

# *Scientific Exploration in the Mediterranean Region*

**Cultures and Institutions of Natural History  
Essays in the History and Philosophy of Science**



Papers presented at an International Colloquium on the  
*Impact of Scientific Exploration in the Mediterranean Region*  
held 9–11 November 2006 at the Aula Magna and the Tribuna di Galileo,  
Università di Firenze, and the Accademia dei Fisiocritici, Siena

**Edited by**

**Claudia Corti, Fausto Barbagli,  
Michael T. Ghiselin, and Alan E. Leviton**

Museo di Storia Naturale, Università di Firenze,  
Accademia dei Fisiocritici, Siena, and the  
California Academy of Sciences, San Francisco

Copyright © 2008 by the California Academy of Sciences  
All rights reserved. No part of this publication may be reproduced or transmitted in any form or by any means, electronic or mechanical, including photocopying, recording, or any information storage or retrieval system, without permission in writing from the publisher.

**ISBN 978-0-940228-77-1**



CALIFORNIA  
ACADEMY OF  
SCIENCES



Published by the California Academy of Sciences  
55 Music Concourse Drive, San Francisco,  
California 94118 USA

Printed in the United States of America by  
Allen Press, Lawrence, Kansas 66044 USA

## Table of Contents

MICHAEL T. GHISELIN AND ALAN E. LEVITON: Preface . . . . .	v
GIOVANNI PRATESI: Welcome to Delegates in Florence. . . . .	vii
SARA FERRI: Welcome to Delegates in Siena. . . . .	ix
MICHAEL T. GHISELIN AND CLAUDIA CORTI: Introduction . . . . .	xi
MARCO MASSETI: The Most Ancient Explorations of the Mediterranean. . . . .	1
FAUSTO BARBAGLI, GIOVANNA CIUFFI, MARINA CLAUSER, PIERO CUCCUINI, LUCIANA FANTONI, GIANNA INNOCENTI, CHIARA NEPI, DANIELA PARRINI, MARTA POGGESI, LUISA POGGI, AND MONICA ZAVATTARO: The Natural History Museum of Florence and Its Contribution to the Knowledge of the Mediterranean . . . . .	19
EZIO VACCARI: “Volcanic travels” and the Development of Volcanology in the 18 <sup>th</sup> Century. . . . .	37
AGNESE VISCONTI: The Naturalistic Explorations of the Milanese Barnabite Ermenegildo Pini (1739-1825) Along the Coast of Calabria: New Observations and Implications with Regard to His Views on the History of the Earth . . . . .	51
PIETRO OMODEO AND EMILIA ROTA: Earthworm Diversity and Land Evolution in Three Mediterranean Districts. . . . .	65
VALENTIN PÉREZ-MELLADO, CLAUDIA CORTI, AND JOSEP MIQUEL VIDAL: Herpetological Explorations of the Balearic Islands During the Last Two Centuries . . . . .	85
NICOLA BACCETTI AND JOE SULTANA: Local Ornithologists and the Early Study of Central Mediterranean Avifauna: The Role of Schembri and Damiani in the Maltese and Tuscan islands . . . . .	111
TERRENCE M. GOSLINER, JUAN LUCAS CERVERA, AND MICHAEL T. GHISELIN: Scientific Exploration in the Mediterranean Region Biodiversity of the Mediterranean Opisthobranch Gastropod Fauna: Historical and Phylogenetic Perspectives. . . . .	117
CHRISTIANE GROEBEN: Tourists in Science: 19 <sup>th</sup> Century Research Trips to the Mediterranean . . . . .	139
MICHAEL T. GHISELIN: British Use and Support of the Naples Zoological Station Prior to the First World War. . . . .	155
SERGEI I. FOKIN: Russian Biologists at Villafranca. . . . .	169
SANDRA CASELLATO: Marine Biology in the Adriatic Sea: An Historical Review . . . . .	193
GIOVANNI PINNA: Scientific Travels and the Wealth of Nations . . . . .	207
INDEX . . . . .	219



## Preface

In 2005, Claudia Corti (Università di Firenze, Italy) met with Michael Ghiselin and Alan Leviton (California Academy of Sciences, San Francisco) in the latter's office at the Academy. In short order, the conversation shifted to a discussion of the successful meeting held in Novara, Italy on the *Impact of Travels on Scientific Knowledge* (*Proc. Calif. Acad. Sci.* 2006, vol. 55, Suppl. II) that had been cosponsored by the Museo di Storia Naturale Faraggiana Ferrandi and the California Academy of Sciences. The three wondered why not a follow-up meeting in Florence that would focus on the Mediterranean inasmuch as a number of people in Italy and the United States were actively engaged in studies on how travels influenced scientific thought in the region. The idea was embraced enthusiastically and work began almost immediately to bring it about. The indomitable Dr. Corti, on her return to her University, found a receptive audience both there and at the nearby Accademia dei Fisiocritici, Siena. She was soon joined by her colleague Fausto Barbagli and received additional encouragement from Drs. Giovanni Pratesi, President of the Museo di Storia Naturale dell'Università degli Studi di Firenze, and Sara Ferri, Presidente dell'Accademia dei Fisiocritici. During the weeks that followed, Drs. Corti and Barbagli together with Dr. Ghiselin contacted colleagues they knew were engaged in interesting studies of the region and a program of considerable breadth and interest quickly emerged, one that attracted participants from several countries and institutions.

The rest is now history. The meeting was held in Florence, Italy, 9-11 November 2006 at the Aula Magna and the Tribuna di Galileo of the Università di Firenze and at the Accademia dei Fisiocritici, Siena. Thereafter, the participants were encouraged to prepare their remarks for publication, and it is with considerable pleasure that we are now able to publish the papers presented during the three-day meeting. At this time, we wish to thank the participants, the organizers, and all those who so warmly welcomed us and to express our hope that this will serve to encourage future collaboration among our institutions and colleagues.

*Michael T. Ghiselin and Alan E. Leviton*  
13 June 2008



Participants in the Colloquium on Scientific Exploration in the Mediterranean Region (Front row, left to right) Terry Gosliner, Fausto Barbagli, Michael T. Ghiselin, Claudia Corti, Stefania Lotti, Elisabetta Lori, Marta Poggesi. (Rear row, left to right) Paolo Agnelli, Valentin Pérez-Mellado, Marco Masseti, Agnese Visconti, Sergei Fokin, Carlo Violani, Claudio Pogliano, Juan Lucas Cervera, Pietro Antonio Bernabei, Monica Siviero, Christiane Groeben, Ezio Vaccari, Pierluigi Finotello, Simone Cianfanelli, Annamaria Nistri



Opening concert at the Aula Magna of the University of Florence, given by the Coro Universitario di Firenze, director Valentina Peleggi



## Scientific Exploration in the Mediterranean Region

### Welcome to Delegates in Florence

Firstly, I wish to express my most sincere thanks to all of you present at the inauguration of this stimulating conference. I feel honoured to present this scientifically and culturally important initiative, which has involved the collaboration of many people and institutions.

Among the organizers, I want to mention the California Academy of Sciences, the Accademia dei Fisiocritici of Siena, and the Museum of Natural History of the University of Florence. I am also pleased to acknowledge the funding of the Doctoral programs in the History of Science of the Universities of Pisa, Siena, and Florence; the APT, the Official Tourist Office of Florence; the Terre di Siena, Official Tourist Office of Siena, and ATAF, the Public Transport Company of Florence.

Moreover, I certainly cannot fail to thank the speakers who, having arrived here after more or less long journeys, will speak in these three days about the journeys and explorations that have characterized the history of the Mediterranean region for over two millennia. Last but not least, allow me to give particular thanks to Dr. Claudia Corti, who has expended a lot of energy organizing this important event.

I don't want speak about all the historical and scientific aspects related to the explorations, because this will be the topic of the various contributions, beginning with my brief greeting. However, I wish to make some brief remarks on the importance that historical research and journeys have for museums.

A group specifically dedicated to this type of research was created two years ago within the Museum of Natural History of the University of Florence; especially in a Museum with a great tradition, this type of research is essential to understand the origins and, in particular, the numerous links that have led, through the centuries, to the formation of such a remarkable patrimony of collections. Well, this group has already manifested excellent scientific and organizational abilities, also through the organization of events like this one, which speaks about history, our history.

It is my view, and I hope one that is shared by many here, that historical research should be considered a moral obligation for museums. This is because museums house collections, and if single specimens speak to us and tell us stories that concern nature, collections recount the stories of the men and women who have collaborated to create them, men and women who, as naturalists, were, and still are, animated by a spirit of adventure that is fully expressed in explorations and voyages. Indeed, as John Steinbeck wrote: "People don't make voyages, voyages make people."

Voyages make people because they help to broaden knowledge, open new horizons, and create networks of interpersonal relationships that are the foundation of each civilization.

Yet voyages and explorations can also be strictly aimed at research and the enrichment of collections. Two faces of the same coin since, especially in the naturalistic disciplines, knowledge can never be separated from nature and natural objects.

And, in a world giving increasing attention to virtual reality, we wish forcefully to call attention back to real reality, to nature, which is not a simple corollary but the essence of our planet.

And it is exactly through explorations of nature that we can today pursue the enrichment of knowledge that distinguishes and characterizes the activity of the scientific community.

To conclude, I wish to quote some essential but effective words of the well-known Lebanese poet, Kahlil Gibran, "Let your adventurous spirit always lead you on ahead to discover the world that surrounds you, with its oddities and its wonders. To discover it will mean for you to love it."

Giovanni Pratesi

*President of the Museo di Storia Naturale dell'Università di Firenze*



The façade of the Accademia dei Fisiocritici Siena



A gallery of the Museum of Natural History of the Accademia dei Fisiocritici, Siena



## Welcome to Delegates in Siena

L'Accademia dei Fisiocritici è ben lieta di accogliere gli studiosi italiani e americani per l'ultima sessione del Convegno "Scientific Exploration in the Mediterranean Region". Un particolare saluto va al prof. Michael T. Ghiselin, zoologo marino e biologo evolutivo che, dall'ottobre dello scorso anno, è accademico onorario della nostra Istituzione.

L'Accademia fu fondata nel 1691 da Pirro Maria Gabbrielli, professore di Medicina Teorica e Botanica nello studio senese. In accordo con l'etimologia greca del nome "fisiocritici" (studiosi della natura), gli Accademici fin dall'inizio si interessarono dello studio dei fenomeni naturali, seguendo le idee illuministiche che andavano diffondendosi in quel periodo.

Per trecento anni l'Accademia è stata una voce importante nelle discussioni tecniche su scienze naturali, medicina, ambiente e agricoltura. Ed anche oggi continua a svolgere la sua funzione culturale mediante conferenze, dibattiti e mostre su vari temi scientifici e, attraverso visite guidate al suo Museo di Storia Naturale, una rilevante attività didattica per i ragazzi.

Il Museo, il cui nucleo originario risale ai primi anni di vita dell'Accademia, oggi possiede, tra l'altro, collezioni geologiche, zoologiche e paleontologiche riferibili prevalentemente alla Toscana meridionale, in quanto le scarse risorse finanziarie dell'Accademia non hanno mai permesso di organizzare spedizioni scientifiche di più ampio respiro. Il Museo, dal 1816 ospitato in un antico monastero, mantiene inalterato il fascino di un allestimento ottocentesco in antiche vetrine.

Rinnovando il benvenuto a Siena e nella nostra Istituzione, auguro buon lavoro a tutti i partecipanti

Sara Ferri

*Presidente dell'Accademia dei Fisiocritici*

[The Accademia dei Fisiocritici is delighted to welcome the Italian and American scholars for the final session of the Conference "Scientific Exploration in the Mediterranean Region". Special greetings are extended to Prof. Michael T. Ghiselin, marine zoologist and evolutionary biologist who, since October of last year, has been an honorary Fellow of our Institution.

The Academy was founded in 1691 by Pirro Maria Gabbrielli, teacher of Theoretical Medicine and Botany in the university. In accord with the Greek etymology of the name "fisiocritici" (scholars of nature), the Academicians from the outset were interested in the investigation of natural phenomena, following enlightened ideas that were being disseminated in that period.

For three hundred years, the Academy has been an important voice in the technical discussions on natural sciences, medicine, environment and agriculture. Today it continues to develop its cultural function through lectures, debates and exhibitions on varied scientific themes and, through guided tours of its Museum of Natural History, a remarkable didactic activity for the young.

The Museum, whose original nucleus goes back to the first years of life of the Academy, possesses today, in addition, geological, zoological, and paleontological collections. These are mainly from southern Tuscany inasmuch as the scarce financial resources of the Academy have never enabled it to organize scientific expeditions on a wider scale. The Museum, housed since 1816 in an old monastery, retains, unchanged, the charm of a nineteenth century exhibit in antique showcases.

Reiterating the welcome to Siena and our Institution, best wishes and buon lavoro to all of the participants.]



During the meeting at the Tribuna di Galileo, Museo di Storia Naturale dell'Università degli Studi di Firenze, Sezione di Zoologia



Lunch at the "Salone degli Scheletri", Museo di Storia Naturale dell'Università degli Studi di Firenze, Sezione di Zoologia

## Introduction

**Michael T. Ghiselin<sup>1</sup> and Claudia Corti<sup>2</sup>**

<sup>1</sup> *Center for the History and Philosophy of Science, California Academy of Sciences, Golden Gate Park, San Francisco, California 94118; Email: mghiselin@calacademy.org;* <sup>2</sup> *Museo di Storia Naturale dell'Università degli Studi di Firenze, Sezione de Zoologia "La Specola", Via Romana 17, 50125, Firenze, Italia; Email: claudia.corti@unifi.it*

The predecessor of this volume, *Impact of Travels on Scientific Knowledge*,<sup>3</sup> based on an international colloquium held at the Museo di Storia Naturale Faraggiana Ferrandi in Novara, Italy in 2002, considered a wide range of topics having to do with scientific travel. This one is restricted to a particular area. The Mediterranean has been both a center of learning and an object of investigation. Here the science of natural history was born. The rich legacy of Aristotle, Pliny the Elder and other writers of classical antiquity served the basis for modern natural history when it emerged during the Renaissance. At that time, the motivation for studying natural objects was mainly to understand the Greek texts and to provide proper Latin translations of them. Expertise on the Mediterranean flora and fauna was essential to understanding those texts. With the discovery of plants and animals that had not been known to classical authors, natural history took on a life of its own.

In the lyrical essay that begins this volume, Marco Masseti takes us back to even earlier times, when Neolithic and bronze age peoples were exploring the Mediterranean islands by boat. These islands have been home to remarkable faunas and floras, not the least of which are the dwarf elephants, whose fossil remains have become the stuff of legend.

In the time of Cesalpino, Galileo and Vesalius, Italy was home to major centers of scientific investigation. Its universities housed some of the earliest botanical gardens and its aristocracy accumulated important natural history collections and made them available to scientists. Italy did not become a unified national state until late in the nineteenth century, so its museums and other scientific institutions have been products of local government and culture. We are here presented with a case study, the natural history museum of Florence, by the "Gruppo di Ricerche Storiche," a team of scholars coordinated by Fausto Barbagli: Giovanna Ciuffi, Marina Clauser, Pietro Cuccuini, Luciana Fantoni, Gianna Innocenti, Chiara Nepi, Daniela Parrini, Marta Poggesi, Luisa Poggi and Monica Zavattaro.

Certain areas in the Mediterranean are centers of volcanic activity. Ezio Vaccari discusses how field work carried out in the eighteenth century enriched our understanding of geological processes and revealed the great amount of time that has been required for major changes to take place. Agnese Visconti provides a case study of Ermenegildo Pini, who explored the coast of southern Italy for the purpose of developing natural history in Milan. Because Pini was a clergyman, it is anything but surprising that there were significant connections between his science and his religion. The Noachian deluge was still being taken very seriously in those days.

The Mediterranean fauna has been extensively studied by zoologists interested in the distribution of particular taxonomic groups of animals. Four chapters are devoted to this aspect of natural history and to the history of such investigation. Earthworms are a good example of a group of animals that do not disperse readily and are particularly useful in working out the sort of biogeographical puzzle that involves changes in the configuration of the earth. Pietro Omodeo and Emilia Rota give us a most instructive example of how such research has been carried out. Reptiles and amphibians have been particularly interesting to students of insular biogeography. Valentin Pérez-Mellado, Claudia Corti, and Josep Miquel Vidal discuss the evolution of our knowledge of the herpetofauna of the Balearic Islands. They relate this history to the development of herpetology as a dis-

cipline. As one might expect, there have been strong linkages to evolutionary theory, and it is pleasing to know what these were. The modernization of herpetology seems to be keeping pace with that of evolutionary biology in general. Birds, of course, are more adept at reaching islands than are earthworms and quadrupeds. They have also been intensively studied by systematists and other biologists. Nicola Baccetti and Joe Sultana provide brief biographical essays on two local ornithologists who studied insular bird faunas.

Five chapters are devoted to the study of marine animals and to the history of marine biology and its institutions. Terrence M. Gosliner, Juan Lucas Cervera, and Michael T. Ghiselin review the history of research on the systematics of Mediterranean opisthobranch gastropods. They contrast the “scientific tourists” with those who worked at universities and at marine laboratories. They provide a survey of recent developments in Spain and suggest historical trends on the basis of a quantitative assessment of publications on the group. The notion of a scientific tourist is developed in an essay by Christiane Groeben. She explains why four cities were particularly attractive to the “tourists.” One of these, Naples, became the location for a permanent laboratory — a sort of “hotel” — the Zoological Station founded by Anton Dohrn. That “hotel” has received a great deal of attention from historians. An essay by Michael T. Ghiselin considers the British presence there, especially from the point of view of why British scientists chose to work there rather than elsewhere. Russians had their own laboratory at Villefranche-sur-Mer on the French Riviera. Sergei I. Fokin’s essay reveals what a valuable facility it was. Venice was also a major player in marine biology. Sandra Casellato devotes a chapter to marine investigations in the Adriatic up to the present time.

Ending the volume, Giovanni Pinna considers how science is affected by political and economic affairs. The motivations for supporting expeditions and institutions have not always been edifying. We might add that the meetings upon which this series of publications has been based were intended to further international good will, cooperation and friendship.

#### ACKNOWLEDGMENTS

We take this opportunity to thank the following persons for their many contributions to the success of the meeting: Gianna Innocenti, editor of the Abstract volume of the meeting; Daniela Parrini, Secretary’s Office, and Alba Scarpellini, Press Office, Museo di Storia Naturale dell’Università degli Studi di Firenze; Maria Cristina Andreani, graphic design; Chiara Bratto, Press Office, Accademia del Fisiocritici, Siena; Rosalba Mulinacci, Ferruccio Farsi, and Fabrizio Cancelli, Accademia del Fisiocritici, Siena; Dottorato di Storia della Scienza dell’Università di Pisa, Siena and Firenze; Ugo Bazzotti and Florenza Guerranti for their interest in the meeting; Agenzia per il Turismo di Firenze, and Agenzia per il Turismo di Siena.

At the California Academy of Sciences, we wish to express our thanks to Hallie Brignall and Michele Aldrich, both of whom read and critiqued all of the papers included in this volume and made numerous suggestions for the improvement of the presentations.

Lastly, we again thank all of those who made this program a reality, and the institutions that made it possible by providing the necessary resources, both for the meetings and the subsequent publication of the symposium itself: the Museo di Storia Naturale dell’Università degli Studi di Firenze, the Accademia dei Fisiocritici, Siena, and the California Academy of Sciences, San Francisco.

*Scientific Exploration  
in the  
Mediterranean  
Region*



