



# The Global and the Local:

## The History of Science and the Cultural Integration of Europe

Edited and typeset by Michał Kokowski



Proceedings of the 2nd International Conference of  
the European Society for the History of Science

Cracow, Poland, September 6–9, 2006

© Copyright by the Polish Academy of Arts and Sciences and Michał Kokowski, the Editor of the Proceedings

This e-book is copyrighted. However, it may be copied and used freely for any non-commercial personal and educational purpose. Other forms of reproduction of any part may only take place with the prior permission in writing of the Editor of the Proceedings.

First published 2007

Design of the cover:  
Michał Kokowski

The cover incorporates: the logos of the organisers of the conference, the logo of the conference, the picture “The ceremony of the inauguration of the Polish Academy of Arts and Sciences on May 7th, 1873” and two photos “The Aula at the Collegium Maius of the Jagiellonian University” and “The Libraria at the Collegium Maius of the Jagiellonian University”.

Publisher:

Wydawnictwo Polskiej Akademii Umiejętności (The Press of the Polish Academy of Arts and Sciences),  
ul. Sławkowska 17, 31-016 Kraków, Poland

Phone: (+ 48) 12 424 02 12; Fax: (+ 48) 12 422 54 22; Email: [office@pau.krakow.pl](mailto:office@pau.krakow.pl)

Typesetting:  
Michał Kokowski

ISBN: 978-83-60183-42-7

## Table of contents

Foreword by Michal KOKOWSKI . . . . .	1
<b>CHAPTER 1.</b>	
<b>Introduction to the 2<sup>ND</sup> ICESHS . . . . .</b>	<b>2</b>
Robert FOX	
Opening address of the 2 <sup>nd</sup> ICESHS . . . . .	3
Michal KOKOWSKI	
The crucial idea of the 2 <sup>nd</sup> ICESHS . . . . .	4
Robert FOX	
The Statement of the General Assembly of the ESHS on teaching the history of science . . . . .	4
Eberhard KNOBLOCH	
Farewell address of the 2 <sup>nd</sup> ICESHS . . . . .	5
Michal KOKOWSKI	
Acknowledgements . . . . .	6
<b>APPENDIX</b>	
<b>Organisation of the 2<sup>nd</sup> ICESHS . . . . .</b>	<b>7</b>
Lists of members of the committees of the conference . . . . .	8
Honorary Committee . . . . .	8
Programme Committee . . . . .	8
Local Committee . . . . .	9
List of organisers of the conference . . . . .	9
List of partners of the conference . . . . .	9
List of sponsors of the conference . . . . .	9
Robert FOX	
The institutions hosting the 2 <sup>nd</sup> ICESHS: The European Society for the History of Science . . . . .	10
Andrzej PELCZAR	
The institutions hosting the 2 <sup>nd</sup> ICESHS: The Polish Academy of Arts and Sciences . . . . .	11
Andrzej PELCZAR	
The institutions hosting the 2 <sup>nd</sup> ICESHS: The Jagiellonian University . . . . .	12
Leszek ZASZTOWT	
The institutions hosting the 2 <sup>nd</sup> ICESHS: The Institute for the History of Science of the Polish Academy of Sciences . . . . .	13

## CHAPTER 2. / Plenary Lectures . . . . . 15

Fabio BEVILACQUA, Lidia FALOMO Towards a new web site of the DHST: Participatory media for a community of scholars. Possibilities and choices . . . . .	16
Ryszard J. GRYGLEWSKI Crossroads of medicine and chemistry in the 20th century . . . . .	37
Eberhard KNOBLOCH Alexander von Humboldt: The explorer and the scientist . . . . .	38
Giuliano PANCALDI The Republic of Letters in transition: William Thomson and natural philosophy ca. 1850 . . . . .	49
Andrzej K. WRÓBLEWSKI Are we ready for common history of science? . . . . .	56

## CHAPTER 3. / Round-Table Discussion 0

History of science in education and training in Europe: What new prospects? . . . . .	93
------------------------------------------------------------------------------------------	----

**Chairman:**  
Claude DEBRU

Introduction by Claude DEBRU . . . . .	94
INTERVENTIONS BY:	
• Anne-Sophie GODFROY-GENIN . . . . .	95
• Soňa ŠTRBÁŇOVÁ . . . . .	95
• Andrzej WRÓBLEWSKI . . . . .	96
• Soňa ŠTRBÁŇOVÁ . . . . .	96
• Robert FOX . . . . .	96
• Claude DEBRU . . . . .	97
• Michał KOKOWSKI . . . . .	98
• Peter HEERING . . . . .	98
• Birute RAILIENE . . . . .	99
• Hans-Joachim BRAUN . . . . .	99
• Elvira CALLAPEZ . . . . .	100
• Claude DEBRU . . . . .	100
• Roman DUDA . . . . .	101
• Claude DEBRU . . . . .	101
• Frank JAMES . . . . .	101
• Ida STAMHUIS . . . . .	102
• Romualdas SVIEDRYS . . . . .	102
• Andrzej WRÓBLEWSKI . . . . .	102
• Mitchell G. ASH . . . . .	103
• Vladimir KIRSANOV . . . . .	103
Final remarks by Claude DEBRU . . . . .	104

## CHAPTER 4. / Round-Table Discussion 1

### Working Together: History of Science Societies Around the World . . . . . 105

**Chairmen:**

Ronald L. NUMBERS, Eberhard KNOBLOCH

Introduction by Robert FOX and Ronald L. NUMBERS . . . . . 106

INTERVENTIONS BY:

- Eberhard KNOBLOCH: The International Academy of the History of Science. . . . . 107
  - Ida STAMHUIS . . . . . 108
  - Eberhard KNOBLOCH . . . . . 108
  - Ronald L. NUMBERS . . . . . 108
  - Frank JAMES: The British Society for the History of Science . . . . . 108
  - Ronald L. NUMBERS . . . . . 109
  - Roman DUDA: The Polish institutions acting in the area of the history of science  
and medicine . . . . . 109
  - Ronald L. NUMBERS . . . . . 109
  - Anja Skaar JACOBSEN: The Danish Society for the History of Science . . . . . 109
  - Ronald L. NUMBERS . . . . . 110
  - Claude DEBRU: The French Society for History of Science and Technology,  
and the Société d'Histoire et d'Epistémologie des Sciences de la Vie . . . . . 110
  - Ronald L. NUMBERS . . . . . 110
  - Bert THEUNISSEN: The Gewina: The Dutch Society for the History of Medicine,  
Science, Mathematics and Technology . . . . . 110
  - Ronald L. NUMBERS . . . . . 111
  - Joan CADDEN: The History of Science Society . . . . . 111
  - Ronald L. NUMBERS . . . . . 112
  - Noah EFRON: Science and Technology Studies in Israel: Seeking  
comparative perspective . . . . . 112
  - Ronald L. NUMBERS . . . . . 113
  - Ernst P. HAMM: The history of science, technology and medicine in Canada . . . . . 113
  - Ronald L. NUMBERS . . . . . 114
  - Mitchell G. ASH: The societies for the history of science, technology and medicine  
in the German-speaking Europe . . . . . 115
  - Ronald L. NUMBERS . . . . . 117
  - Efthymios NICOLAIDIS: The role and structure of IUHPS/DHST . . . . . 117
- Final remarks by Ronald L. NUMBERS . . . . . 118

## CHAPTER 5. / Round-Table Discussion 2

### The History of Science and the Cultural Integration of Europe: Barriers and Opportunities . . . . . 119

**Chairmen:**  
Robert FOX, Michal KOKOWSKI

Introduction by Robert FOX . . . . . 120

#### INTERVENTIONS BY:

- Hans-Joachim BRAUN . . . . . 120
- Claude DEBRU . . . . . 121
- Eberhard KNOBLOCH . . . . . 122
- Víctor NAVARRO BROTONS . . . . . 123
- Geert J. SOMSEN: History of Science and Euro-nationalism . . . . . 124
- Geert VANPAEMEL: One or many histories of science for Europe? . . . . . 125
- Andrzej K. WRÓBLEWSKI . . . . . 126
- Stanislav JUŽNIČ . . . . . 126
- Soňa ŠTRBÁŇOVÁ . . . . . 127
- Efthymios NICOLAIDIS: Towards a common European schoolbook for secondary education . . . . . 127
- Fabio BEVILACQUA, Lidia FALOMO: Towards a new web site of the DHST: participatory media for a community of scholars. Possibilities and choices . . . . . 128

Final remarks by Michal KOKOWSKI . . . . . 129

## CHAPTER 6. / Symposium E-1

### History of science in education and training in Europe: What new prospects? . . . . . 132

**Organizers of the symposium:**  
Claude DEBRU, Jaroslav FOLTA

**Chairman of sessions of the symposium:**  
Claude DEBRU

Claude DEBRU  
Some reflections on recent developments and possible initiatives to foster the role of the history of science in education and training in Europe . . . . . 133

Muriel GUEDJ, Sylvain LAUBÉ  
History of sciences in the French teacher education . . . . . 135

Peter HEERING  
Historical experiments as an access to epistemological aspects in physics teacher training . . . 141

Juozas AI. KRIKSTOPAITIS, Romualdas SVIEDRYS  
History of Science Master's Program — transfer and adaptation: The Lithuanian case . . . . . 142

C. ZARAGOZA, J.M. FERNANDEZ-NOVELL  
Young students turn the history of science into an educational theatre . . . . . 143

## CHAPTER 7. / Symposium E-2

Varia . . . . .	149
-----------------	-----

**Organizers of the symposium:**

Claude DEBRU, Jaroslav FOLTA

**Chairman of sessions of the symposium:**

Andrzej Pelczar

Maria Rosa MASSA, Fatima ROMERO VALLHONESTA, Iolanda GUEVARA CASANOVA Teaching mathematics through history: Some trigonometric concepts . . . . .	150
Maria STRECHT ALMEIDA Historical case studies as teaching tools: A case from erythrocyte aging research . . . . .	158
C. ZARAGOZA, J.M. FERNANDEZ-NOVELL Bridging the gap between secondary school and the history of science: An educational experience . . . . .	160

## CHAPTER 8. / Symposium RE

History and the Public Understanding of Science . . . . .	166
-----------------------------------------------------------	-----

**Organizer of the symposium:**

Michal KOKOWSKI

**Chairman of sessions of the symposium:**

Martin COUNIHAN

Martin COUNIHAN Public understanding of the history of science . . . . .	167
Suzanne DÉBARBAT Public understanding of science: The example of astronomy at the Observatoire de Paris . . . . .	169
Robert FOX History and the public understanding of science: Problems, practices and perspectives . . . . .	174
Cristina OLIVOTTO, Antonella TESTA Galileo at the cinema . . . . .	178

## CHAPTER 9. / Symposium R-1

### The role of national and international societies in the history of science . . . . . 182

**Organizer and chairman of the symposium:**

Robert FOX

Hans-Joachim BRAUN

A hole in the Iron Curtain: The International Committee for the History of Technology (ICOHTEC)  
as a bridge between East and West, 1968–1990 . . . . . 183

Nadezhda KUSHLAKOVA

Mathematicians of Polish origin in Ukraine: Scientific and pedagogical activities of  
A.P. Psheborskiy in Kharkov Mathematical Society (1898–1922) . . . . . 184

Luis SARAIVA

The Lisbon Academy of Sciences and the development of mathematics in Portugal  
in the 19th century. . . . . 192

## CHAPTER 10. / Symposium R-2

### Achievements of Central Europe in Science, in the light of historical studies . . . . . 193

**Organizer of the symposium:**

Michał KOKOWSKI

**Chairpersons of sessions of the symposium:**

Roman DUDA, Andrzej PELCZAR, Juraj SEBESTA,  
Soňa ŠTRBÁŇOVÁ, Éva Katalin VÁMOS

Stefan Witold ALEXANDROWICZ

Polish initiative in creation of the International Union for Quaternary Research (INQUA) . . . . . 194

Roman DUDA

The Lvov School of mathematics . . . . . 198

Andrzej GRZYBOWSKI

Ludwik Fleck as a medical scientist, microbiologist and immunologist . . . . . 200

Jiří JINDRA

Jaroslav Heyrovský and Wiktor Kemula: The Czech and Polish polarography . . . . . 202

Piotr KÖHLER, Denis J. CARR

A somewhat obscure discoverer of plasmodesmata: Eduard Tangl (1848–1905). . . . . 208

Izabela KRZEPTOWSKA-MOSZKOWICZ

Emil Godlewski Senior's contribution to creating the basis of modern plant physiology  
in the 19th and early 20th centuries . . . . . 212



Slawomir LOTYSZ	
KER and War: Polish synthetic rubber in American war efforts, 1941–45 . . . . .	214
Aurika RICHKIENE	
Two international achievements of Lithuanians in the experimental botany science of twentieth century . . . . .	220
Voula SARIDAKIS	
Establishing an Astronomical Network from Gdansk: Johannes Hevelius' exchange with the European scientific community . . . . .	228
Warfolomey SAVCHUK	
The naturalist I. Puluĵ and discovery of the X-rays . . . . .	233
Jiří SEKERÁK	
Gregor Mendel and the scientific milieu of his discovery . . . . .	242
Olena SHCHERBAK	
L.I. Kordysch and the development of theoretical physics in the first part of the 20th century in the Ukraine: All-European context . . . . .	248
Bronisław ŚREDNIAWA	
Scientific and personal contacts of Polish physicists with Albert Einstein . . . . .	252
Andrzej ŚRÓDKA, Ryszard W. GRYGLEWSKI, Wojciech SZCZEPAŃSKI	
Browicz or Kupffer cells? . . . . .	270
Éva Katalin VÁMOS	
Three generations of natural scientists in Hungary 1848–1918 . . . . .	274

## CHAPTER 11. / Symposium R-3

History of astronomy in the late medieval and early modern periods . . . . .	289
---------------------------------------------------------------------------------	-----

**Organizers and chairmen of the symposium:**  
 José CHABÁS, Richard L. KREMER

José CHABÁS and Richard L. KREMER	
Introduction . . . . .	290
José CHABÁS	
From Toledo to Venice: The <i>Alfonsine Tables</i> of Prosdócimo de' Beldomandi . . . . .	291
Petr HADRAVA, Alena HADRAVOVÁ	
Reflection of Iohannes Šindel's eclipse instrument in Iohannes Schöner's "Opera mathematica" . . . . .	292
Alena HADRAVOVÁ, Petr HADRAVA	
Astronomy in Paulerinus's 15th century encyclopaedia "Liber viginti arcium" . . . . .	293

Richard L. KREMER	
Reworking the “Alfonsine Tables” in Cracow: The “Tabulae Aureae” of Petrus Gaszowiec (1448) . . .	294
Henrique LEITAO	
Building a new discipline with old tools: Astronomical techniques in 16th century theoretical navigation . . . . .	295
Michael H. SHANK	
Regiomontanus as a physical astronomer . . . . .	296
Jarosław WŁODARCZYK	
Astronomical observations in the time of Copernicus: Tradition and novelty . . . . .	297

## CHAPTER 12. / Symposium R-4

Nicholas Copernicus in focus . . . . .	299
----------------------------------------	-----

**Organizer and chairman of the symposium:**  
Michał KOKOWSKI

Henryk BARANOWSKI	
<i>Bibliografia Kopernikowska T. 1–3 (Copernican Bibliography Vol. 1–3) . . . . .</i>	300
Peter BARKER	
Towards a cognitive history of the Copernican revolution . . . . .	301
Marian BISKUP	
Investigations on the life and extensive works of Nicolas Copernicus . . . . .	310
André GODDU	
Ptolemy, Copernicus, and Kepler on linear distances . . . . .	316
Einar H. GUDMUNDSSON, Eyjólfur KOLBEINS, Thorsteinn VILHJALMSSON	
Copernicanism in Iceland . . . . .	324
Michał KOKOWSKI	
Nicholas Copernicus in focus of interdisciplinary research . . . . .	333
Andreas KÜHNE	
The early Copernican biographies and portraits as part of the reception of Copernicus . . . . .	342
Howard MARGOLIS	
How Copernicus saw what Ptolemy and everyone else for 1400 years missed . . . . .	350
Rienk H. VERMIJ	
The Leiden interpretation of Copernicus' theory of the universe . . . . .	351

## CHAPTER 13. / Symposium R-5

### Leibniz on Science, Medicine and Technology: A European Project of the Leibniz-Edition . . . . . 352

**Organizer and chairman of the symposium:**

Hartmut HECHT

Vladimir KIRSANOV  
Leibniz in Paris . . . . . 353

Eberhard KNOBLOCH, Hartmut HECHT  
Series VIII of the Leibniz-Edition: An introduction to a modern presentation  
of unknown manuscripts . . . . . 365

Achim TRUNK  
An early concept of G.W. Leibniz regarding medicine . . . . . 373

## CHAPTER 14. / Symposium R-6

### Natural scientists in Habsburg Monarchy 1848–1918 . . . . . 379

**Organizers of the symposium:**

Mitchell G. ASH, Juliane MIKOLETZKY

**Chairmen of sessions of the symposium:**

Mitchell G. ASH, Paulus EBNER, Juliane MIKOLETZKY

Mitchell G. ASH  
The natural sciences in the late Habsburg Monarchy: Institutions, networks, practices . . . . . 380

Paulus EBNER  
Physicists and chemists at the University of Agriculture (Hochschule für Bodenkultur)  
in Vienna between 1872 and 1918 . . . . . 384

Yurij HOLOVATCH, Roman PLYATSKO  
Physicists and chemists at the University of Lviv / Lwów / Lemberg in the second half of  
the 19th century – the beginning of the 20th century . . . . . 388

Juliane MIKOLETZKY  
Physicists and chemists at the University of Vienna of Technology around 1900:  
Mobility and career patterns . . . . . 390

Robert ROSNER  
Scientists and mathematicians in Czernowitz University . . . . . 394

Arne SCHIRRMACHER  
On searching national and scientific identities: Philipp Lenard's early career  
in Austria-Hungary, Germany and the Anglo-Saxon world . . . . . 401

Felicitas SEEBACHER  
Searching for excellence — appointments to chairs at the Medical Faculty of  
Vienna University in the 19<sup>th</sup> Century: Strategies for success or political programs? . . . . . 402

Soňa ŠTRBÁŇOVÁ  
Mobility of chemistry professors of the Prague Charles Ferdinand University  
at the turn of the 19th century: Where and why? . . . . . 410

## CHAPTER 15. / Symposium R-7

### Scientific connections between Austria and Poland. . . . . 411

**Organizer and chairman of the symposium:**

W. Gerhard POHL

Hermann HUNGER Smoluchowski and Vienna . . . . .	412
Roman PLYATSKO From Galicia to Vienna: Scientific careers of I. Puluj and I. Horbaczewski . . . . .	416
W. Gerhard POHL The theory of Brownian motion — one hundred years old . . . . .	419
Rudolf Werner SOUKUP Michael Sendivogius: An alchemist and Austrian-Polish double agent of the beginning 17 <sup>th</sup> century. . . . .	425

## CHAPTER 16. / Symposium R-8

### Weights and measures: The first integration in Europe? . . . . 429

**Organizer and chairman of the symposium:**

Konstantinos NIKOLANTONAKIS

Maria Teresa BORGATO The first applications of the metric system in Italy . . . . .	430
Suzanne DÉBARBAT, Simone DUMONT The Decimal Metric System: Facing scientists and population in France . . . . .	438
Klaus HENTSCHEL Gauß, Meyerstein and Hanoverian precision weights and measures . . . . .	445
Frans van LUNTEREN The Netherlands and the International Bureau of Weights and Measures . . . . .	446
Juan NAVARRO LOIDI, Pilar MERINO SAENZ The units of length in the Spanish treatises of military engineering . . . . .	447
Konstantinos NIKOLANTONAKIS Weights and measures: The Greek efforts to integrate the metric system . . . . .	456
Fátima PAIXÃO, Fátima Regina JORGE Success and constraints in the adoption of the metric system in Portugal . . . . .	463
Romualdas SVIEDRYS In search of common standards: The 1650 computer of Casimir Simienowicz for weight conversions . . . . .	471
Karl-Heinz ZIESSOW Money — from virtual reality to the real thing: Emerging national currencies and the transformation of traditional peasant economy in Northwest Germany . . . . .	472

## CHAPTER 17. / Symposium R-9

### Global Physics and Local Research in the 20th Century . . . 479

**Organizers of the symposium:**

Helge KRAGH, Pasquale TUCCI

**Chairmen of sessions of the symposium:**

Helge KRAGH, Maiken LOLCK, Pasquale TUCCI

Leonardo GARIBOLDI

Developing a technique for researches in cosmic-ray physics: Nuclear emulsions  
from Bristol to Europe . . . . . 480

Helge KRAGH

The internationalization of physical cosmology . . . . . 487

Maiken LOLCK

Greenland Ice Sheet Project: Collaboration of local specialisations on global problems . . . . 488

Jaume NAVARRO

The reception of the De Broglie principle in England . . . . . 489

Cristina OLIVOTTO

The Mediterranean flights and the G-Stack collaboration (1952–1955): A first example  
of European collaboration in particle physics . . . . . 490

Karl-Heinz SCHLOTE

From Möbius to Heisenberg: Mathematical and theoretical physics in Leipzig 1830–1945 . . . 497

Juraj ŠEBESTA

Triangle collaboration . . . . . 503

Pasquale TUCCI and Leonardo GARIBOLDI

Giuseppe Paolo Stanislao Occhialini: A cosmopolitan scientist . . . . . 507

Roland WITTJE

Nuclear physics instrumentation in Norway: 1933–1955 . . . . . 515

## CHAPTER 18. / Symposium R-10

### From Maria Sklodowska-Curie to the 21st Century: Working on Women and Science in History of Science . . . 516

**Organizers of the symposium:**

Annette B. VOGT, Maria RENTETZI

**Chairpersons of sessions of the symposium:**

Ida H. STAMHUIS, Soňa ŠTRBÁŇOVÁ, Annette B. VOGT

Brigitte BISCHOF

Women in physics in Vienna . . . . . 517

Table of contents  
Proceedings of the 2<sup>nd</sup> ICESHS (Cracow, Poland, September 6–9, 2006).

---

Jean-Jacques DREIFUSS, Natalia TIKHONOV The intersection of personal and academic history: Lina Stern (1878–1968) . . . . .	526
Kristina ESPMARK A scientific outsider: Astrid Cleve von Euler and her passion for research . . . . .	528
Anne FELLINGER Women radio-chemists facing radioactive risks in France . . . . .	534
Anastasia LADA, Olga FOTAKOPOULOU, Katerina CHATZIKONSTANTINO Portraying gender . . . . .	540
Juliette LELOUP The women who defended a thesis in mathematics in France during the interwar period . . . . .	548
Annette LYKKNES, Lise KVITTINGEN, Anne Kristine BORRESEN From fertile centers to seeding the periphery. Ellen Gleditsch: Pioneer woman from Norway . . . . .	552
Gisela MATEOS The absence of women in neutrino physics . . . . .	553
Maria RENTETZI Gender transformations in physics in the 1960s: The case of the Greek Research Center 'Dimokritos' . . . . .	555
Helga SATZINGER Women do physiology, men do chemistry: Epistemological problems and a gendered division of labour in sex hormone research, 1920–40s . . . . .	556
Felicitas SEEBACHER 'Roses for the Gentlemen'. The 'question of women's rights' in medical studies at the University of Vienna before 1897 . . . . .	557
Ida H. STAMHUIS Women in the new disciplines of radioactivity and genetics: Comparative remarks . . . . .	566
Annette B. VOGT Anneliese Maier and her contribution to the history of science . . . . .	567

## CHAPTER 19. / Symposium R-11

Botanical gardens within global and local dynamics: Sociability, professionalization and diffusion of knowledge . . . . .	572
------------------------------------------------------------------------------------------------------------------------------	-----

**Organizers of the symposium:**

Nicolas ROBIN, John Dixon HUNT, Volker WISSEMANN

**Chairmen of sessions of the symposium:**

Nicolas ROBIN, Volker WISSEMANN

Denis DIAGRE Did colonization boost international relations between botanical gardens? The Belgian situation . . . . .	573
Olga Yu. ELINA Private botanical gardens in Russia: Between noble culture and scientific professionalization (1760s–1917) . . . . .	579

Patricia D. HARDIN Andreas Gryphius and the Instructive Garden . . . . .	586
Antoine JACOBSONH Three little-known botanical gardens at Versailles (1762–1851): A comparative analysis of their project and of the social and intellectual trajectory of their creators . . . . .	592
Marianne KLEMUN Space, state, territory, region and habitat: Alpine gardens in the Habsburg countries . . . . .	593
Kamil KULPINSKI Janczewski's collections of <i>Ribes</i> sp. at Botanic Garden, Museum and Herbarium of the Institute of Botany of the Jagiellonian University, Cracow . . . . .	594
Finola O'KANE 'Mixing foreign trees with the natives': The form and ideology of Irish botanic gardens and arboreta . . . . .	595
Bastian RÖTHER, Daniela FEISTAUER, Uta MONECKE The 'Society of Corresponding Botanists' as <i>Pflanzschule</i> for botanical gardens . . . . .	596
Dawn SANDERS Balancing the interplay between botanic gardens and schools: The work of William Hales and Lilian Clarke . . . . .	604
René SIGRIST, Eric WIDMER, Wladimir BERELOWITCH Botanical networks in the 18th and early 19th century: A sociological investigation . . . . .	612
José Pedro SOUSA-DIAS Friedrich Welwitsch and the knowledge of materia medica in nineteenth century Angola . . . . .	613

## CHAPTER 20. / Symposium R-12

Changes of paradigms in biological sciences between Renaissance and modern times . . . . .	614
-----------------------------------------------------------------------------------------------	-----

**Organizer and chairperson of the symposium:**  
Alicja ZEMANEK

Sabine BRAUCKMANN The embryonic tree: A themata of <i>Entwicklungsgeschichte</i> . . . . .	615
Piotr KLEPACKI The evolution of the ethnobotany as the field of science in 19 <sup>th</sup> and 20 <sup>th</sup> century . . . . .	616
Mikhail KONASHEV The evolutionary synthesis and Th. Dobzhansky . . . . .	617
Andrea UBRIZSY SAVOIA Relationship between <i>Libri Picturati</i> A. 16–30 and printed Renaissance botanical work. Some new data on <i>Clusius Codex</i> and the mycological <i>Cesi Codex</i> . . . . .	623
Alicja ZEMANEK, Bogdan ZEMANEK Methodology of Renaissance botany and the 'Libri picturati' (A. 18–30) watercolour collection . . . . .	631

## **CHAPTER 21. / Symposium R-13**

The standardization of medical practices and the making of  
historiographic transitions (CANCELLED) . . . . . 637

## **CHAPTER 22. / Symposium R-14**

Progress in Science and Science in Progress: Cultural  
Perspectives . . . . . 638

**Organizer and chairman of the symposium:**  
Claude DEBRU

Claude DEBRU  
Scientific progress: A qualitative view . . . . . 639

Jean-Gabriel GANASCIA  
Erratic progresses: Model of the erraticism . . . . . 642

Ernst P. HAMM  
Mennonites, science and progress in the Dutch Enlightenment . . . . . 650

Aleksandar PETROVIC  
Back to progress: one or more scientific paradigms . . . . . 658

Henk WALS  
How does knowledge accumulate? Circulation-processes in a long-term perspective . . . . . 664

Frank D. A. WEGENER  
On the relationship between the natural and the human sciences: Energetic sociology . . . . . 666

## **CHAPTER 23. / Symposium R-15**

Science and Technology in the European  
Periphery (STEP): (Re)assessing some of  
historiographic issues (CANCELLED) . . . . . 668

## **CHAPTER 24. / Symposium R-16**

The Iberian World and the modern science:  
A comparative perspective . . . . . 669

**Organizer and chairman of the symposium:**  
V́ctor NAVARRO BROTÓN

V́tor BONIFÁCIO, Isabel MALAQUIAS, Joăo FERNANDES  
Reacting to external events: Solar eclipses as catalysts of the Portuguese astronomical  
development in the second half of the nineteenth century . . . . . 670

Susana GÓMEZ  
The words and things of Arias Montano . . . . . 675



Tayra M.C. LANUZA-NAVARRO, Ana Cecilia ÁVALOS-FLORES Astrological prophecies and the Inquisition in the Iberian World . . . . .	681
Víctor NAVARRO BROTONS Spain and the Low Countries: Aspects of the scientific relationship in the sixteenth century . . . . .	689
Eduard RECASENS GALLART Geometrical studies in 17 <sup>th</sup> century Spain and their counterparts in European mathematics . . . . .	695
Antoni ROCA-ROSELL, M <sup>a</sup> Rosa MASSA, Carles PUIG-PLA, Francesc X. BARCA, Guillermo LUSA The Military Academy for Mathematics of Barcelona (1720) and its role in the history of engineering in Spain . . . . .	701

## CHAPTER 25. / Symposium R-17

### Politically Active Scientists in the 20th Century . . . . . 705

#### Organizers and chairmen of the symposium:

Geert J. SOMSEN, Christopher A. J. CHILVERS,  
 Patrick PETITJEAN, Vidar ENEBAKK

Finn AASERUD Niels Bohr's mission for an 'open world' . . . . .	706
Heloisa Maria BERTOL DOMINGUES The concept of nature and environmental projects: UNESCO in its first decade . . . . .	710
Kenneth BERTRAMS Illusions of political neutrality: Science-based technocracy in interwar Western Europe and North America . . . . .	716
Yannick BÉZIN The rationalism beyond science: The politic and religious activism of the Union Rationaliste . . . . .	717
Jimena CANALES Einstein, Bergson, and the experiment that failed: Intellectual cooperation at the League of Nations . . . . .	723
Christopher A. J. CHILVERS These twisted times: The Russian delegation to the 1931 Congress and the battle for Russian science in the 1930s . . . . .	725
Vidar ENEBAKK The second generation of historians of the social relations of science . . . . .	726
Heiner FANGERAU Biology and war: American biology and international science . . . . .	727
Anja Skaar JACOBSEN Cold War ideology and international science politics: Rosenfeld versus Bohr . . . . .	733
Patrick PETITJEAN The 'Periphery Principle': UNESCO and the international commitment of scientists after World War II . . . . .	734
Jahnvi PHALKEY 'The lack of scientific liaison': A.V. Hill and science research in Colonial India . . . . .	742
Simon Olling REBSDORF 'Science is not national, but scientists are': International 20th century astronomy and Danish astronomers . . . . .	743

Rajinder SINGH The Nobel Laureate CV Raman and his contacts with the European men of science in political context . . . . .	749
Geert J. SOMSEN Committing to internationalism: Mediating activities of Dutch scientists, 1900–1950 . . . . .	757
Mikulas TEICH J.D. Bernal as historian of science . . . . .	761
Mathieu TRICLOT Norbert Wiener's politics and the history of cybernetics . . . . .	763
Ulrike WUNDERLE The International Conferences on the Peaceful Uses of Atomic Energy and Cold War confrontation: Scientific internationalism in the 1950s and 1960s . . . . .	767

## CHAPTER 26. / Symposium R-18

Circulating Knowledge: A European perspective on communication of science . . . . .	768
----------------------------------------------------------------------------------------	-----

**Organizers of the symposium:**

Geert VANPAEMEL, Bert THEUNISSEN

**Chairmen of sessions of the symposium:**

David BANEKE, Lodewijk C. PALM,  
Geert VANPAEMEL, Bert THEUNISSEN

David BANEKE The scientific intelligentsia: Science and society in the Netherlands, 1890–1940 . . . . .	769
Emilia CURRÁS, Enrique WULFF Integration in Europe of human genetics results obtained by Spaniards in the USA: A historical perspective . . . . .	773
Ab FLIPSE Science, religion and emancipation: Dutch Calvinist and Roman-Catholic responses to modernity in the early 20th century . . . . .	781
Albrecht HEEFFER The role of typographical fixity in the acceptance of algebraic symbolism in sixteenth-century Europe . . . . .	782
Janneke van der HEIDE Scientific culture in The Netherlands: Darwinism and popular culture, 1870–1885 . . . . .	783
Ton van HELVOORT The 'Americanisation' of Dutch universities in the 1960s and 70s: The case of chemistry at the University of Groningen . . . . .	786
Marijn J. HOLLESTELLE Paul Ehrenfest as a mediator . . . . .	787
Zibartas Juozas JACKŪNAS Local vs global knowledge: Is it a meaningful dichotomy? . . . . .	793
Laurent MAZLIAK, Pavel ŠIŠMA New scientific relations in Europe at the end of World War I: The example of mathematics through Fréchet in Strasbourg and Hostinský in Brno . . . . .	794

Alberto MESCHIARI Exchanges in science between Giovanni Battista Amici and European scientists . . . . .	798
Lodewijk C. PALM Leeuwenhoek's letters and the circulation of knowledge: Individual preferences . . . . .	802
Jeannette van der SANDEN Knowledge transfer about sex and gender: The case of women's studies in the Netherlands . . . . .	803
Eckhard SCHINKEL New sources, new look — the Ostrodzko-Elblaski Canal / Poland: About the network origins of its inclined planes . . . . .	811
Bert THEUNISSEN The 'Holsteinisation' of the Dutch dairy cattle breeds in the 1970s and 1980s . . . . .	818
Geert VANPAEMEL Science communication strategies of amateurs and professional scientists in nineteenth century Belgium . . . . .	819
Huib J. ZUIDERVAART 'The latest news about the heavens': The European contact- and correspondence-network of Dutch astronomers in mid-18th century . . . . .	825

## CHAPTER 27. / Symposium R-19

How to understand and write the History of Science? (or Methodology of the History of Science) . . . . .	838
-------------------------------------------------------------------------------------------------------------	-----

**Organizer and the chairman of the symposium:**  
Michal KOKOWSKI

Liliya ABRAROVA, Natalia KNEKHT The image of science: The unity of philosophy, methodology and the history of science . . . . .	839
Xavier CALVÓ-MONREAL Writing the history of Catalan Molecular Biology: Using correspondence, interviews and papers . . . . .	844
Anne-Sophie GODFROY-GENIN Creating a cross-comparative methodology to study engineering education and profession in Europe today . . . . .	850
Michal KOKOWSKI A meta-history of science and methodology of the history of science urgently needed! . . . . .	856
Clara PINTO-CORREIA Adjectives, footnotes and captions: Historiographic biases against preformation in mid-war accounts of embryology . . . . .	864
Jarmo PULKKINEN Technological metaphors and history of science . . . . .	865
Maria STRECHT ALMEIDA Controversies and concept changes in erythrocyte aging studies: A look into the dynamics of the research area . . . . .	871

## CHAPTER 28. / Symposium R-Varia I . . . . . 873

**Organizer of the symposium:**

Michał KOKOWSKI

**Chairmen of sessions of the symposium:**

Roman DUDA, Stephanie DUPOUY, Andrzej K. WRÓBLEWSKI

Juozas BANIONIS  
The studies and the history of mathematics at the university of Lithuania in 1920–1940. . . . . 874

Stephanie DUPOUY  
Mapping the face: Anatomy of passions by J. Parsons, P. Camper and C. Bell . . . . . 878

Stanislav JUŽNIČ  
Gruber's machine-ship: Early machine boats in Habsburg Empire . . . . . 879

Ewa KACZMARZYK  
The history of natural research in the northern part of the Silesia-Cracow Upland  
between the middle of the 19th century and the end of the 20th century . . . . . 889

Ken KALLING, Erki TAMMIKSAAR  
Restructuring the connections: Scientific networks of the University of Tartu  
shattered by language shifts . . . . . 894

Christelle RABIER  
Surgeons in the courtroom: Forensic expertise and local power at  
Paris and London, 1760–1790 . . . . . 895

Ewelina TYLIŃSKA  
The revival of the Vilnius University in 1919: Historical conditions and importance  
for Polish science . . . . . 896

Andrzej J. WÓJCIK  
Jubilee of Jan Hempel's 'Geognostic map of coalfield in Polish Kingdom' . . . . . 905

## CHAPTER 29. / Symposium R-Varia II Mathematics, Exact and Natural Sciences . . . . . 913

**Organizer of the symposium:**

Michał KOKOWSKI

**Chairman of sessions of the symposium:**

Fabio BEVILACQUA

Carlo ARTEMI  
The last paper by Ettore Majorana: An analysis . . . . . 914

Vahur MÄGI  
From the 17th century to the present-day in Estonia: Evolution of exact and natural sciences . . . 920

Richard K. MERRITT  
Mathematics science and memory: Florentine painting and the origins of  
the experimental model during the Italian Renaissance . . . . . 925

Miroslav Tibor MOROVICS, Andrej ŠPERKA  
The beginnings of scientific interests in electrical phenomena in Hungarian Kingdom . . . . . 926

Raffaele PISANO  
Brief historical notes on the theory of centres of gravity . . . . . 934

## CHAPTER 30. / Symposium R-Varia III

### Chemistry . . . . . 942

**Organizer of the symposium:**

Michal KOKOWSKI

**Chairman of sessions of the symposium:**

W. Gerhard POHL

Maria C. BURGUETE

The philosophy of computational chemistry II . . . . . 943

Maria Elvira CALLAPEZ

The USA and the EU: Two perspectives on phthalates . . . . . 951

Soledad ESTEBAN SANTOS

Liebig and Wöhler and the concept of isomerism . . . . . 959

Núria PÉREZ-PÉREZ

Controlling infectious diseases at the end of 18<sup>th</sup> century in Spain . . . . . 963

Alicja RAFALSKA-LASOCHA, Wieslaw LASOCHA, Anna JASINSKA

Cold light in the painting 'Group portrait in the Chemist's House' . . . . . 969

## CHAPTER 31. / Symposium R-Varia IV

### Scientists and Politics . . . . . 973

**Organizer of the symposium:**

Michal KOKOWSKI

**Chairman of sessions of the symposium:**

Geert SOMSEN

Ralph J. DESMARAIS

George Orwell and the Radical Scientific Left in Britain, 1945–1950 . . . . . 974

Sylvain LAUBE

Attitudes of French and Austrian scientific institutions, 1938–1945 . . . . . 975

Christiane NIVET

1848: Gregor Mendel, the monk who wanted to be a citizen . . . . . 976

Françoise OLIVIER-UTARD

Edmond Rothé as an early figure of a committed intellectual  
at Strasbourg University, 1919–1942 . . . . . 977

### Index of names of authors . . . . . 983