Aphanitic Encyclopedia Article

Aphanitic

The following sections of this BookRags Literature Study Guide is offprint from Gale's For Students Series: Presenting Analysis, Context, and Criticism on Commonly Studied Works: Introduction, Author Biography, Plot Summary, Characters, Themes, Style, Historical Context, Critical Overview, Criticism and Critical Essays, Media Adaptations, Topics for Further Study, Compare & Contrast, What Do I Read Next?, For Further Study, and Sources.

(c)1998-2002; (c)2002 by Gale. Gale is an imprint of The Gale Group, Inc., a division of Thomson Learning, Inc. Gale and Design and Thomson Learning are trademarks used herein under license.

The following sections, if they exist, are offprint from Beacham's Encyclopedia of Popular Fiction: "Social Concerns", "Thematic Overview", "Techniques", "Literary Precedents", "Key Questions", "Related Titles", "Adaptations", "Related Web Sites". (c)1994-2005, by Walton Beacham.

The following sections, if they exist, are offprint from Beacham's Guide to Literature for Young Adults: "About the Author", "Overview", "Setting", "Literary Qualities", "Social Sensitivity", "Topics for Discussion", "Ideas for Reports and Papers". (c)1994-2005, by Walton Beacham.

All other sections in this Literature Study Guide are owned and copyrighted by BookRags, Inc.



Contents

Aphanitic Encyclopedia Article.....1

Contents.....2

Aphanitic.....3

Aphanitic

Crystalline rocks with mineral grains that cannot be distinguished from one another without magnification have an aphanitic igneous texture. **Igneous rocks** form by crystallization of **minerals** from liquid **magma** rising into the upper portion of Earth's **crust** from the lower crust and underlying mantle. Igneous **rock** texture indicates the rate of magmatic cooling. Crystallization takes place either slowly in deeply buried intrusions called plutons, or rapidly at the earth's surface where magma has been extruded as **lava** by volcanic activity. Igneous rocks are therefore classified as either intrusive (plutonic) or extrusive (volcanic). Slow, undisturbed cooling in a well-insulated pluton is conducive to orderly arrangement of atoms and molecules into large, well-formed **crystals**. Rapid cooling from a lava flow is not. Intrusive igneous rocks thus have coarse-grained, or phaneritic, textures with visible crystals, and extrusive igneous rocks have fine-grained, or aphanitic, texture. Volcanic **glass**, called **obsidian**, forms when lava is quenched and solidified so quickly that the silicate ions in the melt form no orderly atomic structure.

Texture indicates the rate at which an igneous rock cooled, but it has no relationship to the chemical or mineralogical composition of the rock. Aphanitic, extrusive, igneous rocks therefore have coarse-grained, intrusive counterparts with the same chemical and mineral composition. For example, the silica-rich extrusive rock, **rhyolite**, common in continental volcanic regions, is the fine-grained equivalent of intrusive **granite**. Both rock types are composed mainly of the silicate minerals **quartz** and orthoclase **feldspar**, but the crystals in the rhyolite are too small to see without a microscope. **Basalt**, the **iron** and magnesium-rich extrusive igneous rock that comprises the majority of the sea floor, has the same composition as the intrusive rock gabbro. The intermediate-composition extrusive igneous rock, **andesite**, is common in volcanic arcs above subduction zones, and its coarse-grained equivalent, diorite, is found in plutons along these same convergent plate tectonic margins.

See Also

Pluton and Plutonic Bodies