

HANDBOOK OF THE HISTORY OF GENERAL TOPOLOGY,
VOLUME 3

History of Topology

Volume 3

The titles published in this series are listed at the end of this volume.

Handbook of the History of General Topology Volume 3

Edited by

C. E. Aull

*Department of Mathematics,
Virginia Polytechnic Institute and State University,
Blacksburg, Virginia, U.S.A.*

and

R. Lowen

*Department of Mathematics and Computer Science,
University of Antwerp, RUCA,
Antwerp, Belgium*



SPRINGER-SCIENCE+BUSINESS MEDIA, B.V.

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

ISBN 978-90-481-5704-4 ISBN 978-94-017-0470-0 (eBook)
DOI 10.1007/978-94-017-0470-0

Printed on acid-free paper

All Rights Reserved

© 2001 Springer Science+Business Media Dordrecht

Originally published by Kluwer Academic Publishers in 2001

Softcover reprint of the hardcover 1st edition 2001

No part of the material protected by this copyright notice may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying, recording or by any information storage and retrieval system, without written permission from the copyright owner.

Contents

Introduction	vii
Combinatorial Topology Versus Point-set Topology	809
<i>I.M. James</i>	
Elements of the History of Locale Theory	835
<i>Peter Johnstone</i>	
Nonsymmetric Distances and their Associated Topologies: About the Origins of Basic Ideas in the Area of Asymmetric Topology	853
<i>Hans-Peter A. Künzi</i>	
Supercategories of Top and the Inevitable Emergence of Topological Constructs	969
<i>E. Lowen-Colebunders and R. Lowen</i>	
Topological Features of Topological Groups	1027
<i>Michael G. Tkachenko</i>	
History of Shape Theory and its Application to General Topology	1145
<i>Sibe Mardešić and Jack Segal</i>	
A History of the Normal Moore Space Problem	1179
<i>Peter J. Nyikos</i>	
Index	1213

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.

The first and second volumes, which were published in 1997 and 1998, contain the following articles:

Felix Hausdorff (1868–1942) (G. Preuß)

Frederic Riesz’ Contributions to the Foundations of General Topology (W.J. Thron)

The Contributions of L. Vietoris and H. Tietze to the Foundations of General Topology (H. Reitberger)

Some Aspects of the Work and Influence of R.L. Moore (B. Fitzpatrick Jr.)

The Works of Bronisław Knaster (1893–1980) in Continuum Theory (J.J. Charatonik)

Witold Hurewicz – Life and Work (K. Borsuk, transl. by K. Kuperberg, A. Kuperberg)

The Early Work of F.B. Jones (M.E. Rudin)

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

Some Topologists of the 1940s (A.H. Stone)

Miroslav Katětov (1918–1995) (Petr Simon)

Origins of Dimension Theory (M. Katětov, P. Simon)

General Topology, in Particular Dimension Theory, in The Netherlands: the Decisive Influence of Brouwer’s Intuitionism (T. Koetsier, J. van Mill)

The Flowering of General Topology in Japan (J. Nagata)

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

Categorical Topology – its Origins, as exemplified by the Unfolding of the Theory of Topological Reflections and Coreflections before 1971 (H. Herrlich, G.E. Strecker)

History of Sequential Convergence Spaces (R. Frič)

Interaction between General Topology and Functional Analysis (E. Kreyszig)

Waclaw Sierpiński (1882-1969) – His Life and Work in Topology (R. Engelking)

The Works of Stefan Mazurkiewicz in Topology (R. Pol)

Kazimierz Kuratowski (1896-1980) – His Life and Work in Topology (R. Engelking)

R.H. Bing's Human and Mathematical Vitality (M. Starbird)

From Developments to Developable Spaces (S.D. Shore)

A History of Generalized Metrizable Spaces (R.E. Hodel)

The Historical Development of Uniform, Proximal and Nearness Concepts in Topology (H.L. Bentley, H. Herrlich, M. Hušek)

Hausdorff Compactifications: A Retrospective (R.E. Chandler, G.D. Faulkner)

Minimal Hausdorff Spaces – Then and Now (J.R. Porter, R.M. Stephenson, Jr.)

A History of Results on Orderability and Suborderability (S. Purisch)

History of Continuum Theory (J.J. Charatonik)

Why I study the History of Mathematics (D.E. Cameron)

The Alexandroff-Sorgenfrey Line (D.E. Cameron)

The present third volume contains an article on:

Combinatorial versus point-set topology (I.M. James)

Furthermore there are articles covering aspects of the history of:

Locale theory (P.T. Johnstone)

Nonsymmetric Distances (H.-P. Kunzi)

Topological Constructs (E. Lowen and R. Lowen)

Topological groups (M. Tkachenko)

Shape Theory (S. Mardešić and J. Segal)

The normal Moore space problem (P. Nyikos)

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 proceeding with the publication would indeed have involved an unacceptable delay for many authors. At the point of writing of this introduction, material for one more, probably final, volume 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.

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.

Finally, we would like to thank Kluwer Academic Publishers for their professional support in the publication of this book.

C.E. Aull, R. Lowen
The editors