

**CRITERIA USED TO CLASSIFY
IGNEOUS ROCKS:**

- 1. TEXTURE—THE SIZE, SHAPE, AND
RELATIONSHIP OF THE MINERAL
GRAINS TO EACH OTHER**
- 2. COMPOSITION—WHAT MINERAL OR
MINERALS ARE PRESENT**

**WE GET DIFFERENT IGNEOUS ROCKS
WHEN A MAGMA (LAVA)
CRYSTALLIZES BECAUSE:**

- 1. MAGMAS HAVE DIFFERENT
COMPOSITIONS—COMPOSITION**
- 2. WHETHER 1ST FORMED MINERALS STAY IN
LIQUID AND REACT WITH IT OR ARE
REMOVED FROM THE LIQUID AND DO NOT
REACT WITH IT—COMPOSITION**
- 3. RATE OF COOLING—TEXTURE**
- 4. VOLATILES—TEXTURE AND COMPOSITION**
- 5. ASSIMILATION—COMPOSITION**

COMPOSITIONS OF MAGMA/LAVA

	% SiO₂ (not quartz)
1. ACIDIC (GRANITIC/RHYOLITIC)	>70%
2. INTERMEDIATE (DIORITIC/ANDESITIC)	55-65%
3. BASIC (GABBROIC/BASALTIC)	<50%

POSSIBLE IGNEOUS ROCK TEXTURES:

PHANERITIC

PORPHYRITIC PHANERITIC

PHANERITIC PORPHYRITIC

APHANITIC

PORPHYRITIC APHANITIC

APHANITIC PORPHYRITIC

GLASSY

PORPHYRITIC GLASSY

GLASSY PORPHYRITIC

FRAGMENTAL

TABLE 4-1. USAGE OF THE WORDS *PORPHYRITIC* AND *PORPHYRY* FOR AN IGNEOUS ROCK CONTAINING POTASH FELDSPAR AND QUARTZ

% Phenocrysts	Groundmass	Texture	Rock Name
0-5%	Phaneritic	Phaneritic	Granite
5-25%	Phaneritic	Porphyritic Phaneritic	Porphyritic Granite
> 25%	Phaneritic	Phaneritic Porphyritic	Granite Porphyry
0-5%	Aphanitic	Aphanitic	Rhyolite
5-25%	Aphanitic	Porphyritic Aphanitic	Porphyritic Rhyolite
> 25%	Aphanitic	Aphanitic Porphyritic	Rhyolite Porphyry

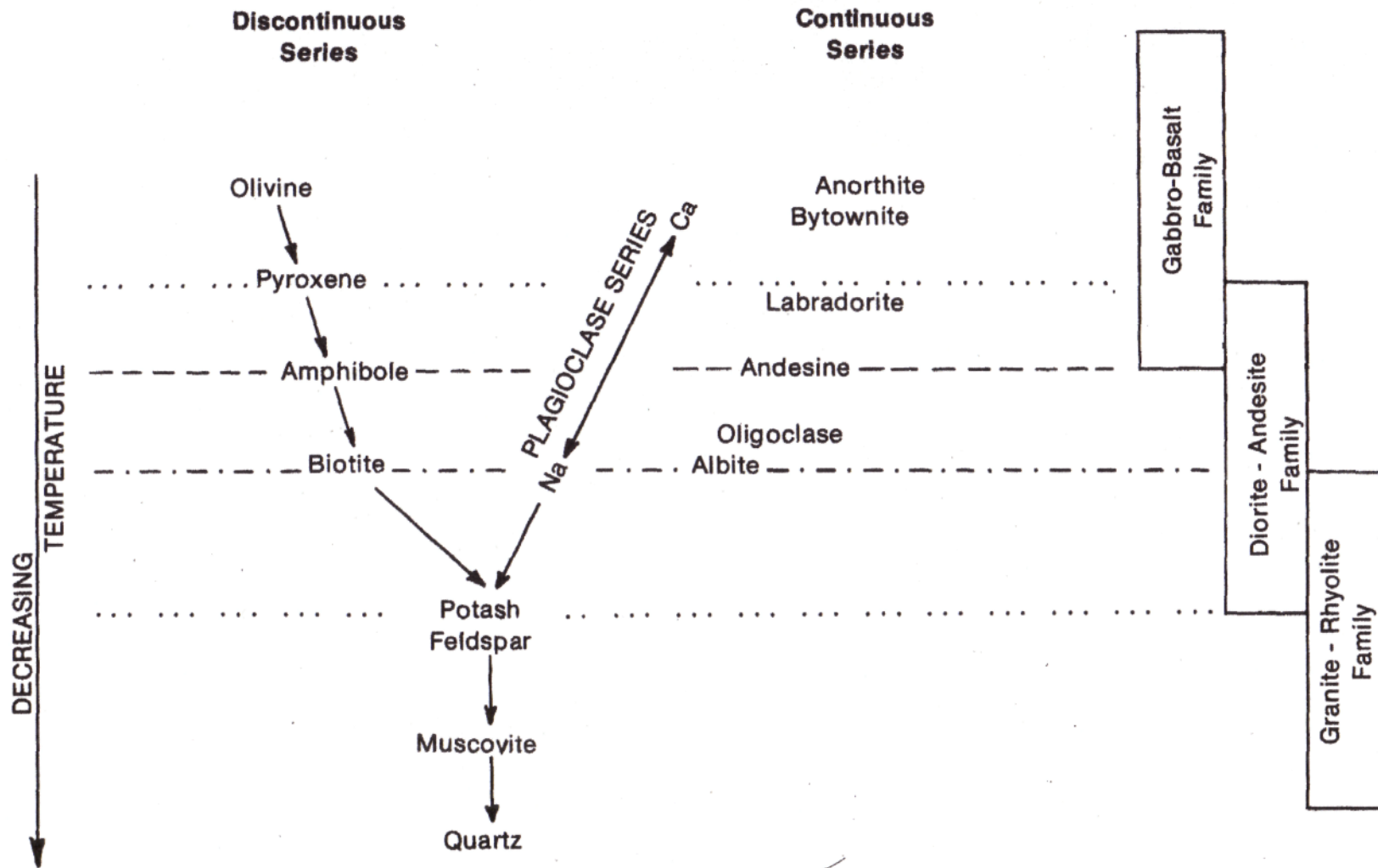
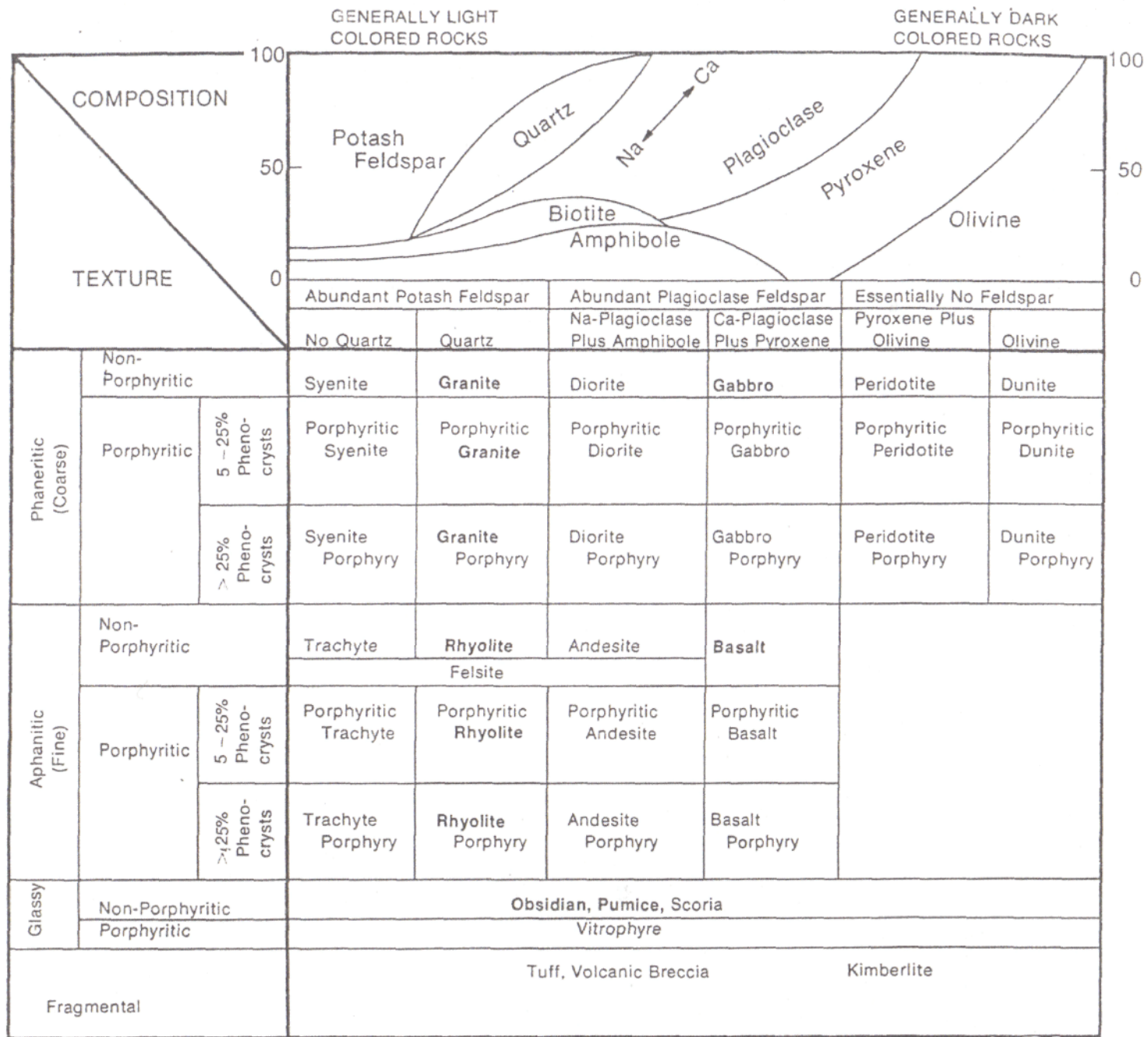


Fig. 4-1. Bowen's Reaction Series



Igneous rock types show in bold print are the most common varieties.

Classification of igneous rocks

