

# ERNST MACH LIFE WORK INFLUENCE

International Conference  
on the Occasion of the 25th  
Anniversary of the Institute  
Vienna Circle

5th Anniversary as  
Institute of the Faculty  
of Philosophy and Education  
University of Vienna  
<http://mach16.univie.ac.at/>

## PROGRAMME

June 15–18, 2016  
Campus of the  
University of Vienna  
Österreichische  
Akademie der  
Wissenschaften (ÖAW)

## Ernst Mach



Ernst Mach (1838–1916) ranks among the most significant natural scientists and philosophers of the 19th and 20th century. In physics paving the way for Einstein's Theory of Relativity and opposing Boltzmann's Atomism, in biology, psychology and physiology pioneering with an empiricist and 'gestalthaft' "Analysis of Sensations" in philosophy of science serving as a model for the Vienna Circle with the Ernst Mach Society as well as paving the way for an integrated history and theory of science. His influence extends far beyond the natural sciences – to the Vienna Medical School and psychoanalysis (R. Bárány, J. Breuer, S. Freud), to literature ("Jung Wien", R. Musil), to politics (F. Adler, Austro-Marxism and the Viennese adult education), to arts between Futurism and Minimal Art as well as to social sciences between the liberal school (J. Schumpeter, F. A. von Hayek) and empirical social research (P. Lazarfeld and M. Jahoda). In today's pedagogy, his genetic theory of learning is just as respected as his method in historical epistemology. Mach's international impact already showed during his lifetime, in American Pragmatism (W. James) and French Conventionism (P. Duhem, H. Poincaré). On the occasion of the centenary of Ernst Mach's death, the Institute Vienna Circle organizes an international symposium on the life, work and influence of this natural scientist and philosopher who worked at the University of Vienna and the Austrian Academy of Sciences for many years and who exerted significant influence on several generations of scholars and scientists as well as of cultural and political agents. The main goal is a critical inventory of Mach's lifework in line with state-of-the-art research and historiography – not least supported by the Ernst Mach Studienausgabe (study edition) and the work in the framework of the newly established Commission for the History and Philosophy of the Austrian Academy of Sciences.

Ernst Mach (1838–1916) zählt zu den bedeutendsten Naturwissenschaftlern und Philosophen des 19. und 20. Jahrhunderts. In der Physik als Wegbereiter von Einsteins Relativitätstheorie und Kontrahent von Boltzmanns Atomistik, in der Biologie, Psychologie und Physiologie als Pionier einer empiristischen und gestalthaften „Analyse der Empfindungen“, in der Wissenschaftsphilosophie als Vorbild des Wiener Kreises mit dem Verein Ernst Mach sowie als Wegbereiter einer integrierten Wissenschaftsgeschichte und Wissenschaftstheorie. Seine Wirkung reicht weit über die Naturwissenschaft hinaus – in die Wiener Medizinische Schule und Psychoanalyse (R. Bárány, J. Breuer, S. Freud), in die Literatur („Jung Wien“, R. Musil), in die Politik (Friedrich Adler, der Austromarxismus und die Wiener Volksbildung), in die Kunst zw. Futurismus und Minimal Art sowie in die Sozialwissenschaften zwischen der liberalen Schule (J. Schumpeter, F. A. von Hayek) und der empirischen Sozialforschung (P. Lazarfeld und M. Jahoda). In der heutigen Pädagogik wird heute seine genetische Lerntheorie genauso beachtet wie seine Methode in der historischen Epistemologie. Machs internationale Wirkung zeigte sich bereits zu Lebzeiten im amerikanischen Pragmatismus (W. James) und den französischen Konventionalismus (P. Duhem, H. Poincaré). Anlässlich der 100. Wiederkehr des Todestages von Ernst Mach organisiert das Institut Wiener Kreis ein internationales Symposium zu Leben, Werk und Wirkung dieses Naturforschers und Philosophen, der an der Universität Wien und an der Akademie der Wissenschaften viele Jahre lang gewirkt hat und mehrere Generationen in Wissenschaft, Kultur und Politik maßgeblich beeinflusst hat. Zielsetzung ist eine kritische Bestandsaufnahme von Machs Lebenswerk auf dem Stand gegenwärtiger Forschung und Historiografie – nicht zuletzt unterstützt durch die Ernst Mach Studienausgabe und die Arbeit im Rahmen der neu eingerichteten Kommission für Geschichte und Philosophie der Wissenschaften an der Österreichischen Akademie der Wissenschaften (ÖAW).

## Wednesday, June 15

19.00 SIDE PROGRAM/VORPROGRAMM WIENER VORLESUNGEN ZUM 100. TODESTAG VON ERNST MACH (1838–1916)  
Universität Wien, Hauptgebäude, BIG 1, Universitätsring 1, 1010 Wien

Friedrich Stadler: Der „Naturforscher“ Ernst Mach (1838–1916) als Grenzgänger und Grenzüberschreiter – Zum Verhältnis von Geistes- und Naturwissenschaften aus heutiger Sicht

Anschließend Podiumsdiskussion mit: Elisabeth Nemeth, Renée Schröder, Friedrich Stadler  
Moderation: Hubert Christian Ehalt

## Thursday, June 16

from 8.00 REGISTRATION: AULA AM CAMPUS, SPITALGASSE 2–4, CAMPUS HOF 1.11

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| AULA AM CAMPUS, CAMPUS HOF 1.11, SPITALGASSE 2–4 | ALTE KAPELLE, CAMPUS HOF 2.8 SPITALGASSE 2–4 | SEMINARRAUM I, CAMPUS HOF 1.6.1, SPITALGASSE 2–4 | SEMINARRAUM II, CAMPUS HOF 1.13, SPITALGASSE 2–4 |
|--|--|--|--|

9.00–09.30 Opening:  
Brigitte Mazohl (Vice-President, ÖAW), Christa Schnabl (Vice-Rector, University of Vienna), Elisabeth Nemeth (Dean, Faculty of Philosophy and Education), Markus Aspelmeyer (Co-Chair of PC), Friedrich Stadler (Local Organizer, Co-Chair of PC)

CHAIR: Friedrich Stadler

9.30–10.30 Plenary Lecture: Don Howard (University of Notre Dame): Back to the Future: Ernst Mach and Integrated History and Philosophy of Science for the Twenty-first Century

CHAIR: Bastian Stoppelkamp

CHAIR: Christoph Limbeck-Lilienau

CHAIR: Hayo Siemsen

SYMPOSIUM: MACH AND THE SCHOOL OF BRENTANO

10.30–11.10 Avril Styman (University of Helsinki): Economical Unification in Philosophy of Science

Kevin Mulligan (University of Geneva): Claims and their Cash Value

Miloš Kratochvíl (University of West Bohemia, Pilsen): Mach and Czech Positivism

11.10–11.30 COFFEE BREAK

SYMPOSIUM: MACH, BRNO, AND PRAGUE

11.30–12.10 Sandy Berkovski (Bilkent University): Some remarks on Mach's Philosophical Doctrines

Denis Fisette (University of Quebec at Montréal): Brentano's Lecture on Positivism and Monism (1893–1894) and his Criticism of Ernst Mach

Martin Černohorský (Masaryk University Brno): Ernst Mach's Early Childhood in Brno and in Zlín: Adolescence in Kremsier

12.10–12.50 Elena d'Amore (University of Pisa): Mach's Criticism, or a Discourse on the Method

Guillaume Fréchette (University of Salzburg): From Brentano to Mach. Carving Austrian Philosophy at Its Joints

Emilie Těšínská (Academy of Sciences of the Czech Republic): Ernst Mach as an Applicant and the Candidate secundo loco for two Professorships of Physics in Prague in 1866/67

12.50–13.30 Carl Henning Reschke (IMFK, Cologne): Links between Mach's Functional Relations, the Systems Approach and the Complexity Perspective

Denis Seron (University of Liège): Intentionality vs. psychophysical Identity

Martin Černohorský, Marie Fejtíková, Jana Musilová (Masaryk University Brno): Ernst Mach Days, Brno 1938, 1988, 2008, 2016

13.30–14.30 LUNCH BREAK

CHAIR: Thomas Uebel

CHAIR: Günther Sandner

CHAIR: Christian Damböck

14.30–15.10 Ursula Baatz (Wien): Ernst Mach: Naturwissenschaft und Buddhismus. Ein Missverständnis unter dem Vorzeichen der Globalisierung

David Romand (Université Paris Diderot): Mach's „sensation“, Gomperz's „feeling“, and the Positivist Debate about the Nature of the Elementary Constituents of Experience. A Comparative Study in Psychological and Epistemological Context

Klemens Rumpf (Karl-Franzens-University, Graz): The First Professorship of Ernst Mach at the Graz Karl-Franzens-University

15.10–15.50 Gerhard Donhauser (Wien): Das bedrängte Ich. Ich-Konzepte bei Freud und Mach

John Preston (The University of Reading): Ernst Mach and the Remarks on Science in Wittgenstein's Tractatus

Petra Granitzer (Karl Franzens University, Graz): The Graz Physical Institute after Ernst Mach

15.50–16.30

Tomas Hrbek (Academy of Fine Arts): Mach as a Panqualityist

Rudolf Dvořák (Czech Academy of Science, Prague): Ernst Mach in Prague and the Dawn of Gas Dynamics

16.30–16.50 COFFEE BREAK

CHAIR: Richard Staley

CHAIR: Hans-Joachim Dahms

16.50–17.30 Julian Toader (University of Bucharest): On the Principle of Permanence as a Principle of Rationality

CHAIR: Josef Pircher

Sandro Caparrini (University of Torino): Mach in Italy: Giovanni Vailati (1863–1909) as Reader and Interpreter of Ernst Mach

17.30–18.20 Lydia Patton (Virginia Tech): Spatiotemporal Continuity in Mach's Economy of Science

Katherine Arens (University of Texas at Austin): The Specter of 'Austrian Philosophy': Ernst Mach and a Modern Tradition of Post-Philosophy

Michael Stöltzner (University of South Carolina): A History of Divided Reception: The Austrian and the German Mach

19.00 RECEPTION: RATHAUS/TOWN HALL, LICHTENFELSGASSE 2, 1010 WIEN (REGISTRATION REQUIRED)

## ERNST MACH LIFE WORK AND INFLUENCE

### MAIN ORGANIZERS

University of Vienna:  
Institute Vienna Circle and Department of Philosophy/  
Faculty of Philosophy and Education / Faculty of  
Historical and Cultural Studies (Research Focus  
"History of Science – Cultures of Knowledge –  
Knowledge Societies")/ Faculty of Physics, Faculty  
of Mathematics/Faculty of Life Sciences/Faculty of  
Social Sciences/Faculty of Psychology

Österreichische Akademie der  
Wissenschaften (ÖAW):  
Commission for History and Philosophy of Science/  
Institute of Culture Studies and Theatre History

Together with: Max Planck Institute for the History  
of Science, Berlin/Deutsches Museum (German  
Museum), Munich/Masaryk University, Brno (Ernst  
Mach-Days, Brno, February 18–20, 2016)/Université  
Paul-Valéry, Montpellier/Moritz Schlick-Forschungs-  
stelle, University of Rostock



# Friday, June 17

|             |  |  |   |  |
|-------------|--|--|---|--|
| from 8.00   | REGISTRATION: AULA AM CAMPUS, SPITALGASSE 2–4, CAMPUS HOF 1.11   |  |   |  |
|             | AULA AM CAMPUS, CAMPUS HOF 1.11, SPITALGASSE 2–4   | ALTE KAPELLE, CAMPUS HOF 2.8, SPITALGASSE 2–4  | SEMINARRAUM 1, CAMPUS HOF 1.6.1, SPITALGASSE 2–4  |  |
|             | CHAIR: Katherine Arens   | CHAIR: Erik C. Banks   | CHAIR: Anastasios Brenner   |  |
| 9.00–9.50   | Michael Heidelberger ( <i>University of Tübingen</i> ): What Mach Owes to Fechner and what he Made of it   | Thomas Uebel ( <i>University of Manchester</i> ): Mach, Jerusalem and Pragmatism   | Elisabeth Nemeth ( <i>University of Vienna</i> ): 'Variation' and 'Elements' in Ernst Mach and Otto Neurath   |  |
| 9.50–10.30  | Gerhard Benetka, Thomas Slunecko ( <i>Universität Wien</i> ): Ernst Mach's Bedeutung für die Herausbildung einer naturwissenschaftlichen Psychologie – Ein Missverständnis mit Folgen? | Pietro Gori ( <i>Universidade Nova de Lisboa</i> ): What does it Mean to Orient Oneself in Science? On Ernst Mach's Pragmatism   | Günther Sandner ( <i>Universität Wien</i> ): Spätaufklärung und exakte Wissenschaft. Der Verein Ernst Mach und die Berliner Gesellschaft für empirische/wissenschaftliche Philosophie                 |  |
| 10.30–11.10 | René J. Campis ( <i>Universidad del Atlántico, Barranquilla</i> ): The Trans-disciplinary Legacy of Ernst Mach   | Mariana Valente ( <i>University of Évora, Portugal</i> ): "The most artistic lesson I ever heard" – A Contribution to The reflection on the Comment Made by William James Regarding a Lesson by Ernst Mach | Hans-Joachim Dahms ( <i>Berlin</i> ): Ernst Mach and Wilhelm Ostwald: Two kinds of Neopositivism and their Influence on the Vienna Circle   |  |
| 11.10–11.30 | COFFEE BREAK   |  |   |  |
| 11.30–12.10 | Markus Schrenk ( <i>University of Düsseldorf</i> ): Ernst Mach on the Self: The Deconstruction of the Ego as an Attempt to avoid Solipsism   | Bastian Stoppelkamp ( <i>University of Vienna</i> ): "He hits the target but misses the bull's eye": Ernst Mach, Charles Sanders Peirce und die pragmatische Maxime  | Germaine Lademiral ( <i>Université Paris 1 Panthéon-Sorbonne</i> ): Le monisme peut-il être «neutre»? Les raisons épistémologiques du refus chez Schlick du monisme de Mach                           |  |
| 12.10       | POSTER SESSION: ERNST MACH AND EDUCATION / MACH AND PHYSICS  |  |   |  |
| 12.10–12.50 | LUNCH BREAK  |  |   |  |
| 13.15       | GUIDED WALK TO ÖSTERREICHISCHE AKADEMIE DER WISSENSCHAFTEN (ÖAW)   |  |   |  |
| from 13.00  | REGISTRATION: AULA, ÖSTERREICHISCHE AKADEMIE DER WISSENSCHAFTEN, DR. IGNACIUS SEIPEL-PLATZ 2, 1010 WIEN  |  |   |  |
|             | POSTER SESSION CONTINUED (ÖAW): ERNST MACH AND EDUCATION / MACH AND PHYSICS  |  |   |  |
|             | SITZUNGSSAAL, ÖAW<br>DR. IGNACIUS SEIPEL-PLATZ 2   | JOHANNESAALE, ÖAW<br>DR. IGNACIUS SEIPEL-PLATZ 2   | CLUBRAUM, ÖAW<br>DR. IGNACIUS SEIPEL-PLATZ 2  | THEATERSAAL, ÖAW<br>SONNENFELSGASSE 19   |
|             | CHAIR: Klaus Hentschel   | CHAIR: Petra Granitzer   | CHAIR: Martin Černohorský   |  |
| 14.00–14.50 |  | SYMPOSIUM: MACH AND VIENNESE MEDICINE  |   |  |
|             | Peter Christian Aichelburg ( <i>University of Vienna</i> ): Mach's influence on Einstein's biggest blunder and the Consequences for Modern Cosmology                                   | Herwig Swoboda ( <i>Krankenhaus Hietzing, Wien</i> ): Ein Ohr für Leibniz und Newton – Ernst Machs Beitrag zur Otologie  | Michael Matthews ( <i>University of New South Wales</i> ): On Mach and Education  |  |
| 14.50–15.30 | Dennis Lehmkuhl ( <i>California Institute of Technology</i> ): The Connection Between Mach's Principle and the Relativity Principle in Einstein's work                                 | Ruediger Hoffmann ( <i>Dresden University of Technology</i> ): Ernst Mach and Johannes Kessel in Prague  | Gerd-Bodo von Carlsburg ( <i>Pädagogische Hochschule Heidelberg</i> ) / Karl-Hayo Siemsen ( <i>University of Applied Sciences, Emden</i> ): Joachim Thiele: Machs Pädagogik in Briefen und Dokumenten |  |
| 15.30–16.10 | Theodore L. Kneupper ( <i>California Institute of Technology</i> ): Mach's Views on Physical Space and Time and their Grounding in Perceptual Space and Time                           | Stefan Hegemann ( <i>Universitäts-spirit Zürich</i> ): Ernst Mach und das Gleichgewicht  | Igal Galili ( <i>The Hebrew University of Jerusalem</i> ): On the Influence of Ernst Mach on Contemporary Physics Curriculum at Schools: The Concept of Weight  |  |
| 16.10–16.30 | COFFEE BREAK   |  |   |  |
|             | CHAIR: Klaus Hentschel   | CHAIR: Petra Granitzer   | CHAIR: Clemens Rumpf  |  |
| 16.30–17.10 | Klaus Robering ( <i>University of Southern Denmark</i> ): Ernst Mach's Geometry of Solids  | Maja Soboleva ( <i>University of Marburg</i> ): Vom Empiriokritizismus zum Empirionismus: Aleksander Bogdanovs Rezeption der Epistemologie von Ernst Mach  | Josef Pircher ( <i>University of Vienna</i> ): Ernst Mach's Didactics in Context  |  |
| 17.10–17.50 | Milena Ivanova ( <i>Ludwig-Maximilians University of Munich</i> ): Mach, Duhem and the Limits of Scientific Knowledge  | Josef Hladek ( <i>Karl Franzens University, Graz</i> ): Ernst Mach und die Wiener Hirnanatomie   | Clemens Ulrich ( <i>Höhere Graphische Bundes-Lehr- und Versuchsanstalt, Wien</i> ): Machs und Salchers Schlierenphotographien inspirieren ein Multimedia-Projekt an der „Graphischen“                 |  |
| 17.50–18.40 | Robert M. Wald ( <i>University of Chicago</i> ): On Mach's Principle and General Relativity Theory   | Manfred Laubichler ( <i>Arizona State University</i> ) / Jürgen Renn ( <i>Max Planck Institute for the History of Science, Berlin</i> ): Mach's Evolutionary Conception of Knowledge                       | Hayo Siemsen ( <i>University of Applied Sciences, Emden</i> ): The Psychology of Education from Beneke to Mach  | CHAIR: Wolfgang Reiter   |
| 19.00–20.00 |  |  |   | Gereon Wolters ( <i>University of Konstanz</i> ): Plenary Lecture: Mach and Relativity – A Never-ending Story? |

# Saturday, June 18

|             |  |   |   |  |
|-------------|--|---|---|--|
| from 8.00   | REGISTRATION: AULA, ÖSTERREICHISCHE AKADEMIE DER WISSENSCHAFTEN, DR. IGNACIUS SEIPEL-PLATZ 2, 1010 WIEN  |   |   |  |
|             | SITZUNGSSAAL, ÖAW<br>DR. IGNACIUS SEIPEL-PLATZ 2,<br>1010 WIEN   | JOHANNESAALE, ÖAW<br>DR. IGNACIUS SEIPEL-PLATZ 2<br>1010 WIEN   | CLUBRAUM, ÖAW<br>DR. IGNACIUS SEIPEL-PLATZ 2<br>1010 WIEN   | THEATERSAAL, ÖAW<br>SONNENFELSGASSE 19<br>1010 WIEN                |
|             | CHAIR: Michael Stötzner  | CHAIR: Elisabeth Nemeth   | CHAIR: David Romand   |  |
| 9.00–9.50   |  | SYMPOSIUM: MACH, DUHEM AND FRENCH PHILOSOPHY OF SCIENCE   |   |  |
|             | Johannes-Geert Hagemann ( <i>Deutsches Museum, Munich</i> ): Light and Shadow: the Experimental Collaboration between Ernst and Ludwig Mach, Father and Son  | Anastasios Brenner ( <i>Université Paul-Valéry, Montpellier</i> ): Mach, Duhem and the Historical Method in Philosophy of Science   | Eduardo Bermúdez Barrera ( <i>Barranquilla</i> ) / René J. Campis, David Dahmen, Ronald Villa, ( <i>Universidad del Atlántico, Barranquilla</i> ): Appraisal and Influence of Mach's Works in South America |  |
| 9.50–10.30  | Eva-Maria Jung ( <i>University of Münster</i> ): Experiencing and Experimenting. Mach's Theory of Scientific Experiment in Context   | Marco Buzzoni ( <i>University of Macerata</i> ): Mach and Duhem about Thought Experiments   | Daniela Steila ( <i>Università di Torino</i> ): Mach's Reception in Pre-Revolutionary Russia  |  |
| 10.30–11.10 | Alexandre Couture-Mingheras ( <i>Université de Liège</i> ): L'empirisme post-kantien de Mach: la conquête d'un nouveau concept de «donné»  | Laurent Clauzade ( <i>Université de Caen Comte</i> ): Mach and Duhem on Scientific Explanation  |   |  |
| 11.10–11.30 | COFFEE BREAK   |   |   |  |
| 11.30–12.10 | Ana Alebić-Juretić ( <i>University of Rijeka, Croatia</i> ): Peter Salcher – The Mach's Corresponding Collaborator   | Cristina Chimisso ( <i>The Open University, UK</i> ): Scientific Concepts and the (Dis)continuity of History of Science: Hélène Metzger as Reader of Pierre Duhem                                 | Jean-Philippe Martinez ( <i>University of Geneva</i> ): The „Mach Argument“ and its Use by Vladimir Fock to Criticize Einstein in Soviet Union  |  |
| 12.10–13.00 | Karl Sigmund ( <i>University of Vienna</i> ): Ernst Mach and Geometry  | Erik C. Banks ( <i>Wright State University, Dayton, OH</i> ): "The Land of my Deepest Longing". The American Reception of Ernst Mach's Ideas  | Martin Černohorský ( <i>Masaryk University, Brno</i> ): The Principle of Inertial Rotatory Motion in Newton's Lex I and Ernst Mach  |  |
| 13.00–14.00 | LUNCH BREAK  |   |   |  |
|             | CHAIR: Michael Heidelberger  | CHAIR: Guillaume Fréchette  | CHAIR: Eva-Maria Jung   |  |
| 14.00–14.50 | Wolfgang Reiter ( <i>Universität Wien</i> ): Mach, Boltzmann and the Wiener Akademie der Wissenschaften  | Richard Staley ( <i>University of Cambridge</i> ): Revisiting Einstein's Happiest Thought: From Physiology of Perception to Experimental Propositions and Principles in the History of Relativity | Christoph Hoffmann ( <i>University of Lucerne</i> ): Paris vs. Prague: On Photographs and Epistemological Prerequisites   |  |
| 14.50–15.30 | Christian Bracco ( <i>Université de Nice Sophia-Antipolis</i> ) / Jean-Pierre Provost ( <i>Université de Nice Sophia-Antipolis</i> ): L'influence de Mach, via Michele Besso, sur les jeunes années d'Einstein | Minwoo Seo ( <i>University of Cambridge</i> ): Ernst Mach and the Rise of Theoretical Physics   | Stefano Salvia ( <i>Università di Pisa</i> ): Ernst Mach's Historical Epistemology of Pre-Classical Mechanics   |  |
| 15.30–16.10 |  |   |   |  |
| 16.10–16.30 | COFFEE BREAK   |   |   |  |
| 16.30–17.20 | Mihalis Dafermos ( <i>Princeton University</i> ): Dynamics and Determinism in General Relativity   | Klaus Hentschel ( <i>University of Stuttgart</i> ): The Project of a Complete Online Edition of Ernst Mach's Correspondence   | Chantal Ferrer-Roca ( <i>University of Valencia</i> ): Otto Blüh and Ernst Mach's Legacy: Inheritance and Task. Followed by a Performance*  | CHAIR: Johannes Feichtinger  |
| 17.30–18.30 |  |   |   |  |
| 18.30       |  |   |   | Friedrich Stadler ( <i>University of Vienna</i> ): Closing Remarks |

\* Followed by the Performance of a Short Skit by Otto Blüh / Gefolgt von der Aufführung einer kurzen Parodie von Otto Blüh: Ernst Mach's 'Conversion' to Atomism – A Conversation Between Ernst Mach and Josef Popper-Lynkeus / Ernst Mach's 'Bekehrung' zum Atomismus. Ein Gespräch zwischen Ernst Mach und Josef Popper-Lynkeus. Presented by Remi Brandner and Wolfgang Nitsch. The English translation will be provided by Pamela Blüh. Scientific revision by Chantal Ferrer-Roca.

# Sunday, June 19

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|------------|--|
| 9.00–21.00 | SIDE PROGRAM CULTURAL TOUR TO BRÜNN/BRNO (REGISTRATION REQUIRED) |
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