enlightenment: Then and Now
11:10-12:10	Claudine **Cohen**	Jean-Jacques Rousseau on Bettering Humanity: Music, Politics and Education
14:00-15:00	Manuel **Mota**	Bettering Humanity through Biology
15:00-16:00	Annette **Vogt**	The Vienna Circle and the Role of Positivism
16:30-17:30	Jean-Patrick **Connerade**	The Contribution of British Atheist Reformers in the XIXth Century
17:30-18:00	Lui **Lam**	The Humanism Movement
Thursday	**Scimat Approach**	
9:00-10:00	Miguel **Pais**	Bettering Humanity through Arts
10:00-11:00	Lui **Lam**	Bettering Humanity: The Scimat Approach
11:30-12:30	Cristina **Jimenez**	The Bilderberg Club from 1954 to 2017
Friday	**Other Science Matters**	
9:00-10:00	Florentin **Bosse**	Letters Matters, Bibliotherapy and Mathematics
10:30-11:30	Xiaomei **Liu**	Ancient Silk Roads and the Impact and Aspiration on Humanity
14:00-15:00	Nigel **Sanitt**	The Eye in Ideas: Culture, Curiosity & Communication in Scientific Discovery