<u>Studies in modern topology</u>, ed. by P. J. Hilton. MAA Studies in
Mathematics, Vol. 5. Prentice-Hall, Englewood Cliffs, N. J., 1968. 212 pages.
U.S. $3.00 (members); $6.00 (non-members).

This is the fifth volume of the MAA <u>Studies in Mathematics</u> series and
gives a survey of recent results and current research in topology. It is aimed
at readers who are familiar with the elements of general and algebraic topology
and want to get an idea of how far this discipline has developed. Therefore i
is of particular interest to university teachers as well as senior and beginnin
graduate students who might be guided by it in their choice of a suitable fiel of
research.

The volume starts with an introduction by the editor P. J. Hilton which
many readers will find the most illuminating part of the book. It succeeds in a
mere 20 pages to give a clear and readable survey of the advances in topology
during the last decade, and outlines the major areas of active current research.

Each of these is represented in the following five expository articles:
general topology in G. T. Whyburn's "What is a curve ?"; geometric topology
in W. Haken's "Some results on surfaces in 3-manifolds"; algebraic topology
in V. K. A. M. Gugenheim's "Semisimplicial homotopy theory"; and again, with
some of the applications of algebraic methods to differential topology, in E. Dyer's
"The functors of algebraic topology"; and finally differentiable topology in
V. Poénaru's "On the geometry of differentiable manifolds".

The articles vary in their style and level of sophistication. The easiest and
perhaps most readable is the short one by G. Whyburn which shows the need for
and supplies an explicit definition of a curve, illustrates it by different types of
curves, and ends with a recent application to complex analysis. - The results
from W. Haken's long article, due to him and others, are somewhat specialized,
but the fairly detailed proofs give the reader a thorough taste of the visualization
characteristic of a geometric proof. - V. K. A. M. Gugenheim outlines in a clear
and logical manner the developments due to D. M. Kan and J. C. Moore. There
are hardly any proofs, but frequent references to the bibliography make this
article a very useful guide to the literature in the field. - A comprehensive
treatment of algebraic topology based on combinatorial homotopy theory, with
applications to cobordism and K-theory, is a rather wide topic to survey on
about 30 pages; E. Dyer's treatment is well structured, but the many definitions
and, by necessity, very sketchy proofs might be difficult to follow for some.
- V. Poenaru deals in a well motivated fashion with some basic ideas on the
geometric problems connected with differentiable manifolds, in particular with
embeddings, cobordism, and the use of Morse theory and surgery for the
classification of differentiable manifolds.

Each article includes a useful bibliography, and the book ends with quite
a good index - probably not easy to assemble for a book of this type.

I wish the volume a wide readership. Its different articles should include
something stimulating for mathematicians of different backgrounds, tastes, and
aspirations.

Helga Schirmer, Carleton University

<u>Uniformisierung von R. Nevanlinna</u>. Zweite Auflage. Springer-Verlag,
Berlin - Heidelberg - New York, 1967. x + 391 pages. U.S. $13.40.

Although this book is designated as a second edition, it is really just a

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second impression of the original volume published in 1953. There are only one or two grammatical changes and some minor mathematical corrections. Nothing has been added. or removed, or re-ordered, and this also applies to the bibliography.

This book is already established as one of the basic texts in the field of Riemann surfaces and, despite the publication since 1953 of others, notably by Ahlfors and Sario, Pfluger, Springer, it remains so. To those in the field, the contents of the book are known and have been adequately reviewed (e.g. Math. Reviews 15 (1954) p. 208).

C. Maclachlan, Carleton University

Festband zum 70. Geburtstag von Rolf Nevanlinna. Lectures delivered during the Second Rolf-Nevanlinna Colloquium in Zurich, November 4-6, 1965, edited by H.P. Künzi and A. Pfluger. Springer-Verlag, Berlin - Heidelberg - New York, 1966. 149 pages. DM 24.

List of authors: H.P. Künzi and I.S. Louhivaara, L.V. Ahlfors, W.K. Hayman, M. Heins, J. Hersch, A. Huber, H. Huber, H.H. Keller, O. Lehto, I.S. Louhivaara, A. Pfluger, A. Steiner, K. Strebel, H. Wittich.

Letters on Ware mechanics, by A. Einstein, E. Schroedinger, M. Planck, H.A. Lorentz; edited by K. Przibram. Translated with introduction by M.J. Klein, Philosophical Library, New York, 1967. xv + 75 pages. U.S. $6.

These are letters to and from Schroedinger written, with a few exceptions, in the months immediately following his great papers of 1926. Many of the points can still be taken with profit in contemporary teaching, where one tends to forget just where among the technicalities the central physical problems are raised and solved. The long letter by H.A. Lorentz is especially illuminating both in content and circumstance. It discusses at length the crucial question of quantum jumps and its clarity emphasises both the impasse existing up till then, and the force of Schroedinger's simple and straightforward solution, by means of the now-standard time-dependent perturbation method. This was discovered before the arrival of Lorentz's letter, and within days of its being written.

By reading between the lines, and by supplying a modicum of imaginative reconstruction, one can gain considerable insight into the scientific manners of the 1920's at the top of the profession. By the immediacy of recognition, and the willingness both to learn and to give credit, the picture is most attractive.

The translation is good, though it is impossible in English to capture fully the delightful manner of the German allocutions and signatures, and the personal charm of Planck's style. Highly recommended to all teachers and to all students at roughly first year graduate level; a necessity for all with historical interest.

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