

-: C O N T E N T S :-

	<u>Page</u>
<u>Chapter I : INTRODUCTION</u>	1
General	1
Purpose and Object	1
Previous work	5
<u>Chapter II : LIMESTONE AS ROCK</u>	7
General	7
Igneous limestones	7
Metamorphic limestones	8
Sedimentary limestones	9
(i) Limestone	10
(ii) Magnesian limestone	10
(iii) Dolomite	10
(iv) Chalk	11
(v) Marl	11
Composition	13
Chemical Composition	13
Mineralogical Composition	14
Textures and Structures	16
(a) Mechanically deposited limestones	16
(b) Biochemical	16
(c) Chemical	17
(d) Metasomatism	17

Classification	17
Autochthonous limestones	19
Allochthonous limestones	20
Miscellaneous Chemical limestones	24
Tufa and travertine	24
Caliche	24
Marl	24
Dolomite	26
Textures and structures	26
Occurrence and association	27
Origin	27
Folk's Classification	29
1. Orthochemical	29
2. Allochemical	30
 <u>Chapter III : LIMESTONES - THEIR USES</u>	 34
General	34
Specifications	37
(A) Metallurgical industry	37
(B) Chemical industry	37
(C) Cement and lime	47
(1) Cement	47
(2) Lime	47

(D) Building stone	48
(E) Agriculture	48
(F) Paper industry	49
(G) Mineral wool	49
(H) Lithographic printing	50
Grading of limestones	50
<u>Chapter IV : GEOLOGY OF GUJARAT STATE</u>	53
<u>Geography</u>	53
Mainland Gujarat	54
Peninsular Gujarat	55
Kutch	57
<u>Geology</u>	58
General	58
Mainland Gujarat	62
Archean Group	63
Basement Complex	63
Arvalli system	64
Post-Arvalli Granites and Gneisses	65
Purana Group	65
Delhi System	65
Erinpura Granite	66

Aryan Group	67
Cretaceous System	67
Himatnagar sandstone	68
Bagh Beds	68
Lameta Beds	69
Deccan Traps	69
Tertiaries	71
Quaternary	73
Saurashtra	74
Cretaceous System	75
Deccan Traps	77
Tertiaries	79
Quaternary	81
Kutch	82
Jurassic System	84
Cretaceous System	86
Deccan Trap	87
Tertiaries	88
Quaternary	89

Chapter V : LIMESTONES OF GUJARAT	91
<u>Arvalli System</u>	91
(a) Limestones of Champaner Series	91
(b) Limestones in the Arvallis of Sabarkantha	100
<u>Delhi System</u>	101
Banaskantha District	102
Sabarkantha District	108
Mehsana District	110
<u>Jurassic System</u>	112
<u>Cretaceous System</u>	113
Umia Series	113
Bagh Beds	114
Lameta Beds	128
Kaira District	129
Panchmahals District	132
Sabarkantha District	133
<u>Tertiary</u>	134
Eocene	134
Miocene	143
Pliocene	144
<u>Quaternary</u>	146
Pleistocene	146
<u>Recent</u>	156

<u>Chapter VI : LIMESTONE FOR CEMENT</u>	159
<u>Portland Cement</u>	160
Types of cement	160
Processes of cement manufactures	165
(a) Wet process	165
(b) Dry process	166
Beneficiation of limestones	167
Quality of cement	168
<u>Other Cements</u>	170
(1) Pozzolanic cements	170
(2) Natural cement	171
(3) Aluminous cement	172
(4) Slag cement	173
(5) Masonary cement	175
(6) Oil-well cement	175
(7) White Portland cement	176
<u>Gujarat's Potentialities</u>	177
Mainland Gujarat	178
Banaskantha & Sabarkantha districts	178
Kaira district	179
Bareda and Broach district	180

Saurashtra	181
Bhavnagar district	181
Amreli district	182
Junagadh district	182
Jamnagar district	183
Kutch	183
<u>Chapter VII : LIMESTONE FOR LIME</u>	185
Lime as building material	187
Indian Standard Classification of Building Limes	189
Lime manufacture in Gujarat	193
Gujarat's Potentialities	199
Mainland Gujarat	200
Banaskantha district	200
Sabarkantha district	201
Mehsana district	201
Kaira district	202
Panchmahals district	202
Broach district	203
Broach and Surat districts	203
Saurashtra	204
Kutch	204

Chapter VIII : LIMESTONE AS INDUSTRIAL **206**
RAW MATERIAL

Mainland Gujarat	209
Banaskantha district	209
Saurashtra	210
Amreli district	211
Bhavnagar district	211
Jamnagar district	211
Junagadh district	212
Kutch	213

Chapter IX : LIMESTONES AS BUILDING STONE **214**

Mainland Gujarat	215
Banaskantha district	215
Baroda district	216
Sabarkantha district	217
Broach district	218
Broach and Surat districts	219
Saurashtra	219
Kutch	220

<u>Chapter X : SUMMARY AND CONCLUSIONS</u>	221
Limestone deposits in Gujarat	221
Grading	221
Distribution	223
Archean	223
Purana	224
Jurassic System	225
Cretaceous System	225
Tertiary	226
Quaternary	227
Utilisation of limestones	228
ACKNOWLEDGEMENT	234
REFERENCES	236