

## Preface

On the occasion of the 200th birthday of Hermann Günther Grassmann<sup>1</sup> (1809–1877), an international and inter-disciplinary conference took place from the 16th to the 19th September 2009 in Potsdam and Szczecin. For four days more than 75 scientists from four continents – mathematicians, logicians, soft- and hardware specialists, physicists, engineers, historians, philosophers, scholars of religious studies, pedagogues, Indologists, musicologists, and many more – participated in an inter-disciplinary dialogue on the work of Grassmann and his significance for current research.

Shortly before this conference, the first comprehensive English-language biography of Grassmann appeared, *Hermann Grassmann – Biography*. In addition, the newly published volume *Hermann Grassmann – Roots and Traces* presents many previously unpublished documents on the life and work of Grassmann and his family.

The present book, which includes the Proceedings of the Bicentennial Conference as well as additional documents related to Grassmann, is the third and concluding volume of this Grassmann-Trilogy.<sup>2</sup>

## Point of departure

The last major conference concerned with Grassmann was devoted to the 150th anniversary of the first publication of his *Lineale Ausdehnungslehre*. It took place in 1994 on the island of Rügen. Two publications with first-class contributions resulted from this conference [Schreiber 1995; Schubring 1996a]. In the following 15 years

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<sup>1</sup> Like his father Justus Günther, Hermann Graßmann used to spell his name with the German letter “ß”. Hermann’s brother Robert and his fosterfather Friedrich Heinrich Gotthilf Grassmann preferred “ss”. In this book, we will write Grassmann and always use “ss”, except in some titles and quotations.

<sup>2</sup> The conference proceedings will be complemented by a video-recording of the conference on four DVDs, published simultaneously by Universitätsverlag Potsdam [Petsche and Lenke 2010].

the Rügen conference has stimulated numerous new publications. Some of them have a mathematical approach, some deal with philosophical aspects, and some reflect pedagogical contexts of Grassmann's works.

A Spanish translation of Grassmann's *Lineale Ausdehnungslehre* of 1844 by Emilio Oscar Roxin appeared in 1947. A French translation of the same work by Dominique Flament and Bernd Bekemeier followed in 1994. In the most ambitious translation project of Grassmann's works yet, Lloyd Kannenberg published in 1995 and 2000 English translations of the 1844 and 1862 versions of the *Ausdehnungslehre* and several other important papers of Grassmann. Finally, in 2008 the Russian translations of selected papers of Hermann and Robert Grassmann – thoroughly introduced and with extensive commentary – were published by Boris Biryukov, Lyubov Gavrilovna Biryukova, and Zinaida Kuzicheva.

## Conference topics

The idea of the conference was to review and present a multi-faceted picture of Hermann Grassmann. An initial goal was to uncover the complexity of factors that had made Grassmann's creativity possible. In addition, we wanted to analyze the variety of the influential roles that his ideas have played and continue to play up to the present. The Conference Program organized the range of subjects in four focal themes:

- 1 Historical contexts of Grassmann's creativity.
- 2 The diversity of Grassmann's influence.
- 3 Present and future of Grassmann's ideas.
- 4 Grassmann and his hometown: from past to future.

These focal themes evolved into the several sections of the *Contents* of the current volume.

While at the Rügen conference the mathematical and natural scientific works of Grassmann stood at the center of the discussions, the Bicentennial Conference strived for a more comprehensive access to Grassmann's works. In this conference we investigated the significance of his work for philosophical as well as for scientific and methodological questions, for comparative philology in general and for Indology in particular, for psychology, physiology, religious studies, musicology, and didactics. Special attention was given to the question which influences of Grassmann's work are noteworthy for current scientific research. Accordingly, thanks to the breadth of the contributions received, the subdivision of the focal points of this book arrived at a

certain arrangement that permits the relevance of Grassmann to emerge more clearly. Readers interested in the natural sciences or mathematics and those who are more humanities oriented will both find that this makes Grassmann more accessible to them.

The 37 contributions of 40 authors from 15 countries presented in this volume convincingly demonstrate that Grassmann's legacy is more important than ever.

## Structure

The main part of this volume is formed by papers presented at the Bicentennial Conference. In order to introduce the reader to Hermann and Robert Grassmann, and to achieve a certain independence within the framework of the Grassmann-Trilogy, we start this volume with translations of two biographies: the previously unpublished life history of Hermann Grassmann (written by his son Justus Grassmann), and the life history of Robert Grassmann (written by himself and concealed in a footnote of his – now scarcely available – *Gebäude des Wissens*).

An English translation of the paper *Ueber den Begriff und Umfang der reinen Zahlenlehre* by Justus Grassmann (Robert and Hermann's father) is added as an Appendix. This paper, in a translation prepared by Lloyd Kannenberg is published here for the first time and offers a deep insight into the world of ideas of the father and permits the extent of his influence on his son Hermann to be traced out.

To the book is appended an index of the references of all contributions. This offers an impression of the variety of publications about Grassmann, and simplifies further investigations. The name and citation indexes aid the classification of the individuals mentioned in the contributions. Moreover, from the citation directory the references of the individual contributions to the different sources can be conveniently found.

## Acknowledgements

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- Birkhäuser Publishing Ltd.

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- Greifswald University Archive
- Archiwum Państwowe in Szczecin
- Książnica Pomorska im. Stanisława Staszica in Szczecin

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Finally, our warm thanks are due to Dr. Karin Neidhart, Birkhäuser's editor of the entire project of the three Grassmann volumes:

Hermann Graßmann – Biography

Hermann Graßmann – Roots and Traces

Hermann Graßmann – From Past to Future

She has facilitated, guided, supported, and helpfully promoted these volumes at every stage.

For the editors, Hans-Joachim Petsche

*On 16 November 2010, the Graßmann-Conference received the Potsdam Conference-Award from the mayor of Potsdam, the capital of the federal state of Brandenburg, making it the first-time winner in the category "Innovative and/or exceptional events".*



**Illustration 2.** Opening session of the Grassmann Bicentennial Conference in Potsdam



**Illustration 3.** Hermann Grassmann's great-grandson Dietrich Grassmann and the main organizer of the conference Hans-Joachim Petsche in front of a picture showing the Stettin Masonic lodge garden in the nineteenth century



**Illustration 4.** Inauguration of a Grassmann exhibition unveiling recently discovered documents in the Pomeranian Library (during the conference's stay in Szczecin)



**Illustration 5.** Participants of the Grassmann Conference in front of the former Marienstiftsgymnasium in Szczecin

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