The fact that splines (in the simplest cases, cubic splines) interpolating to a given function provide a very good approximation to that function and its derivatives makes splines useful for the applied mathematician and numerical analyst.

After the introduction (Chapter I) the authors devote Chapters II and III to an intensive development of the theory of cubic splines. Both the theoretical and numerical aspects are stressed.

Chapters IV and V deal with polynomial splines of higher degrees, their minimization and convergence properties. In Chapter VI generalized splines are investigated. Instead of "piecewise polynomials" the generalized splines are "piecewise solutions" of certain differential equations. Chapters VII and VIII carry over certain results of polynomial splines to the two dimensional case.

The book does not (and the subject being a living one, could not) include all the results and byproducts of the spline function theory.

For the further development of the subject the authors have carried out an important task of collecting the main and basic ideas and results and made them available in a concise and readable form.

The Bibliography seems to be a weak point of the book. It does not include all the relevant and available material and, unusually, it includes a large number of references to abstracts in the Notices of A.M.S. not yet published.

A. Meir, University of Alberta

<u>Plane geometry and its groups</u>, by Heinrich W. Guggenheimer. Holden-Day Inc., 1967. x + 288 pages. $9.35.

In the past ten years the study of Geometric transformations has enjoyed a modest revival in interest. Geometry courses involving transformations are becoming more prevalent in university programmes, and there is strong interest in introducing some of these concepts into the high school curriculum (this has in fact been done in many places). Several books on geometry from a transformation poing of view have appeared in recent years. This book is one of them, and it is particularly directed to future high school teachers.

Specifically, the book is an introduction to Euclidean plane geometry, using transformations. The restriction is not to real Euclidean Geometry, but is rather to Euclidean Geometry over an ordered field which contains the square roots of all its positive elements (i.e. a geometry in which all ruler and compass constructions can be made). Thus no continuity axiom appears in the text.

The development rests on thirteen axioms, outlined in the first chapter. Subsequent chapters deal with isometries and groups of isometries (chapters 2 and 3), circles (chapter 4), metric geometry (chapter 5), similarities (chapter 6), geometric inequalities (chapter 7), circular transformations (e.g. inversions) (chapter 8) and hyperbolic geometry (chapter 9). The author proceeds carefully with a good deal of attention to rigour, although he admits to a certain amount of "hand-waving" at times. Considering the difficulty of the material and the intended audience (i.e., non-research mathematicians) this partial lapse in rigour is forgivable, even, in fact, desirable.

Some features of the book which this reviewer particularly likes are a nice introduction to geometric vectors in Chapter 2, a section on the seventeen plane crystallographic groups (all illustrated on page 78) in Chapter 3, and an impressive number of exercises throughout the whole book. On the critical side, the treatment at times seems to be a little heavy, and could possibly have been relieved by a less cumbersome notation.

All in all, the book is a good addition to the literature, and deserves serious consideration by anybody who proposes to give a university geometry course that is slanted toward high school teachers.

F.A. Sherk, University of Toronto

Class field theory, by E. Artin and J. Tate (ed.). W.A. Benjamin Inc., New York, 1968. 286 pages. $3.95 (paper). $9.50 (cloth).

This seems to be an almost unchanged reprint of the notes issued by the Department of Mathematics at Harvard University a number of years ago.

The dimensions of the book have been reduced in the reproduction process, and reference to Cassels and Frohlich' "Algebraic Number Theory" and Weil "Basic Number Theory" have been added in a footnote on the bottom of the first page.

In re-issuing these fine notes, it was pleasing to see that the price had not gone up for the paperback edition, although the cloth-bound edition seems astonishingly expensive by comparison.

W. Jonsson, McGill University

Proceedings. United States - Japan Seminar on Differential and Functional Equations, University of Minnesota, Minneapolis, Minnesota, June 26-30, 1967, edited by William A. Harris Jr. and Yasutaka Sibuya. W.A. Benjamin, Inc., New York, Amsterdam, 1967. 500 pages. $8 50.

These proceedings were published in this mimeographed form less than five months after the Seminar was held as part of the United States - Japan Cooperative Science Program, under the auspices of the National Science Foundation - Office of International Science Activities and of the