

Handbook of the History of General Topology

Handbook of the History of General Topology Volume 1

Edited by

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Introduction

This account of the History of General Topology has grown out of the special session on this topic at the American Mathematical Society meeting in San Antonio, Texas, 1993. It was there that the idea grew to publish a book on the historical development of General Topology. Moreover it was felt that it was important to undertake this project while topologists who knew some of the early researchers were still active.

Since the first paper by Fréchet, “*Généralisation d’un théorème de Weierstrass*”, C.R. Acad. Sci. 139, 1904, 848–849, and Hausdorff’s classic book, “*Grundzüge der Mengenlehre*”, Leipzig, 1914, there have been numerous developments in a multitude of directions and there have been many interactions with a great number of other mathematical fields. We have tried to cover as many of these as possible. Most contributions concern either individual topologists, specific schools, specific periods, specific topics or a combination of these.

In this first volume there are articles covering the work of:

F. Hausdorff (G. Preuß)

F. Riesz (W.J. Thron)

H. Tietze (H. Reitberger)

R.L. Moore (B. Fitzpatrick)

B. Knaster (J.J. Charatonik)

W. Hurewicz (K. Borsuk transl. by K. Kuperberg, A. Kuperberg)

L.E.J. Brouwer (T. Koetsier, J. van Mill)

L. Vietoris (H. Reitberger)

F.B. Jones (M.E. Rudin)

Furthermore there are articles covering:

The Beginning of Topology in the United States (F.B. Jones)

Topologists in the 1940’s (A.H. Stone)

Topology in Japan (J. Nagata)

And finally there are papers covering:

Dimension Theory (M. Katětov, P. Simon and T. Koetsier, J. van Mill)

Continuum Theory (J.J. Charatonik)

Rings of Continuous Functions in the 1950s (M. Henriksen)

Categorical Topology (H. Herrlich, G.E. Strecker)

Sequential Convergence Spaces (R. Frič)

Interaction between Topology and Functional Analysis (E. Kreyszig)

We decided to publish this work in volumes of 300–400 pages each, as papers became available. Waiting for all contributions to be completed before proceed-

ing with the publication would indeed have involved an unacceptable delay for many authors. At the point of writing of this introduction, sufficient material for two more volumes has either been written or is in preparation. Nevertheless, at this moment, there are still some significant topologists, schools, periods and subareas of the field that we are seeking authors to write about.

In addition to the articles contained in this first volume, the following articles will appear in the next volumes.

- A. Arhangel'skiĭ, *Some Observations on the History of General Topology*
- C.E. Aull, *Toward an Outline of the History of General Topology*
- H.L. Bentley, H. Herrlich, M. Hušek, *The Historical Development of Uniform, Proximinal and Nearness Concepts in Topology*
- D.E. Cameron, *Why I study the History of Mathematics*
- D.E. Cameron, *The Alexandroff-Sorgenfrey Line*
- R.E. Chandler, G. Faulkner, *Hausdorff Compactifications: a Retrospective*
- J.J. Charatonik, *History of Continua Theory*
- P.J. Collins, *The Work of Hugh Dowker and its Legacy*
- R. Engelking, *Wacław Sierpiński (1882–1969), his Life and Work in Topology*
- R. Engelking, *Kazimierz Kuratowski (1896–1980), his Life and Work in Topology*
- R. W. Heath, *History of Metrization*
- R.E. Hodel, *History of Generalized Metrizable Spaces*
- B. Karl, *On the Early History of Topology*
- H.P. Kunzi, *Basic Ideas in Non-symmetric Topology*
- A. Lelek, *Dilemma in Topology (and in Science): Bizarre versus Common*
- E. Lowen, R. Lowen, *Supercategories of TOP and the Inevitable Emergence of Topological Category Theory*
- J. Mioduszewski, *Polish Topology Between the Two World Wars*
- S. Nowak, S. Spiez, H. Toruńczyk, *Karol Borsuk – his life and contributions to topology and geometry*
- P. Nyikos, *History of the Normal Moore Space Problem*
- R. Pol, *Stefan Mazurkiewicz's Work in Topology*
- J.R. Porter, R.M. Stephenson Jr., *Minimal Hausdorff Spaces and Maximally Connected Spaces*
- S. Purisch, *History of Orderable Spaces*
- G. Reed, *History of Counterexamples*
- H.C. Reichel, P. Nyikos, *History of Generalized Metrics*
- S.D. Shore, *From Developments to Developable Spaces: the Evolution of a Topological Idea*
- Ju M. Smirnov, *The Development of Topology in Moscow*
- M. Starbird, *R.H. Bing's Human and Mathematical Vitality*

Most of the authors for this work either were contacted personally by one of the editors or were recommended by experts in the field. The first drafts of papers were sent to readers and their suggestions were forwarded to the authors. We expect that there will be some disagreement among some authors, but we also consider this to be healthy. We hope that this work will encourage, not only

further study in the history of the subject, but also further mathematical research in the field.

We would like to thank all colleagues who willingly contributed to what we hope will become a standard reference work on the History of General Topology. In view of the fact that most contributors would consider themselves primarily mathematicians rather than historians of mathematics, we are especially grateful for their efforts.

Regretfully, Miroslav Katětov passed away shortly after completing the article in this volume which he co-authored with P. Simon. Petr Simon kindly wrote a tribute to him, which precedes their article.

Finally, we would like to thank D. Vaughan for his extensive T_EXnical help in turning a varied set of manuscripts into a uniform entity, and Kluwer Academic Publishers for their professional support in the publication of this book.

C.E. Aull, R. Lowen
The editors