

Caliche Encyclopedia Article

Caliche

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

Caliche Encyclopedia Article.....	1
Contents.....	2
Caliche.....	3

Caliche

Caliche and calcrete are obsolete terms for well-developed calcic horizons that are common to soils in arid and semi-arid areas, and which are now known to **soil** scientists and geomorphologists as Bk or K horizons. Caliche is also a colloquial term that has many different uses among miners in Spanish speaking countries.

Calcic horizons form by the gradual **precipitation** of calcium carbonate (CaCO_3) and, to a lesser extent, magnesium carbonate (MgCO_3) within the B horizon of a soil and follow several well-documented stages of development ranging from I to VI. Stage I calcic soil horizons consist of partial carbonate coatings over the bottoms of gravel particles in the B horizons of coarse grained soils and thin carbonate filaments in the B horizons of fine grained soils. By stage III, carbonate is continuous throughout the zone of accumulation, and the zone of carbonate accumulation is known as the K horizon. Stages IV through VI are characterized by complete carbonate cementation of the former soil and, ultimately, brecciation. These most highly developed calcic horizons are sometimes referred to as petrocalcic because of their rock-like nature, and often form cap rocks atop bluffs and escarpments in arid to semi-arid regions such as the southwestern United States.

The primary source of carbonate in calcic soils is atmospheric, both as carbonate rich dust and rainwater that percolates through the soils carrying dissolved bicarbonate ions. In rare cases, calcic horizons can be formed by other processes such as the upward wicking of carbonate-rich **water** from shallow water tables. Gypsic or halic soils are formed in arid environments when **gypsum** ($\text{CaSO}_4 \cdot \text{H}_2\text{O}$) or halite (NaCl) are precipitated instead of carbonates.

Rates of soil development are controlled by many factors, so universal conclusions about the time required to form calcic soil horizons cannot be drawn. Studies in southern New Mexico have shown, however, that Stage I calcic soils can be hundreds to thousands of years old, Stage II calcic soils can be thousands to tens of thousands of years old, and Stage III and higher calcic soils can be tens to hundreds of thousands of years old.

See Also

Breccia; Desert and Desertification; Limestone; Soil and Soil Horizons