

# Turkish Studies in the History and Philosophy of Science

Edited by  
Gürol Irzık and Güven Güzeldere

 Springer

---

TURKISH STUDIES IN THE HISTORY  
AND PHILOSOPHY OF SCIENCE

---

*BOSTON STUDIES IN THE PHILOSOPHY OF SCIENCE*

*Editors*

ROBERT S. COHEN, *Boston University*  
JÜRGEN RENN, *Max-Planck-Institute for the History of Science*  
KOSTAS GAVROGLU, *University of Athens*

*Editorial Advisory Board*

THOMAS F. GLICK, *Boston University*  
ADOLF GRÜNBAUM, *University of Pittsburgh*  
SYLVAN S. SCHWEBER, *Brandeis University*  
JOHN J. STACHEL, *Boston University*  
MARX W. WARTOFSKY†, (*Editor 1960–1997*)

VOLUME 244

---

# TURKISH STUDIES IN THE HISTORY AND PHILOSOPHY OF SCIENCE

*Edited by*

**GÜROL IRZİK**

*Boğaziçi University, Istanbul, Turkey*

and

**GÜVEN GÜZELDERE**

*Duke University, Durham, U.S.A.*

 Springer

---

A C.I.P. Catalogue record for this book is available from the Library of Congress.

ISBN 10-1-4020-3332-X (HB) Springer Dordrecht, Berlin, Heidelberg, New York  
ISBN 10-1-4020-3333-8 (e-book) Springer Dordrecht, Berlin, Heidelberg, New York  
ISBN 13-1-4020-3332-X (HB) Springer Dordrecht, Berlin, Heidelberg, New York  
ISBN 13-1-4020-3333-8 (e-book) Springer Dordrecht, Berlin, Heidelberg, New York

---

Published by Springer,  
P.O. Box 17, 3300 AA Dordrecht, The Netherlands.

*Printed on acid-free paper*

All Rights Reserved  
© 2005 Springer

No part of this work may be reproduced, stored in a retrieval system, or transmitted in any form or by any means, electronic, mechanical, photocopying, microfilming, recording or otherwise, without written permission from the Publisher, with the exception of any material supplied specifically for the purpose of being entered and executed on a computer system, for exclusive use by the purchaser of the work.

Printed in the Netherlands.

---

We dedicate this book to our colleagues and friends  
Robert Cohen, Arda Denkel, Berent Enç and İlham Dilman

---

## TABLE OF CONTENTS

About the Contributors	ix
Preface	xiii
1. Gürol Irzik and Güven Güzeldere / Introductory Remarks	1
2. Güven Güzeldere / An Interview with Maria Reichenbach and David Kaplan	7
<b>PART I. PHILOSOPHY OF FORMAL AND PHYSICAL SCIENCES</b>	
3. Teo Grünberg / Demarcation of the Logical Constants and Logical Truth in Terms of Analyticity	27
4. Hüseyin Yılmaz / General Theory of Relativity and the 5 <sup>th</sup> Test	39
5. Yalçın Koç / Implications of the Geometry of Quantum Mechanical Perfect Correlation Functions Concerning “Bell’s Theorem without Inequalities”	59
<b>PART II. EPISTEMOLOGICAL AND METHODOLOGICAL ISSUES IN SCIENCE</b>	
6. Ümit D.Yalçın / Quine’s Robust Relativism	71
7. David Grünberg / Confirmation of Theoretical Hypotheses: Bootstrapping with a Bayesian Face	87
8. Erdinç Sayan / Idealizations and Approximations in Science, and the Bayesian Theory of Confirmation	103
9. A.M. Celal Şengör / Repeated Independent Discovery and “Objective Evidence” in Science: An Example from Geology	113
10. Samet Bağçe / A Study on the Heuristic of Saccheri’s <i>Euclides</i>	137

**PART III. PHILOSOPHY OF  
LANGUAGE AND MIND**

- |   |     |
|---|-----|
| 11. İlhan Inan / Discovery and Inostensible <i>De Re</i> Knowledge  | 153 |
| 12. Karanfil Soyhun / Implications of the Semantics and Pragmatics<br>Distinction for Philosophy of Science | 163 |
| 13. Murat Aydede / Computation and Functionalism: Syntactic Theory of<br>Mind Revisited                     | 177 |

**PART IV. CAUSES AND ACTION**

- |  |     |
|--|-----|
| 14. Arda Denkel / Causation, Parts, and Properties                                   | 207 |
| 15. Sun Demirli / Causal Relations in Hume   | 217 |
| 16. Berent Enç / How Causes can Rationalize: Belief-Desire Explanations<br>of Action | 231 |

**PART V. OTTOMAN SCIENCE STUDIES**

- |  |     |
|--|-----|
| 17. Berna Kılınç / Ottoman Science Studies-A Review  | 251 |
| 18. Ekmeleddin İhsanoğlu / Institutionalisation of Science in the Medreses<br>of pre-Ottoman and Ottoman Turkey  | 265 |
| 19. Osman R. Bahadır and H. Günhan Danışman / Late Ottoman and<br>Early Republican Science Periodicals: Center and Periphery Relationship<br>in Dissemination of Knowledge | 285 |



---

## ABOUT THE CONTRIBUTORS

**Murat Aydede** received his Ph.D. from the Philosophy Department of Maryland University, College Park. After teaching at the University of Chicago for a while, he became an associate professor of philosophy at the University of Florida where he is currently teaching now. His main scholarly interests are philosophy of mind with emphasis on pain and cognitive science. His articles appeared in such journals as *Consciousness and Emotions*, *Philosophy and Phenomenological Research*, and *Philosophy of Science*.

**Samet Bağçe** received his Ph.D. in Logic and Scientific Method from the Philosophy Department, London School of Economics. Currently, he is an associate professor of philosophy at Middle East Technical University. His areas of specialization include history and philosophy of science, especially philosophy of geometry. He has published articles in the philosophy and methodology of science and geometry in various journal and collections.

**Osman Bahadır** completed a DEA (Diplôme d'Etude Approfondi) Degree at Denis Diderot (Paris 7) University. He was the editor-in-chief of *Bilim Tarihi* (History of Science) Journal for its 30 issues from 1991 to 1994. His published books include *Osmanlılarda Bilim* (Ottoman Science), *Bilim Cumhuriyeti'nden Manzaralar* (Scenes from the Republic of Science), *Cumhuriyet'in ilk Bilim Dergileri ve Modernleşme* (Republic's First Science Magazines and Modernization) and *Elektriğin Kısa Tarihi* (A Short History of Electricity).

**H. H. Günhan Danışman** is an associate professor of History of Technology at Boğaziçi University. He received his Ph.D. from University of London in the same field. He is the author of numerous articles in various journals and the co-author or editor of several books in Turkish and English. In June 2002, he was elected as a council member of the International Oral History Association.

**Arda Denkeli** received his Ph.D. in philosophy at Oxford University. He taught at the Philosophy Department of Boğaziçi University, Istanbul until his untimely death at the age of 51 and published widely in analytical ontology, epistemology and philosophy of language. He wrote more than thirty articles and a dozen books, three in English, including *Object and Property* and *The natural Background of Meaning*.

**Sun Demirli** is an assistant professor in the Department of Philosophy at Bogazici University. He received his Ph.D in philosophy from Syracuse University. His areas of interest include the history of modern philosophy, metaphysics and ontology.

**Berent Enç** received his Ph.D. at Oxford University and was an emeritus professor of Philosophy at the University of Wisconsin-Madison. His publications ranged from philosophy of science and philosophy of mind to metaphysics and action theory. His articles appeared in *Journal of Philosophy*, *Mind*, *Philosophy of Science*, *Philosophical Studies*, *Noûs*, *Canadian Journal of Philosophy*, and *History of Philosophy Quarterly*. He passed away in 2003 at the age of 65.

**David Grünberg** is an associate professor of philosophy at Middle East Technical University, Ankara. He received his Ph.D. from the Philosophy Department of Middle East Technical University. He specializes in logic and philosophy of science. His publications include “A Wittgensteinian Approach to Truth” (*20th International Wittgenstein Symposium*), and “Bootstrapping and the Problem of Testing Quantitative Theoretical Hypotheses” (*Proceedings of the Twentieth World Congress of Philosophy, Volume 10*).

**Teo Grünberg** is an emeritus professor of philosophy at Middle East Technical University, Ankara. He received his Ph.D. from the Philosophy Department of Istanbul University. His areas of specialization are logic and philosophy of science. He is the author of numerous books in Turkish, including a three-volume book on logic. His publications appeared in such journals as *Journal of Symbolic Logic*, *Logique et Analyse*, *British Journal for the Philosophy of Science*, and *Studies in History and Philosophy of Science*.

**Güven Güzeldere** is an assistant professor of psychological and brain sciences at Duke University. He received his Ph.D. degree from Philosophy Department at Stanford University. He specializes in philosophy of mind, cognitive science, history and philosophy of psychology and neuroscience. He has published more than forty articles and coedited *Nature of Consciousness: Philosophical and Scientific Debates* (with N. Block and O. Flanagan). He is also the founding editor of *Psyche: An Interdisciplinary Journal of Research on Consciousness*.

**Ilhan Inan** is an assistant professor of philosophy at Boğaziçi University, Istanbul. He received his Ph.D. from the Philosophy Department of UC Santa Barbara. His areas of specialization include philosophy of language, epistemology and free will and determinism. Currently, he is working on a book on paradoxes.

**Gürol Irzık** is a professor of philosophy at Boğaziçi University, Istanbul. He received his Ph.D. degree from History and Philosophy of Science Department at Indiana University, Bloomington. He specializes in causation and the relationship between positivist and postpositivist approaches to science. He has contributed to many volumes and published in such journals as *British Journal for the Philosophy of*

*Science, Philosophy of Science, Studies in History and Philosophy of Science, and Science and Education.*

**Ekmeleddin İhsanoğlu** is currently the president of the Division of History of Science of the International Union of History and Philosophy of Science. He received his Ph.D. in Ankara University and taught at many institutions, mostly at Istanbul University as a professor of History of Science. He is the author and editor of numerous books and articles in many languages in science, history of science, Turkish culture and the relationship between Moslem and the Western world. His most recent publication is *Science, Technology and Learning in the Ottoman Empire*.

**Berna Kılınç** is an assistant professor of philosophy at Boğaziçi University, Istanbul. She received her Ph.D. in Conceptual Foundations of Science at the University of Chicago and specializes in history and philosophy of science, statistical reasoning and cognitive psychology. Her articles appeared in *Studies in History and Philosophy of Science* and *British Journal for the History of Philosophy*.

**Yalçın Koç** is an emeritus professor of philosophy at Boğaziçi University, Istanbul. He received his Ph.D. from the Philosophy Department of Istanbul University and specializes in philosophy of quantum mechanics, Plato and Kant. He is the author of several books in English in Turkey and published in such journals as *Physics Letters*, *Nuovo Cimento* and *Isis*.

**Erdinç Sayan** received his Ph.D. in philosophy from the Ohio State University. He is currently an associate professor in the Department of Philosophy at the Middle East Technical University, Ankara. His areas of interest include philosophy of science, philosophy of mind, and analytic metaphysics. He has published in *Philosophical Studies*, *Philosophy Research Archives* and *Studies in East European Thought*.

**Karanfil Soyhun** is an assistant professor of philosophy at Boğaziçi University, Istanbul. She received his Ph.D. from the Philosophy Department of University of Rochester. Her areas of specialization include philosophy of language, applied ethics and theories of rationality. Currently, she is working on a book on applied ethics.

**A. M. Celal Şengör** is a professor of geology at Istanbul Technical University, Istanbul. He is considered to be the world's foremost authority on the plate-tectonic evolution of Eurasia. He has published many books and hundreds of articles on geology and its history and been honored as a member of National Academy of Sciences (USA) and European Academy of Sciences.

**Ümit Yalçın** is an associate Professor at East Carolina University. He received his Ph.D. degree in Philosophy from UC Berkeley and specializes in epistemology and metaphysics. He is the coeditor of *Supervenience: New Essays* and published in *Philosophical Papers* and *Philosophical Studies*.

**Hüseyin Yılmaz** specializes in general relativity theory and is the author of numerous articles in books and in such journals as *Physical Review Letters*, *Annals of physics*, *Hadronic Journal* and *Nuovo Cimento*.

---

## PREFACE

The academic world is a strictly hierarchical world. Administrators and policy makers continuously devise all kinds of criteria in order to construct, and subsequently preserve, the hierarchies of the institutions. But in attempting to assess its own state, academia has dispensed with one of its basic constitutional values, and succumbed to the fatal attraction of quantification, since such hierarchies appear to undermine what academics so passionately preach: that what should be a qualitative assessment cannot be expressed quantitatively.

There is, nevertheless, another kind of hierarchy whose criteria are at the antipodes of the quantifiable standards. This other hierarchy is dependent on strictly subjective criteria: it concerns the way each member of the scientific community views his or her colleagues, with standards which sometimes may have the consensus of the community, but very often do not. Having the opportunity to get acquainted with the works of scholars who are members of emerging communities of historians and philosophers of science, has been one of the aims of the sub-series about the state of history and philosophy of science in national contexts, started so successfully by the untiring efforts of Bob Cohen.

The volume *Turkish Studies in the History and Philosophy of Science* shows in no uncertain terms that there is an active community of philosophers and historians of science in Turkey with an impressive scholarly agenda. The volume, also, includes a rather unique piece: the interview with Maria Reichenbach and David Kaplan, which – together with the particularly informative comments of the editors – brings to surface many aspects of academic life in Turkey in the past, unknown to many scholars. All the contributors to this volume are tackling problems lying squarely within the mainstream *problematique* of philosophy and history of science, thus being engaged in a critical dialogue with those who have the relevant expertise in these fields. The editors have done an excellent job in presenting the articles and the overall rationale behind the structure of the volume.

Let me bring up a number of issues, spurred by this collection of well-argued articles.

The hierarchies mentioned above have progressively brought about a stricter division between center and periphery, strengthening what for many people constituted the very basis of this dichotomy: almost everything that is considered “best” is to be found in the center, and, alternatively, the very notion of center is often understood to be the space, which almost exclusively accommodates what is considered to be “best.” The center is, thus, affirming its role as the producer of what is

new and novel and the periphery strengthens its image of having acquired its identity exactly because of its role in applying or consuming these new intellectual or material products. The link between center and periphery has been codified as a relationship based on the processes of a unidirectional transmission – of ideas and techniques from the center to the periphery. But this particular form of received wisdom does not appear to bear the brunt of recent (re)considerations of the notion of “transmission.” The relationship between center and periphery is recently being examined within the framework of the dynamic co-existence, on the one hand, of cultural affinities and dispositions for adoption and, on the other, of the potent proclivities to resistances in the receiving culture. Hence this relationship is viewed in terms of processes of *creative appropriation* of ideas and practices which have been initiated in the center, rather than in terms of the notion of transfer or transmission

In the discussions about the transmission of ideas and techniques from the center to the periphery, what had been glossed over was that the periphery plays an intriguingly creative role, since ideas and practices are never received in a passive manner: the receiving culture almost always *appropriates* what has been coming from the centers. And appropriation is a creative process. One must always recognize that ideas are not simply transferred like, as it were, material commodities. They are always transformed in unexpected and sometimes startling ways as they are appropriated within the multiple cultural traditions of a specific society during a particular period of its history. The scholars of the periphery are not passive agents whose only function is to distribute locally the well-packaged goods delivered to them from the centers, but they act as subjects who receive many goods with no particularly clear directions on how to dispose of them locally and that it is their role to chart such local strategies.

Thus the concept of the transfer of ideas, used extensively by those who have discussed these issues in the past, is found to be ultimately inadequate in contextualizing the dissemination of ideas and practices in the societies of the periphery. The notion of appropriation appears to be a more coherent and fruitful analytic instrument. Appropriation directs attention to the measures devised *within the appropriating culture* to shape the new ideas within the local traditions which form the framework of local constraints – political, ideological as well as intellectual constraints. To examine such issues requires discussing the ways in which ideas that originate in a specific cultural and historical setting are introduced into a different milieu with its own intellectual traditions as well as political and educational institutions. Indeed, a major challenge for whoever examines the processes of appropriation across boundaries is precisely to transcend the merely geographical, and to concentrate on the character of the specific receiving culture.

That such an approach can be particularly useful in the history of science does not need to be further qualified. But what about philosophy? For philosophy, generally, and philosophy of science, in particular, there is a series of questions, which I feel, preoccupy many of those who work in academic institutions of the periphery and often contemplate about redetermining their role by trying to combine scholarly excellence with local particularities. Let me mention some of these questions: Should we continue to be denying so emphatically that locality has no role in the further

discussion and analysis of the mainstream problems in philosophy? Is it possible to have further insights in the discussion of many of these problems, if attempts are made to start approaching the standard problems by drawing homologies with analogous themes related to the local cultural framework? Is the cultural diversification that is so pronounced in so many societies and its effects so intense in so many aspects of everyday life, to be ignored when it comes to the examination of many of these philosophical problems? Can these aspects of localities, be made to have a theoretical implication in the ways scholars discuss the philosophical problems? Is the aim of the educational programs, research agendas and organizational structures of the relevant academic Departments in the periphery to be good replicas of their equivalents in the institutions of the center or is there an unexplored range of possibilities which, if realised, will complement the already successful programs?

There are well argued objections to what constitute the presuppositions of such queries. In philosophy, especially, it is claimed that the problems are independent of localities. Everyone agrees that these problems appear repeatedly in the history of philosophy, but many regard this history as the sum total of the different attempts in dealing with these problems, again, independent of localities. But do such convictions continue to have their validity, if examined within the new realities of center and periphery? Might it be the case that the new emerging communities of philosophers may become a contributory factor in rejuvenating our overall philosophical *problematique*? What I am trying to argue is that it might be worthwhile, to re-examine these issues, and try to sense whether it would be possible to formulate some non-trivial answers – there may not be any, but it may be worth the discussion. The present appears to be an opportune moment for such discussions, since in many of the countries of the periphery there is an emerging community of particularly well-versed philosophers and historians of science and who often indirectly touch upon these issues in their attempts to (re)define their role as scholars, teachers and intellectuals.

Europe is presently in the throes of its most dramatic transformations since the end of the Second World War. New nation-states have come into being, new borders emerged, new institutions appeared, and old institutions restructured themselves. These changes will force many historians and other scholars to look again at the past. The work that has already been done, as well as newly available sources, combined with (comparatively) open intellectual environments and increases in funding for trans-cultural contacts offer an unprecedented opportunity for a critical re-examination of the historical character of science in Europe. It is obvious that such a re-examination, will not be tried on solely its scholarly merits, and that there will be many attempts to assimilate such reconsiderations of the past within the aspiring ideologies in Europe. Let me give an example of the dangers involved.

In a 1995 White Paper on the question of unemployment and on the ways young people can gain as many skills before finishing high school, the European Union proposed that history of science and technology be included in the school curricula. It was no doubt a good recommendation but for the wrong reasons.<sup>1</sup> The White

<sup>1</sup> White Paper published by the European Commission titled *Teaching and Learning: Towards the Learning Society* (Luxembourg, 1995). See sections II.B and C.

paper suggested that by learning the history of science, and especially the history of technology, young people will acquire knowledge of a variety of skills and techniques and will become aware of the boundlessness, as it were, of human inventiveness. The recommendation of the report, however, is embedded in one of those interesting mental summersaults that the bureaucrats in Brussels are so fond of performing. It was noted that science had been a European phenomenon, that modern science has been born in Europe and that it should be taken as our common European heritage. From these, it is but a short step, to be confronted with the elusive notion of European Science.

Here is one of those instances where there is such a dichotomy between the bureaucracy's goals and the aims of an academic pursuit. Never mind that historians of science have been trying to articulate local differentiations and trying to bring to surface the deviations from the view that holds the scientific enterprise to be an all inclusive homogeneous practice. European integration as planned in Brussels needs "European" notions like European Science and the specter of Europeanizing everything will be continuously finding justification. Nevertheless, the dynamics of these processes in Europe will offer new opportunities for academic pursuits, despite the fact that they take place within a framework full of contradictions and struggles for hegemonies – ideological, political, of research agendas, of educational priorities etc.

So here is another dimension about the sciences in the European periphery: Talking about the periphery will result in articulating differences and not in seeking identities. The view which considers the sciences at the European periphery as the out-of-focus reflections of what has been happening at the center is mostly for ideological use. The history of the sciences at the periphery is not an attempt to chart the map of the watered down version of what happened at the center. The study of the sciences in the periphery will bring forth interesting philosophical and historical issues only if such divergences in the European context are understood. Otherwise it would be trivial to study it: after all we do know that in the countries of the periphery there were no Newtons, no Laplaces, no Leibnizes, and no Eulers.

Thus, perhaps, one of the most intriguing challenges for philosophers and historians of science is to chart their own thematic atlas within this geographically expanded and culturally diverse Europe, whose present configuration provides a unique opportunity for symbiosis between established and emerging communities of historians. Members of newer communities will soon have to decide how to recast what have often, and for many years, been local topics in ways that can be linked to contemporary historiography of science, devise convincing methodologies of analysis and legitimate the attempts for the new syntheses.

Let me be clear in disavowing two possible misunderstandings: Firstly, I do not think that whatever new and refreshing will be coming from the work of the scholars from the periphery. Quite the opposite is what I want to stress: that there is an untapped potential in the cultural diversity of the international community of scholars which is being strongly bolstered and further consolidated by the ever more assertive presence of the emerging scholarly communities in the periphery. And such a diversity may be a contributory factor in the various ongoing attempts for new syntheses either in philosophy or history of science. Secondly, all of the



above is not another password for agreeing with the excesses of social constructivism. Unfortunately, the strongly partisan discussions of the past decade between those who uncritically acclaimed that social constructivism will be the new catharsis from the sins of the past and those who believed that such discussions were undermining the traditional holy values, did not create a milieu where researchers would talk about culture and localities without having to apologize and take distances from methodological prescriptions. But social and cultural history and its theoretical and philosophical considerations, has been an undertaking with a long history of its own and which has given many excellent samples of scholarly work.

Unknown to many, Turkey commands a uniqueness in the history of history of science: The first graduate student of the Harvard professor of History of Science George Sarton, was a Turk, Aydın Sayılı, whose subsequent work has ranked him among the experts of Islamic science and, specifically, astronomical observatories in the Ottoman Empire. He returned to Turkey after his studies and was initially appointed to a junior post at the University of Ankara, eventually becoming a professor of history of science there. In an exasperated letter to his teacher, soon after his return, he describes to him his academic loneliness in Ankara where none of his colleagues, there or anywhere he went in Turkey, could understand, let alone appreciate, what he was doing. He asked for his teacher's help, in case his teacher had some kind of ready and convincing answer to help him change the mood of indifference. A little over half a century later, our Turkish colleagues can rightly boast that they managed to come a long way from the conditions Sayili was describing, and the present volume is a rather convincing evidence of their achievements. And, personally, I feel deeply honored to have been asked by the editors to write the preface.

Kostas Gavroglu,  
Department of History and Philosophy of Science,  
University of Athens

## INTRODUCTORY REMARKS

The Republic of Turkey was founded in 1923 upon the ruins of the Ottoman Empire, which lasted more than six hundred years. The founders of the Republic explicitly denied the heritage of the Ottomans in all spheres and aimed to construct a modern nation-state based on Western values and principles. This was obviously no easy task and turned out to be more difficult than imagined. Turkey since 1923 is therefore best described as a country in continuous transition, that has given rise to striking similarities and differences, obvious continuities and ruptures between the old and the new, between a traditional, Islamic culture and a modern, secular one.

In this context the writing of the history of philosophy of science in Turkey can be either a too easy or a too difficult task. From one perspective, it is all too easy because there was simply no philosophy of science in the standard sense until the formation of the Turkish republic; all that exists is contemporary philosophy of science. From another perspective, this is denialism pure and simple because since at least the 19<sup>th</sup> century during which modernization (i.e. Westernization) attempts gained momentum in all spheres including education, there emerged a conspicuous philosophical interest and activity in logic, mathematics, physics and social thought. During this period a number of Ottoman young men were sent to Europe, especially France, to study the state of the art in the sciences.<sup>1</sup> But the writing of the history of philosophy of science from this perspective is not at all a simple task, the major reason being the language barrier. Although the lay people spoke Turkish, the official language of the Ottoman Empire was Ottoman, which was an Esperanto consisting of Persian, Arabic and Turkish, written in Arabic script. In 1928, the Latin alphabet was accepted and the language was drastically purified into Turkish, a process which continued well into the seventies, and the teaching of Ottoman language was excluded from the educational system. The dramatic result was that few could read anything written before 1928. Consequently, even if there is a distinctively philosophy of science heritage, it is mostly buried in old texts which are not so easy to find either.

Just like the history of philosophy, a detailed history of philosophy of science (including the Ottoman and the Republican period) is yet to be written as well. In this introduction we cannot do justice to this complex issue nor are we equipped to. What we can at best do is to mention some of the key figures since the thirties.

In the year 1933 Hans Reichenbach came to Turkey and began teaching in the Faculty of Letters at Istanbul University. He was invited by the Turkish government to establish a modern philosophy department and was appointed as its first chairperson. This was part of a much bigger movement of reforming Istanbul University as a whole, a reform that began in 1933 and was carried out with the help of about eighty-five non-Turkish academicians, scientists and technical personnel. A vast majority of them were German and Austrian refugees who escaped from the Nazi regime. Among them were philologists and professors of literature Leo Spitzer, Eric Auerbach and Helmut Ritter; professor of economics Fritz Neumark; professor of mathematics Richard von Mises; and professor of philosophy Ernst von Aster. The Turkish government employed them with the explicit purpose of turning Istanbul University into a modern institution of higher education (see Widmann 2000). It also adopted the reverse policy of sending, with government scholarship, promising young students and scholars to study abroad. Thus, the first generation of philosophers, philosophers of science, and historians of science in the early years of the Turkish Republic are to a large extent the outcome of these two policies.

Hans Reichenbach taught mostly logic and scientific philosophy, and even some history of philosophy since students were not knowledgeable about Western philosophy. Later he recruited von Aster to teach history of philosophy not only because the latter was a very good historian of philosophy, but also because he was sympathetic to scientific philosophy. Reichenbach's logic notes were published in Turkish under the title *Logistic*, and several of his lectures appeared in Istanbul University publications, which Reichenbach used in his *The Rise of Scientific Philosophy*.<sup>2</sup> This is not much, given that Reichenbach taught at Istanbul University until 1938. It appears that during his five-year stay Reichenbach focused on his book *Experience and Prediction* and did not seriously think of spending the rest of his life in Turkey. There are several reasons for this. He felt badly isolated from the community of philosophers of science. He had helped recruiting Richard von Mises to teach in the Mathematics Department, but obviously one sparrow did not make a summer. The libraries were extremely poor for doing research. Few of his students knew any foreign language, so his lectures had to be consecutively translated into Turkish by his assistants, Macit Gökberk and Nusret Hızır. Even Macit Gökberk, who later became a well-known historian of Western philosophy in Turkey, had trouble following Reichenbach's lectures because he had no mathematical background, and, as he himself confessed, auditing von Mises' mathematics classes did not help either (see Kaynardağ 1986). Finally, the law permitted a contract for only five years with no retirement benefits (Çağlar 1999).

These are not the only reasons why Reichenbach's influence was extremely limited. The 1933 Istanbul University reform meant that many Turkish faculty members either lost their jobs or were relegated to a second-class status. Most of them were trained in Islamic philosophy and therefore knew little about the recent developments in Western philosophy, especially, scientifically oriented philosophy. When Reichenbach became the chair of the Philosophy Department, he wrote negative reports about the competence of some of his Turkish colleagues. All of this caused much envy and hostility among not only philosophers but also other

academicians, which must have made Reichenbach uneasy and become an additional obstacle against philosophy of science's taking root in Turkey (see Kaynarđađ 1986).

Reichenbach's scientific philosophy made its limited impact through his Istanbul University colleagues such as Vehbi Eralp, Hilmi Ziya Ülken, and Nermi Uygur. But the person who was most instrumental in this respect was Nusret Hızır. Hızır studied physics, mathematics and philosophy in Germany and served as Reichenbach's assistant from 1934 to 1937. At the time he was probably the only one who really understood the new logic and philosophy, which he adopted enthusiastically. But, unfortunately, in 1937 he was appointed as a researcher at the Institute of Turkish History in Ankara, and this meant, when coupled with Reichenbach's departure for USA in 1938, that no courses in modern logic and philosophy of science were to be offered for years to come. Philosophy at Istanbul University turned heavily historical, almost exclusively German, under various influences. Nevertheless, Hızır was able to return to teaching philosophy at Ankara University from 1942 until 1968. He also taught briefly at Ecole Normal Superieur in Paris and Middle East Technical University in Ankara after his retirement and disseminated the ideas of scientific philosophy.

From late sixties onward philosophy of science and logic began flourishing in Ankara, especially after Hüseyin Batuhan and Teo Grünberg joined Middle East Technical University and established a philosophy of science and logic program there. It is interesting to note that although both of them began their philosophical career in Istanbul University, they "discovered" the existence of modern logic and the analytic philosophy of Russell, Wittgenstein, Austin, Ayer and Quine on their own. It is also worth noting that five of the contributors to this collection have taken courses at some level with either Grünberg or Batuhan or both. We should add, however, that the impact of the refugee scholars on the Turkish philosophers and their role in the academic and intellectual life in general has not been fully explored.

Let us now say a few words about the history of science in Turkey, which originally had a better footing than philosophy of science. Two names stand out in recent history: Adnan Adıvar, an intellectual medical doctor who wrote the first treatise on the history of Ottoman science, *La Science chez les Turcs Ottomans*, published in France in 1939; and Aydın Sayılı, the first person to receive a PhD under George Sarton at Harvard University in 1942. While Adıvar's book represents popular, narrative, and ahistoric historiography, Sayılı's works represent the analytical, academic historiography, which emphasizes the indispensability of original sources. Sayılı was handpicked by Mustafa Kemal Atatürk, the founder of the Turkish Republic, to be given government scholarship to study history of science abroad. The choice turned out to be more than appropriate; Sayılı became an internationally distinguished historian of science. His major work is *The Observatory of Islam and its General Place in the History of the Observatory*, published in 1960. He formed the first history of science program in Turkey at Ankara University in 1952 and began producing PhDs. The most well known of them is Sevim Tekeli who published on the nature of instruments used in the observatories in the East and in the West in the sixteenth century. There is now a strong tradition of Ottoman science studies at Ankara University. Despite Sayılı's heritage, however, historical studies of

Ottoman science and technology have not completely purged themselves of an ahistoric perspective especially when treating scientific concepts.

This volume begins with an interview with Maria Reichenbach, Hans Reichenbach's wife. One of the interviewers is David Kaplan, who took courses with Reichenbach at UCLA, so the interview gives us an insight into Reichenbach's life both in Istanbul and LA.

Most of the articles in this volume are written by scholars who have done their graduate work abroad. Some of them continue to teach abroad. In this sense the articles reflect a universalist and cosmopolitan character. Part I deals with the philosophy of logic and physics. Part II is concerned with epistemological and methodological issues in science such as confirmation, objective evidence and relativism. Part III contains articles in philosophy of language and mind. Part IV deals with the topic of causality in relation to analytical ontology and action. Finally, Part V is devoted to Ottoman science studies. The volume does not aim to represent an exhaustive survey of philosophy of science, much less of history of science, by Turkish philosophers and historians of science. It merely aims to give the reader an overall idea about their work, which we hope to be of interest to the international community of scholars with similar concerns.

The idea for this book was suggested to us by Robert Cohen. We are grateful to him for the initial impetus. However, the publication of this volume was delayed for a number of reasons. During its preparation, first Arda Denkel in 2000 and then Berent Enç in February of 2003 passed away unexpectedly. It is of some consolation to us that they were able to complete the writing of their articles before their untimely death. Shortly after Enç's death, another well-known Turkish philosopher, İlham Dilman, too died. We regret not being able to include a contribution by him. It is to their memory we dedicate this volume.

We received generous help from a number of colleagues and students. We thank Stephen Voss for his suggestions and proofreading, and Rob Bowers and Melis Erdur for the transcription of the interview with Maria Reichenbach. We thank them all. Our greatest debt is to Bürkem Cevher. Without her technical assistance this volume would not have been possible. Finally, we would like to thank Charles Erkelens and especially Ingrid Krabbenbos from Kluwer for their generous support, guidance and infinite patience. It was a pleasure to work with them.

*Department of Philosophy, Boğaziçi University*  
*Department of Philosophy, Duke University*

## NOTES

<sup>1</sup> Just to give two examples, Salih Zeki (1864-1921), a distinguished mathematician, translated several books by Poincaré including *Science and Hypothesis*, and lectured extensively on the philosophical meaning of the discovery of non-Euclidean geometries. Kerim Erim (1894-1958), another well-known mathematician, wrote on the philosophical aspects of relativity theory, the issue of determinism and probability, and the foundations of mathematics; he was also an active participant in Reichenbach's seminars in Istanbul University.

<sup>2</sup> These include the following: 1) "Felsefe ve Tabiat İlimleri" (Philosophy and the Natural Sciences), *Üniversite Konferansları 1933-1934*, İstanbul Üniversitesi Yayınları, 1934. In this opening lecture of the

“General Philosophy” course for the 1933-34 academic year, Reichenbach discusses the relationship between the natural sciences and the “system philosophies” of Descartes, Hume and Kant. 2) “İlmi Felsefenin Bugünkü Meseleleri” (Today’s Issues of Scientific Philosophy), *Üniversite Konferansları* 1936-1937, İstanbul Üniversitesi Yayınları, 1937. In this paper Reichenbach describes scientific philosophy as the analysis of knowledge, of the language of science. 3) “Tabiat Kanunu Meselesi” (The Problem of Law of Nature), *Üniversite Konferansları*, İstanbul Üniversitesi Yayınları, 1937-1938. This lecture seems to have formed the essence of Chapter 10-Laws of Nature of *The Rise of Scientific Philosophy*. 4) “İllyet ve İstikra” (Causality and Induction), *Felsefe Semineri Dergisi*, İstanbul University Yayınları, 1939. Here, Reichenbach discusses Hume’s and Kant’s views on causality and induction and argues that a probabilistic approach promises to solve the problem of induction.

#### REFERENCES

- Çağlar, A. *Türkiye Cumhuriyeti’nin 75. Yılında 1933 Üniversite Reformu* (1933 University Reform in the 75<sup>th</sup> Year of Turkish Republic). Ankara: TÜBA Yayınları, 1999.
- Kaynarcağ, A. “Üniversitemizde Ders Veren Alman Felsefe Profesörleri” (German Philosophy Professors who Taught at our Universities). In *Türk Felsefe Araştırmalarında ve Üniversite Öğretiminde Alman Filozofları* (no editor), Ankara: Türkiye Felsefe Kurumu Yayınları, 1986, 1-31.
- Widmann, H. *Atatürk ve Üniversite Reformu* (translation of *Exil und Bildungshilfe*). İstanbul: Kabalci, 2000.

---

## AN INTERVIEW WITH MARIA REICHENBACH AND DAVID KAPLAN

(Conducted by Güven Güzeldere)

**M:** Maria Reichenbach

**G:** Güven Güzeldere

**K:** David Kaplan

**M:** The first year in Istanbul, everybody invited everybody else among those people who could or would no longer teach in Germany under Hitler. There was not only a Jewish community, but there were also lots of other people who for political reasons did not want to stay or could not stay in Germany. There were about 40 people with their families, and they got a very good contract of five years at academic institutions and had assistants and interpreters. In Hans's case, depending on what the interpreter spoke—if the interpreter talks in German, then he talks in German and if in French, then he talks in French and if in English then in English. After every sentence the interpreter would translate it into Turkish, the students could write down the whole lecture verbatim, sentence after sentence. He was also taking the students—also something new at the time in Turkey—for skiing at Mount Uludağ on the Anatolian side. The faculty lived either in Pera or Bebek or Kadıköy. I was teaching for the children of the professors, and I traveled around and toured into Turkish nursery schools and WYCE, where I taught English and French. I must have taught from 8 in the morning to 8 in the evening. Hans got an offer from UCLA during his five-year contract, but they did not let him go, so he had to finish the five-year contract. During his stay, he instituted some kind of interdisciplinary discussions, as he had done in Berlin also. Of course, that died immediately after he left. After five years almost everybody left. Politically, things became more chauvinistic somehow. Gazi [Mustafa Kemal Atatürk] was dead. So maybe one or two families stayed, but otherwise people came to USA, and later after the war, some returned to Germany, also to Switzerland, I do not know. The generation that knew these people probably is dead now.

**G:** In Turkey, I found people who are students of students of this generation. Concerning the relation of these academicians with German officials in Turkey... Probably, the German government must have been pressuring Turkey to...

**M:** If you had anything to do with them, you had to make use of the people in schools. There was a German school, there was a French lycee, there was American high school for boys and girls—so there were lots of them, and we knew these people.

**G:** I am wondering if the German government was making life difficult for the immigrants.

**M:** Yes, but they [the German government] did not have much to do with them. People became stateless after 1938, I think. They did not renew your passport, you know. But if you had an offer from here [USA], you could come in.

**G:** How big was the whole community?

**M:** There were 40 families, I think. But there were others who went to Ankara. Not everybody went to Ankara. Gazi was building so many new ministries there, and there were many architects who went to Ankara. All sorts of people went to Ankara. But we stayed in Istanbul.

**G:** What about Fritz Neumark?

**M:** He was one of the professors from Germany.

**G:** Is he still alive?

**M:** I doubt it. He said in one of his letters that he has passed the Biblical age. The Biblical age is 70, which is today not so terribly old. But I don't know, I have no contact anymore with anybody.

**G:** How about your family when you first came to Turkey?

**M:** I came alone.

**G:** Oh, you came by yourself.

**M:** Yeah.

**G:** I wonder, if you came because any other friends came.

**M:** No, I came with any other family,

**G:** And you already had a PhD?

**M:** Yeah, I had my PhD. February 1933. The Nazi party was already there, but I had won it [the PhD degree] just . . .



---

sample content of Turkish Studies in the History and Philosophy of Science (Boston Studies in the Philosophy and History of Science)

- [\*Muerte en el club de lectura \(Aurora Teagarden Mysteries, Book 8\) pdf, azw \(kindle\), epub, doc, mobi\*](#)
- [click Blood and Politics: The History of the White Nationalist Movement from the Margins to the Mainstream](#)
- [read online Breathing Lessons for free](#)
- [download Merchants of Doubt: How a Handful of Scientists Obscured the Truth on Issues from Tobacco Smoke to Global Warming \(UK Open Market Edition\)](#)
- [Analysis and Design of Information Systems \(3rd Edition\) pdf, azw \(kindle\), epub](#)
- [Foreign Influence \(Scot Harvath, Book 9\) pdf](#)
  
- <http://www.netc-bd.com/ebooks/Muerte-en-el-club-de-lectura--Aurora-Teagarden-Mysteries--Book-8-.pdf>
- <http://paulczajak.com/?library/Blood-and-Politics--The-History-of-the-White-Nationalist-Movement-from-the-Margins-to-the-Mainstream.pdf>
- <http://korplast.gr/lib/The-Miracle-Thief.pdf>
- <http://econtact.webschaefer.com/?books/They-Hanged-My-Saintly-Billy.pdf>
- <http://musor.ruspb.info/?library/The-Trauma-of-Everyday-Life.pdf>
- <http://pittiger.com/lib/Foreign-Influence--Scot-Harvath--Book-9-.pdf>