

1. Record Nr.	UNINA9910488722403321
Autore	Tobies Renate
Titolo	Felix Klein : visions for mathematics, applications, and education // Renate Tobies ; revised by the author and translated by Valentine A. Pakis
Pubbl/distr/stampa	Cham, Switzerland : , : Springer, , [2021] ©2021
ISBN	3-030-75785-4
Descrizione fisica	1 online resource (697 pages)
Collana	Vita Mathematica ; ; Volume 20
Disciplina	510.92
Soggetti	Matemàtics Mathematicians - Germany Reformers - Germany Biographies Llibres electrònics Alemanya
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di contenuto	Intro -- PREFACE -- CONTENTS -- 1 INTRODUCTION -- 1.1 THE STATE OF RESEARCH -- 1.2 GUIDING QUESTIONS -- 1.3 EDITORIAL REMARKS -- Acknowledgements -- 2 FORMATIVE GROUPS -- 2.1 THE KLEIN-KAYSER FAMILY -- 2.1.1 A Royalist and Frugal Westphalian Upbringing -- 2.1.2 Talent in School and Wide Interests as Gifts from His Mother's Side -- 2.1.3 Felix Klein and His Siblings -- 2.2 SCHOOL YEARS IN DUSSELDORF -- 2.2.1 Earning His Abitur from a Gymnasium at the Age of Sixteen -- 2.2.2 Examination Questions in Mathematics -- 2.2.3 Interests in Natural Science During His School Years -- 2.3 STUDIES AND DOCTORATE IN BONN -- 2.3.1 Coursework and Seminar Awards -- 2.3.2 Assistantship and a Reward for Winning a Physics Contest -- 2.3.3 Assisting Julius Plucker's Research in Geometry -- 2.3.4 Doctoral Procedure -- 2.4 JOINING ALFRED CLEBSCH'S THOUGHT COMMUNITY -- 2.4.1 The Clebsch School -- 2.4.2 The Journal Mathematische Annalen -- 2.4.3 Articles on Line Geometry, 1869 -- 2.5 BROADENING HIS HORIZONS IN BERLIN -- 2.5.1 The Professors in Berlin and Felix

Klein -- 2.5.2 Acquaintances from the Mathematical Union: Kiepert, Lie, Stolz -- 2.5.3 Cayley's Metric and Klein's Non-Euclidean Interpretation -- 2.6 IN PARIS WITH SOPHUS LIE -- 2.6.1 Felix Klein and French Mathematicians -- 2.6.2 Collaborative Work with Sophus Lie -- 2.6.2.1 Notes on W-Configurations -- 2.6.2.2 Principal Tangent Curves of the Kummer Surface -- 2.6.3 A Report on Mathematics in Paris -- 2.7 THE FRANCO-PRUSSIAN WAR AND KLEIN'S HABILITATION -- 2.7.1 Wartime Service as a Paramedic and Its Effects -- 2.7.2 Habilitation -- 2.8 TIME AS A PRIVATDOZENT IN GOTTINGEN -- 2.8.1 Klein's Teaching Activity and Its Context -- 2.8.2 An Overview of Klein's Research Results as a Privatdozent -- 2.8.3 Discussion Groups -- 2.8.3.1 A Three-Man Club with Clebsch and Riecke. -- 2.8.3.2 The Mathematical and Natural-Scientific Student Union -- 2.8.3.3 A Scientific Circle: Eskimo -- 2.8.3.4 The "Social Activity" of Bringing Mathematicians Together -- 3 A PROFESSORSHIP AT THE UNIVERSITY OF ERLANGEN -- 3.1 RESEARCH TRENDS AND DOCTORAL STUDENTS -- 3.1.1 The Vision of the Erlangen Program -- 3.1.2 Klein's Students in Erlangen -- 3.1.3 New Research Trends -- 3.1.3.1 On a New Type of Riemann Surface -- 3.1.3.2 The Theory of Equations -- 3.2 INAUGURAL LECTURE: A PLAN FOR MATHEMATICAL EDUCATION -- 3.3 FIRST TRIP TO GREAT BRITAIN, 1873 -- 3.4 TRIPS TO ITALY -- 3.5 DEVELOPING THE MATHEMATICAL INSTITUTION -- 3.6 FAMILY MATTERS -- 3.6.1 His Friends Marry and Klein Follows Suit -- 3.6.2 Klein's Father-in-Law, the Historian Karl Hegel -- 3.6.3 Anna Hegel, Felix Klein, and Their Family -- 4 A PROFESSORSHIP AT THE POLYTECHNIKUM IN MUNICH -- 4.1 A NEW INSTITUTE AND NEW TEACHING ACTIVITY -- 4.1.1 Creating a Mathematical Institute -- 4.1.2 Reorganizing the Curriculum -- 4.2 DEVELOPING HIS MATHEMATICAL INDIVIDUALITY -- 4.2.1 The Icosahedron Equation -- 4.2.2 Number Theory -- 4.2.3 Elliptic Modular Functions -- 4.2.4 Klein's Circle of Students in Munich -- 4.2.4.1 Phase I: 1875-1876 -- 4.2.4.2 Phase II: 1876-1880 -- 4.3 DISCUSSION GROUPS IN MUNICH -- 4.3.1 A Mathematical Discussion Group with Engineers and Natural Scientists -- 4.3.2 The Mathematical Student Union and the Mathematical Society -- 4.3.3 The Meeting of Natural Scientists in Munich, 1877 -- 4.4 "READY AGAIN FOR A UNIVERSITY IN A SMALL CITY" -- 5 A PROFESSORSHIP FOR GEOMETRY IN LEIPZIG -- 5.1 KLEIN'S START IN LEIPZIG AND HIS INAUGURAL ADDRESS -- 5.2 CREATING A NEW MATHEMATICAL INSTITUTION -- 5.3 TEACHING PROGRAM -- 5.3.1 Lectures: Organization, Reorientation, and Deviation from the Plan -- 5.3.2 The Mathematical Colloquium / Exercises / Seminar -- 5.4 THE KLEINIAN "FLOCK". -- 5.4.1 Post-Doctoral Mathematicians -- 5.4.2 Klein's Foreign Students in Leipzig -- 5.4.2.1 The First Frenchman and the First Briton -- 5.4.2.2 The First Americans -- 5.4.2.3 The Italians -- 5.4.2.4 Mathematicians from Switzerland and Austria-Hungary -- 5.4.2.5 Russian and Other Eastern European Contacts -- 5.5 FIELDS OF RESEARCH -- 5.5.1 Mathematical Physics / Physical Mathematics -- 5.5.1.1 Lamé's Function, Potential Theory, and Carl Neumann -- 5.5.1.2 On Riemann's Theory of Algebraic Functions and Their Integrals -- 5.5.2 Looking Toward Berlin -- 5.5.2.1 Gathering Sources -- 5.5.2.2 The Dirichlet Principle -- 5.5.2.3 Klein's Seminar on the Theory of Abelian Functions (1882) -- 5.5.2.4 Openness vs. Partiality -- 5.5.3 Looking Toward France -- 5.5.3.1 French Contributors to Mathematische Annalen -- 5.5.3.2 Klein's Correspondence with Poincaré -- 5.5.4 Three Fundamental Theorems -- 5.5.4.1 The Loop-Cut Theorem (Rückkehrschnitttheorem) -- 5.5.4.2 Theorem of the Limit-Circle (Grenzkreistheorem) -- 5.5.4.3 The (General) Fundamental

Theorem -- 5.5.4.4 Remarks on the Proofs -- 5.5.5 The Polemic about and with Lazarus Fuchs -- 5.5.6 The Icosahedron Book -- 5.5.7 A Book on the Theory of Elliptic Modular Functions -- 5.5.7.1 Supplementing the Theory -- 5.5.7.2 Who Should Be the Editor? - Georg Pick -- 5.5.8 Hyperelliptic and Abelian Functions -- 5.6 FELIX KLEIN AND ALFRED ACKERMANN-TEUBNER -- 5.7 FELIX KLEIN IN LEIPZIG'S INTELLECTUAL COMMUNITIES -- 5.7.1 A Mathematicians' Circle -- 5.7.2 The Societas Jablonoviana -- 5.7.3 The Royal Saxon Society of Sciences in Leipzig -- 5.8 TURNING HIS BACK ON LEIPZIG -- 5.8.1 Weighing Offers from Oxford and Johns Hopkins -- 5.8.2 The Physicist Eduard Riecke Arranges Klein's Move to Gottingen -- 5.8.3 The Appointment of Sophus Lie as Klein's Successor - and the Reactions.

6 THE START OF KLEIN'S PROFESSORSHIP IN GOTTINGEN, 1886-1892 -- 6.1 FAMILY CONSIDERATIONS -- 6.2 DEALING WITH COLLEAGUES, TEACHING, AND CURRICULUM PLANNING -- 6.2.1 The Relationship Between Klein and Schwarz -- 6.2.2 The Gottingen Privatdozenten Holder and Schoenflies -- 6.2.3 Klein's Teaching in Context -- 6.3 INDEPENDENT AND COLLABORATIVE RESEARCH -- 6.3.1 The Theory of Finite Groups of Linear Substitutions: The Theory of Solving Equations of Higher Degree -- 6.3.2 Hyperelliptic and Abelian Functions -- 6.3.3 The Theory of Elliptic Modular Functions (Monograph) -- 6.3.4 The Theory of Automorphic Functions (Monograph) -- 6.3.5 The Theory of Lamé Functions and Potential Theory -- 6.3.6 Refreshing His Work on Geometry -- 6.3.7 Visions: Internationality, Crystallography, Hilbert's Invariant Theory -- 6.3.7.1 An Eye on Developments Abroad -- 6.3.7.2 Arthur Schoenflies and Crystallography -- 6.3.7.3 Felix Klein and Hilbert's Invariant Theory -- 6.4 BRINGING PEOPLE AND INSTITUTIONS TOGETHER -- 6.4.1 The Professorium in Gottingen -- 6.4.2 A Proposal to Relocate the Technische Hochschule in Hanover to Gottingen -- 6.4.3 The Idea of Reorganizing the Gottingen Society of Sciences -- 6.4.4 Felix Klein and the Founding of the German Mathematical Society -- 6.5 THE PIVOTAL YEAR OF 1892 -- 6.5.1 Refilling Vacant Professorships in Prussia -- 6.5.1.1 Berlin, Breslau, and Klein's System for Classifying Styles of Thought -- 6.5.1.2 Hiring a Successor for H.A. Schwarz in Gottingen -- 6.5.2 A Job Offer from the University of Munich and the Consequences -- 7 SETTING THE COURSE, 1892/93-1895 -- 7.1 KLEIN'S ASSISTANTS AND HIS PRINCIPLES FOR CHOOSING THEM -- 7.2 THE GOTTINGEN MATHEMATICAL SOCIETY -- 7.3 TURNING TO SECONDARY SCHOOL TEACHERS -- 7.4 A TRIP TO THE UNITED STATES -- 7.4.1 The World's Fair in Chicago and the Mathematical Congress.

7.4.2 Twelve Lectures by Klein: The Evanston Colloquium -- 7.4.3 Traveling from University to University -- 7.4.4 Repercussions -- 7.5 THE BEGINNINGS OF WOMEN STUDYING MATHEMATICS -- 7.6 ACTUARIAL MATHEMATICS AS A COURSE OF STUDY -- 7.7 CONTACTING ENGINEERS AND INDUSTRIALISTS -- 7.8 THE ENCYKLOPADIE PROJECT -- 7.9 KLEIN SUCCEEDS IN HIRING DAVID HILBERT -- 8 THE FRUITS OF KLEIN'S EFFORTS, 1895-1913 -- 8.1 A CENTER FOR MATHEMATICS, NATURAL SCIENCES, AND TECHNOLOGY -- 8.1.1 The Gottingen Association -- 8.1.2 Applied Mathematics in the New Examination Regulations and the Consequences -- 8.1.3 Aeronautical Research -- 8.2 MAINTAINING HIS SCIENTIFIC REPUTATION -- 8.2.1 Automorphic Functions (Monograph) -- 8.2.2 Geometric Number Theory -- 8.2.3 A Monograph on the Theory of the Spinning Top -- 8.2.4 Inspiring Ideas in the Fields of Mathematical Physics and Technology -- 8.2.4.1 Hydrodynamics / Hydraulics -- 8.2.4.2 Statics -- 8.2.4.3 The Theory of Friction -- 8.2.4.4 The Special Theory of Relativity -- 8.3 PROGRAM: THE HISTORY, PHILOSOPHY,

PSYCHOLOGY, AND INSTRUCTION OF MATHEMATICS -- 8.3.1 The History of Mathematics -- 8.3.2 Philosophical Aspects -- 8.3.3 Psychological-Epistemological Classifications -- 8.3.4 The "Kleinian" Educational Reform -- 8.3.4.1 Suggestions for Reform -- 8.3.4.2 A Polemic about the Teaching of Analysis at the University -- 8.4 INTERNATIONAL SCIENTIFIC COOPERATION -- 8.5 EARLY RETIREMENT AND HONORS -- 8.5.1 Recovering and Working in the Hahnenklee Sanatorium -- 8.5.2 Max Liebermann's Portrait of Felix Klein -- 8.5.3 The Successors to Klein's Professorship -- 9 THE FIRST WORLD WAR AND THE POSTWAR PERIOD -- 9.1 POLITICAL ACTIVITY DURING THE FIRST WORLD WAR -- 9.1.1 The Vows of Allegiance of German Professors to Militarism -- 9.1.2 A Plea for Studying Abroad. 9.2 HISTORY OF MATHEMATICS, THE "CRY FOR HELP OF MODERN PHYSICS," AND EDITION PROJECTS.

2. Record Nr.	UNICAMPANIAVAN0065567
Titolo	2: Epidemiology, evolution and ecology, immunology, neural systems and the brain, and innovative mathematical methods / Andreas Deutsch ... [et al.] editors
Pubbl/distr/stampa	Boston, : Birkhäuser, 2008
ISBN	978-08-17-64555-7
Descrizione fisica	XVIII, 386 p. ; 25 cm
Soggetti	92-XX - Biology and other natural sciences [MSC 2020]
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia