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# Essays in Group Theory

With 46 Illustrations



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## Preface

In late June 1985 G. Baumslag, M. Gromov, P. Shalen, J. Stallings and I were invited to MSRI, Berkeley. I organized a seminar and each of us spoke on a topic of current interest in group theory. Because of the high quality of the talks it seemed appropriate to retain a permanent record of the seminar. With the encouragement of Calvin Moore, who proposed the title, "Essays in Group Theory", I undertook the task of editing this volume.

Roughly, Gromov's and Shalen's papers deal with hyperbolic groups and actions on  $\mathbb{R}$ -trees. Stallings's paper and my own deal with applications of diagrams to group theory. The joint article of Baumslag and Shalen studies presentations by the classical method of representations.

I want to thank the referees, who provided me with invaluable assistance. I should also like to thank Faye Yeager for the fine job of typing the articles and the staff of MSRI for their assistance.

S. M. Gersten

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