

PARAMORPHE

Le mot « paramorphe » a plusieurs sens: minéralogique, biologique, mathématique, etc. Les extraits qui suivent donnent une idée de la diversité de ces sens.

Le sens que nous utilisons dans ce texte est celui de la minéralogie ou de la géologie.

Un paramorphe est un minéral cristallin, qui sous certaines conditions physiques, change d'apparence ou de structure physique, paraissant être ou devenir un autre minéral, alors qu'il conserve la même composition chimique, les mêmes propriétés et réactions chimiques.

L'esprit est un paramorphe de corps: il ne semble pas être un corps physique mais il réagit de la même façon que le corps, c'est-à-dire que, qu'on parle de corps ou d'esprit, on observe toujours les mêmes réactions et comportements.

Paramorph - A chemically identical crystal compared with the original, but the atoms have been rearranged so that they no longer conform to the original outline.

<http://www.geology.wisc.edu/~jill/glossary.html>

Pris sur le Web le 7 septembre 2002 (16h16)

Pseudomorphs - A Pseudomorph is a mineral whose outward crystal form is that of another mineral species and is described as being "after" the mineral whose outward form it has. Several categories of Pseudomorphs are recognized.

Alteration Pseudomorphs occur where the original mineral lost or gained one or more elements to form the new mineral. This is the most common type of Pseudomorph. Examples are tinalconite after borax (loss of water), gypsum after anhydrite (gain of water), and limonite after pyrite (gain of oxygen and water, loss of sulfur).

Replacement Pseudomorphs occur when the original mineral is completely removed and replaced by something different. This is less common. It can be difficult or impossible to distinguish this form from alteration Pseudomorphs if the original and final minerals share a common element. Examples are: copper after aragonite (Brazil) and petrified wood (quartz or opal after wood).

A **Paramorph** occurs when a mineral changes crystal structure after it is formed without any gain or loss of material. This may happen as the mineral cools over time. Examples: Aragonite is unstable at or near surface conditions and slowly (over millennia) changes to calcite. Acanthite after argentite - the sulfide-Argenite is cubic and exists only above 180 C. At ordinary temperatures it transforms to orthorhombic acanthite. Incrustation Pseudomorphs are coatings of one mineral over a crystal of another. The original inner mineral may or may not subsequently be dissolved to leave a hollow mold. Common examples: quartz encrusting fluorite and prehnite after laumontite. You may find good examples in Colorado and New Mexico for calcite paramorphs after aragonite.

Transparent glauberite crystals may be collected which can be seen to become cloudy as glauberite changes to gypsum. Quartz and chalcedony commonly form pseudomorphs after crystals or nodules of barite, gypsum or calcite. (via Golden Spike News 10/96)

http://www.marcuswhitman.net/Htmls/Newsletters/New_apr_2001.htm

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A **paramorph** is a mineral of the same chemical composition, but which crystalizes in a different crystal system as the original it replaced. In this specimen, brookite formed first and as the temperature rose, rutile began to replace it. Both minerals have the same chemical formula, but are stable at different temperatures. So this example retains the external crystal shape (form) of brookite, but is now composed of numerous interlocking small crystals of rutile.

<http://rockhoundingar.com/locations/magcovegal.html>

Pris sur le Web le 7 Septembre, 2002 (4:27pm)

Paramorph, n. [Pref. para- + Gr. form.] (Min.) A kind of pseudomorph, in which there has been a change of physical characters without alteration of chemical composition, as the change of aragonite to calcite. -- Webster 1913

<http://onlinedictionary.datasegment.com/word/Paramorph/>

Paramorphism, n. (Min.) The change of one mineral species to another, so as to involve a change in physical characters without alteration of chemical composition. -- Webster 1913

<http://onlinedictionary.datasegment.com/word/Paramorphism/>

Paramorphous, a. (Min.) Relating to paramorphism; exhibiting paramorphism. -- Webster 1913

<http://onlinedictionary.datasegment.com/word/Paramorphous/>

Pris sur le Web le 7 Septembre, 2002 (4:30pm)

Paramorph

A crystal formed by the conversion of one mineral polymorph (see Polymorphism) to another. The polymorphs of silica provide a good example. If the high-temperature form, cristobalite, converts to a lower-temperature form, e.g. tridymite, the tridymite would form a paramorph.

A Dictionary of Earth Sciences, © Oxford University Press 1999

<http://w1.xrefer.com/entry/617449>

Pris sur le Web le 7 Septembre, 2002 (4:39pm)

Paramorph - A chemically identical crystal compared with the original, but the atoms have been rearranged so that they no longer conform to the original outline.

<http://www.geology.wisc.edu/~jill/glossary.html>

Pris sur le Web le 7 Septembre, 2002 (4:40pm)

Paramorph - A pseudomorph involving two minerals with an identical composition but different crystal structures. The original mineral forms, but conditions then cause it to be unstable, so it transforms into the other mineral with the same chemical structure while retaining the original crystal shape. An example of this is Aragonite (CaCO₃ - Crystallizes in orthorhombic system) that becomes unstable and transforms into Calcite (CaCO₃ - Crystallizes in trigonal system), but retains the original orthorhombic shape.

<http://www.rcj.ca/Information/Glossary/p/paramorp.htm>

http://www.rcj1.com/Information/Glossary/gloss_p.htm

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THE MINERAL SUSANNITE

Chemistry: Pb₄SO₄(CO₃)₂(OH)₂, Lead Sulfate Carbonate Hydroxide.

Class: Carbonates

Uses: Only as mineral specimens.

Specimens

Susannite is a rare cousin of the mineral leadhillite. The two minerals are dimorphs. A dimorph is a mineral that shares the exact same chemistry with another mineral, but their structures are different (di in latin means two and morph in latin means shape). Typically the different structures make the symmetries different as well. In this case, susannite is a trigonal mineral while leadhillite is monoclinic in symmetry. Susannite is the higher temperature phase of the two and forms when warm fluids oxidize the lead ore deposits. However, leadhillite is the stable form at normal temperatures and pressures and many specimens of susannite may actually have converted to leadhillite.

Such crystals are called paramorphs (para means along or alongside; but in this case, paramorph means same chemistries, but with different structures). Paramorphs are a type of pseudomorph (pseudo means false). A pseudomorph is a crystal that has its internal structure either altered or completely replaced by a different mineral; but still retains its outward shape. Often a pseudomorph is one in which the original mineral is completely different from the pseudomorphing mineral such as when quartz replaces riebeckite for example. In the case of susannite, the internal structure of susannite converts to the more stable structure of leadhillite but retains susannite's rhombohedral form. And since the two minerals are dimorphs, the chemistry stays the same and hence they are paramorphs!

But the confusion does not stop there. There actually is another mineral that has the same chemistry and . . . you guessed it . . . a different structure. The mineral is called macphersonite and is orthorhombic in symmetry. This makes susannite, leadhillite and macphersonite a complete set of trimorphs (the tri means . . . ah, enough already).

PHYSICAL CHARACTERISTICS:

Color is colorless, white, greenish or yellowish.

Luster is adamantine to resinous.

Transparency: Crystals are transparent to translucent.

Crystal System is trigonal.

Crystal Habits include platy rhombohedral crystals that may actually be paramorphed into leadhillite.

Cleavage is perfect in one direction (basal).

Hardness is 2.5 - 3

Specific Gravity is 6.5 (very heavy for a translucent mineral)

Streak is white.

Other Characteristics Some specimens are fluorescent.

Associated Minerals include leadhillite, galena, anglesite, linarite and cerussite.

Notable Occurrences include the type locality at Susanna Mine, Leadhills, Lanarkshire, Strathclyde, Scotland and the Mammoth-Anthony Mine, Tiger, Pinal County, Arizona.

Best Field Indicators: Crystal habit, color, luster, density and locality.

<http://mineral.galleries.com/minerals/carbonat/susannit/susannit.htm>

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Paramorph

A variant form within a species for which a more specific description does not exist because its taxonomic status cannot be determined.

A Dictionary of Biology, Oxford University Press, © Market House Books Ltd 2000

<http://w1.xrefer.com/entry/462588>

Pris sur le Web le 7 Septembre, 2002 (4:36pm)

Vous pouvez lire aussi les textes suivants pour d'autres sens du mot paramorphe.

Sens mathématique : Le numéro pdf du *Poisson mort*, écrit par des étudiants de l'École normale supérieure, numéro 28 - septembre 2001 <http://www.eleves.ens.fr:8080/cof/pmort/numeros/pm28/pm28.pdf>

Sens théorique : Brian D. Haig (1995) Grounded Theory as Scientific Method. *The Yearbook of the Philosophy of Education Society*. http://www.ed.uiuc.edu/EPS/PES-Yearbook/95_docs/haig.html