

Table of Contents

Introduction	11
What is a rock	12
The three principal groups of rocks: magmatic, sedimentary, metamorphic	15
Earth's structure	17
The rock-forming minerals	23
Macroscopic determination	23
The most important rock-forming minerals	26
Felsic minerals	27
Dark mafic minerals	31
Minerals found almost exclusively in metamorphic rocks	34
Examples of non-silicates	35
Other methods of identification	36
The meso- and microstructure of rocks	38
Meso- and microstructures as products of rock formation	40
Sequential crystallization: Characteristic feature of magmatic rocks	40
Clastic structure: Characteristic feature of the most common sedimentary rocks	41
Deformational and crystalloblastic structures: Characteristic features of metamorphic rocks	42
The basic elements of meso- and microstructures	44
Classification and formation of rocks	48
Magmatic rocks	49
Intrusive versus extrusive	49
Classification	51
Magmatic series, provinces and suites	57
A note on the systematic description of magmatic rocks	62
Sedimentary rocks	62
Classification of clastic sedimentary rocks	66
Classification of pyroclastic rocks	68
Classification of biochemical and other biogenic sedimentary rocks	69
Classification of chemical sedimentary and residual rocks	70
A note on the systematic description of sedimentary rocks	71
Metamorphic rocks	71
A basic descriptive classification scheme	71
Types of metamorphism	72
A systematic view of metamorphic grade	75
A note on the systematic description of metamorphic rocks	79
Systematic description of magmatic rocks	80
Plutonic rocks	80
Pegmatites	120
Aplites	124

Volcanic rocks	128
Ultramafic rocks	168
Lamproite group	180
Lamprophyre group	182
Carbonatites	188
Systematic description of sedimentary rocks	190
Siliciclastic rocks	190
Pyroclastic rocks	216
Chemical, biochemical, biogenic rocks	226
Systematic description of metamorphic rocks	270
Products of regional metamorphism	270
Products of contact metamorphism	328
Products of intense metasomatic alteration	334
Products of dislocation metamorphism	356
Meteorites	364
Diagnostic physical properties of the most important rock-forming minerals.	366
Identification aids	369
Magmatic rocks	370
Sedimentary rocks	372
Metamorphic rocks	374
References	377
Index of minerals	379
Subject index	395
Credits	408