Contents

Introduction		1
Chapter 1.	Coxeter Groups	9
Chapter 2.	Partial Order on W	19
Chapter 3.	The Algebra $\mathcal{H}$	23
Chapter 4.	The Bar Operator	27
Chapter 5.	The Elements c_w	31
Chapter 6.	Left or Right Multiplication by c_s	35
Chapter 7.	Dihedral Groups	37
Chapter 8.	Cells	43
Chapter 9.	Cosets of Parabolic Subgroups	47
Chapter 10.	Inversion	53
Chapter 11.	The Longest Element for a Finite W	57
Chapter 12.	Examples of Elements D_w	61
Chapter 13.	The Function $\mathbf{a}$	63
Chapter 14.	Conjectures	67
Chapter 15.	Example: The Split Case	73
Chapter 16.	Example: The Quasisplit Case	77
Chapter 17.	Example: The Infinite Dihedral Case	81
Chapter 18.	The Ring J	85
Chapter 19.	Algebras with Trace Form	91
Chapter 20.	The Function $\mathbf{a}_E$	93
Chapter 21.	Study of a Left Cell	101
Chapter 22.	Constructible Representations	105
Chapter 23.	Two-Sided Cells	117

Chapter 24. Virtual Cells 121

Chapter 25. Relative Coxeter Groups 125

Chapter 26. Representations 127

Chapter 27. A New Realization of Hecke Algebras 129

Bibliography 135