

CONTENTS

PART I

PAGE
NO.

A GENERAL INTRODUCTION OF GROWTH CLEAVAGE AND ETCH PHENOMENA ON CRYSTALS.

CHAPTER 1

1. INTRODUCTION	1
2. GROWTH	2
3. CLEAVAGE	17
4. ETCH	33
HISTORICAL	35

PART II

EXPERIMENTAL TECHNIQUES

CHAPTER 2

5. MULTIPLE BEAM INTERFEROMETRY	63
6. SILVERING TECHNIQUE	70
7. VICKER'S PROJECTION MICROSCOPE	74
8. LIGHT PROFILE MICROSCOPY	77
9. PHASE CONTRAST MICROSCOPY	82

PART III

DETAILED MICROTOPOGRAPHICAL STUDY OF CRYSTALS

CHAPTER 3

I - MICA

(ii)

	PAGE NO.
10. INTRODUCTION	89
11. GENERAL DESCRIPTION OF THE MICAS	92
12. PERCUSSION FIGURE	93
13. CLASSIFICATION OF MICAS	93
14. GENERAL PROPERTIES OF MICAS	95
15. PHYSICAL CHARACTERS	97
16. CLEAVAGE OF MUSCOVITE MICA	98

II - ETCHING OF MUSCOVITE

17. INTRODUCTION	103
18. ACID ETCHANT	108
19. MEASUREMENT OF THE DEPTH OF ETCH FIGURES	112
20. ORIENTATION OF THE ETCH FIGURE	113
21. MATCHING OF THE CLEAVAGE COUNTERPARTS	114
22. FUSED ALKALIES AS ETCHANTS	121
23. CLEAVAGE SHIFT AND ETCH PIT SHAPE	131
24. DISCUSSION	134
25. CONCLUSION	141

CHAPTER 4

I - CALCITE

26. INTRODUCTION	142
27. OCCURENCE	143
28. FORM AND HABIT	144
29. CLEAVAGE GLIDING AND TWINNING	145
30. CHEMICAL COMPOSITION	149

(iii)

	PAGE NO.
31. GROWTH OF CALCITE	151
32. GROWTH STUDY OF SODIUM NITRATE CRYSTALS	154
33. CLEAVAGE, GLIDING AND TWINNING	156

II - CLEAVAGE OF CALCITE

34. INTRODUCTION	162
35. EXPERIMENTAL PROCEDURE	163
36. OBSERVATIONS	165
37. DISCUSSION AND RESULTS	173

III - ETCHING OF CALCITE

38. INTRODUCTION	182
39. EXPERIMENTAL PROCEDURE	185
40. OBSERVATIONS	187
CONCENTRATION OF ETCH PITS	187
ETCH PITS AND THEIR ORIENTATION	191
MATCHING OF THE ETCHED CLEAVAGES	193
41. DISCUSSION AND RESULTS	196

CHAPTER 5

42. CONCLUSION	200
----------------	-----

APPENDIX A

1. ETCHING OF FLUORITE	i
REFERENCES	vi

(iv)

PAGE
NO.

ACKNOWLEDGEMENTS

xxiii

- ENCL. REPRINTS (i) N.S.PANDYA AND J.R.PANDYA
(1958) CURR. SCI. 27, 437.
- (ii) N.S.PANDYA AND J.R.PANDYA
(1959) BULL.NAT.INST.SC.
INDIA NO. 14, 148.
- (iii) N.S.PANDYA AND J.R.PANDYA
(1959) NATURE (LOND.), 184,
894.